Impact of Macroeconomic Variables on Commercial Bank Deposits in Nigeria

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Abstract

This study critically examined the relationship between macroeconomic variables and commercial bank deposit in the Nigerian banking sector. Macroeconomic variables was proxied by inflation rate, and Gross domestic product (GDP), The study which is ex-post facto, relied mostly on secondary data which were collected through the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) statistical bulletin from 1989-2020. Simple regression Ordinary Least Square (OLS) statistical tool was applied to establish the like fit to the observed data and the degree of relationship that exist between variables. This study aims at examining whether inflation rate and Gross domestic product (GDP) impacts positively or otherwise on Commercial Bank deposits in the Nigerian Banking Sector. The test was employed to establish the causal relationship between the variables. Findings revealed among others that inflation rate measures has positive and significant relationship with commercial bank deposit in Nigeria, while Gross domestic product has positive and significant relationship with commercial bank deposits in Nigeria. The study therefore recommended that Banks should encourage people to save more by fixing the interest deposit based on the level of customer's deposit such that customer's who deposit more of their surplus income should earn higher interest rate to act as compensation against the rising trend in inflation.

Keywords: Nigerian Banking Sector, Bank Deposit, Macroeconomic Variables

INTRODUCTION

The Nigerian Banking Sector performs two major functions of mobilizing surplus funds from the various economic units such as Government, business and household units and then channeling them in the form of loans and advances to the deficit sectors of the economy for productive investment. Bank deposit is an indispensable factor to increase the sources of the banks to serve effectively. Commercial bank deposits play an important role in providing satisfactory service to different sectors of the economy. The Deposit Money Banks must tap deposits from urban and rural areas. The truth is that the success of the banking sector greatly lies on the bank depositsand the bank depend on deposits, as the deposits are normally considered as a cost effective source of working fund. Macroeconomic Variables are certain factors affect the Commercial bank deposits efforts of the Nigerian banking sector. These factors can be either internal or external to the bank. The internal factors are those that are peculiar to banks and thus can be managed effectively to achieve the desired objective of increased deposits. The external factors which are the macroeconomic factors are those that are beyond the control of the bank. They include inflation rate, Gross domestic product (GDP) and all other external factors that can only be managed by the government and regulatory agencies. However, this paper will focus on the inflation rate and the Gross Domestic Product (GDP). The general growth of the economy is reflected by the macroeconomic aggregates including the gross domestic product (GDP), and inflation, amongst others.Banks therefore adjust the increase of deposit in response to the signals from these factors, such that positive signals make banks become more favourably disposed to attracting more deposit and vice versa. It has been observed that the Nigerian economy has experienced series of macroeconomic fluctuations in recent times most especially in the area of inflation rate. Also, there has been failure of the macroeconomic policy makers to achieve a stable economic environment that will be conducive enough for banks to operate.

It was put forward that in spite of the ongoing economic recovery, the macro environment in Nigeria remains in a period of significant uncertainty as the country continue to experience series of instability and volatility in macroeconomic factors. For instance, the inflation rate rose sharply from 7.9% in 2013 to

16.5% in 2017 and it keeps on rising. There has been currency depreciation since between naira and dollar such that it rose from ₦150.30/$1 in 2010 to ₦305.58/$1 in 2018 as a result of the inflation. All these changes in macroeconomic conditions pose a serious challenge to the Nigerian banking sector in terms of Commercial Bank Deposits. There has been growing empirical literature on the macroeconomic variables in Nigeria and in other countries of the world. Its effect on Commercial Bank Deposits has been neglected over the years and thus demands investigation. There are few empirical literatures on the aspect of Commercial Bank Deposits bearing in mind that without bank depositsthe economy will not move forward. Thus, it is against this backdrop that the researcher is motivated to examine how changes in the macroeconomic variables affect Commercial Bank deposits of the Nigerian banking sector. However, this study sets out to specifically examine, whether changes in the macroeconomic environment proxied by inflation rate and Gross domestic product (GDP) impacts positively or otherwise on Commercial Bank deposits in the Nigerian Banking Sector. In the Nigerian banking sector comprised of commercial banks. A progressive banking sector plays a vital role in the economic growth of the country and its growth is essential for the well-functioning banking sector, therefore, it is important to understand those factors which have some effect on Commercial Bank Deposits. During the last few years, financial markets and institutions in Nigeria have witnessed the significant change in terms of consolidation as well as diversification. Moreover the global financial crisis also affects the banks in Nigeria. It is reasonable to assume that all of the above changes pose great challenges to Nigerian banks as the environment in which they operate has changed rapidly. Hence, the present study is focused to understand the effects of the macroeconomic variables on the Deposits of Commercial Banks in Nigeria. The basic hypothesis underlying tjhis study is stated thus;

H0₁: Macroeconomic Variables: Inflation rateand Gross domestic product (GDP) have no significant relationship with the deposits of Commercial Banks.

LITERATURE REVIEW

Conceptual Framework

Bank Deposits

According to Section 61 of the bank and other financial institutions act no 25 of 1991 as amended, deposits are money lodged with any person whether or not for the purposes of any interest or dividend and whether or not such money is repayable upon demand, upon a given period of notice or upon a fixed date. Bank Deposit can be related to the creation of credits in which the banks would have special campaigns where they would interact with a lot of people and invite them to make deposits with their bank. Deposit mobilization is defined as the process of encouraging customers to deposit cash with the bank or attracting new clients to come and open accounts with the bank. Dank deposits can be seen as an agreement between the client and the bank under which the customer is to deposit a sum of money with the bank for the purpose of conservation or investment and the bank undertakes to refund the money to the client at a certain date upon request, according to terms agreed upon in advance. Bank Deposit is one of the oldest businesses of bankers. It is the earliest source from which bankers got the funds they use. Sourcing for bank deposits is one of the important functions of banking business. It is an important source of working fund for the bank. BankDeposit is an indispensable factor to increase the sources of the banks to serve effectively. it plays an important role in providing satisfactory service to different sectors of the economy. The success of the banking greatly lies on the deposits. Bank depositsvdepends on the 4 cost of deposits. Bank Deposits for a bank is as essential as oxygen for human being., banks take steps to minimize the expenditure and are forced to lower cost deposits, banks serve as intermediaries accepting commercial and individual deposits (saving) to a bank, deposits is its main source of finding for which it uses to produce income. Some literature has cited that deposits contribute 75 percent of a bank's total fund. Banks receive deposits on three major types of accounts, namely: demand deposit account (current account), savings account and time (fixed) deposit account.

Inflation Rate and Commercial Bank Deposits

Inflation is described as a general and persistent increase in the prices of goods and services in an economy. Inflation affects Commercial bank deposits in two ways. First is that it reduces the purchasing power of money and hence leads to high cost of living implying that a household can purchase very little with their available income and thus may be left with little or nothing to deposit in the bank. Secondly, in a situation when there is hyperinflation i.e rapid, excessive and out-of-control price increases in an economy, cash or savings deposited in the banks decreases in value or becomes worthless since the money has far less purchasing power. Thus, people may decide to convert their deposits and cash into hoarding of goods with the expectation that prices may increase further in future and hence might not deposit their money in the bank. with respect to the effect of inflation on savings, all individuals who save a part of their incomes in banks are directly damaged by the inflation and their assets decreases in proportion with money value decrease.

GDP and Commercial Bank Deposits

GDP is the market value of all goods and services produced in a country over a period of one year and are one of the primary indicators used to gauge the economic growth of a country. Evidently, there is a positive relationship between the GDP growth rate and bank Deposits. During period of high economic growth, there is increase in the demand for goods and services and as such there is potential for higher profits and producers will deposit more of their surplus earnings in the bank and deposits are bound to increase while period of depression is associated with lower earnings on investments which will invariably reduce bank deposits.

Empirical Review

Dr. (Smt.) Rajeshwari M. Shettar (2014) the study entitled as “Deposit Mobilization and Socio-Economic Impact: A Case Study of Union Bank of India” The study is a modest attempt to analyze the socioeconomic impact of bank deposits. Deposit mobilization is an integral part of banking activity. Mobilization of savings through intensive deposit collection has been regarded as the major task of banking in India today. Acceptance of deposits is the primary function of Commercial Banks. As such deposit mobilization is one of the basic innovations in current Indian Banking activity. In this paper, an attempt is made to analyze the socio-economic impact of deposit mobilization. Three different types of deposits namely, term deposits, current deposit and savings deposit is considered for the study. The data required for the study has been collected from Union Bank of India Annual Reports. Hassan O. M (2013) evaluated the effect of interest rate on commercial bank deposits in Nigeria covering period of 2000 to 2013. Using the Ordinary Least Square (OLS) multiple regression techniques; the study revealed that there is a negative relationship between the interest rates and the commercial bank deposits suggesting that interest rates has not been responsible for customers deposits in commercial banks in Nigeria.

Rao and Lakew (2012) explored the key determinants of profitability of commercial banks operating in Ethiopia using panel data set of banks over the period 1999/00- 2008/09. The external factors were related to the industry and the macroeconomic scenarios within which the banks operate. The result of the study indicated that external factors had a statistically insignificant effect. Inflation was found to be statistically insignificant but it is positively related to bank profitability. Real GDP growth rate effect was found to be statistically insignificant though with a positive sign. Shemsu (2011) aimed to identify and evaluate those factors affecting bank deposit in general by taking Commercial Bank of Ethiopia as evidence. Estimation was done using Ordinary Least Squares technique by E-views7 statistical package. The results from economic analysis showed that all the explanatory variables were positively correlated with the explained variable. Among these variables, branch opening is an important strategy for deposit mobilization, it is highly significant than others. Individual remittances from diasporas is also next to branch opening is significantly affects CBE’s deposit. The others are affects positively and can increase CBE’s deposit.

Theoretical Framework

Arbitrage Pricing Theory

This study is based on the Arbitrage Pricing Theory (APT) proposed by Ross. Ross introduced the Arbitrage Pricing Theory (APT) as an alternative to the Capital Asset Pricing Model (CAPM). The APT is a multifactor model that has the potential to overcome CAPM weaknesses: it requires less and more realistic assumptions to be generated by a simple arbitrage argument and its explanatory power is potentially better. The APT permits the researcher to choose whatever factors that provides the best explanation for the data but it cannot explain variation in asset return in terms of a limited number of easily identifiable factors. According to Ross, APT essentially seeks to measure the risk premium attached to various risk factors and attempts to assess whether they are significant and if they are priced into stock market returns. By employing factor analysis, he asserted that there are several systematic factors (industry specific and macroeconomic) that affect the security returns besides a security's beta, that is, the sensitivity of the individual security to the changes in the market return, such as gross domestic product, inflation and so on, which could affects differently. Therefore, in examining the relationship between Commercial Bank Deposits and macroeconomic variables, the APT suffices. This is given that; the APT is based on Multi-factor linear model which permits a combination of factors. The APT provides ideal theoretical foundations for the study since the study considers some macroeconomic variables.

METHODOLOGY

The study adopts an expost facto research design. There are two variables: independent and dependent. The dependent variable is Commercial Bankdeposits in Nigeria. The independent variables are the macroeconomic variables. Macroeconomic variables are proxied by inflation rate and Gross domestic product (GDP). Based on the nature of the study, data collection was based on secondary data. The study sourced data from Statistical Bulletin of the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). The source of data for the study covers for the period between 1989 and 2020. The model for this study is a modified version which is stated as follows

CBD = *f* (INF, GDP)

Transforming equation 1 above to econometric method,

Where:

CBD = Commercial Bank Deposits

INF = Inflation

GDP = Gross Domestic Product

μ = Error Term

β1 – β9 = Coefficient of Independent Variables to the Dependent Variable

β0 = Regression Intercept.

RESULT AND DISCUSSION

Table .1: Descriptive statistics

	LOGGDP	INFL	LOGCBD
Mean	5.119355	15.57097	3.261290
Median	6.000000	12.90000	3.310000
Maximum	13.00000	47.20000	4.410000
Minimum	0.200000	5.400000	1.430000

Std. Dev.	2.867219	9.671442	0.968579
Skewness	0.354514	1.852686	-0.410126
Kurtosis	3.344414	6.067731	1.786487
Jarque-Bera	0.802565	29.89014	2.771176
Probability	0.669461	0.000000	0.250177
Sum	158.7000	482.7000	101.1000
Sum Sq. Dev.	246.6284	2806.104	28.14435
Observations	31	31	31

Descriptive analysis is primarily used to describe the sample. To test the impact of Macroeconomic variables on Commercial Bank Deposits in Nigeria. the inferential statistic- correlation and panel regression analysis is used. The descriptive statistics table above displays the interpretation of the study statistical summary of analysis. This range from mean, median, maximum, minimum, deviations values of the study variables. The explanatory concern of this study focuses on the skewness, Kurtosis, Jarque-Bera and the probability statistical values of the study. Knowing thickness, and flatness of the distribution of the series, is to test the normality of the variables using Jarque-Berra, and using Kurtoises and Skewnes. Skewnes measures the asymmetry of the series and normal skewnes is said to be '0 skew', that is, distribution is asymmetry around its mean value. But if the value is high, it is negatively skew. The variables measurement is as such that Inflation has a long –right tail (positive) skew and leptokurtic because of the value 6 is greater than 1. Again, Jaque Berra: the test statistic that measures the difference of the skewness and Kurtoises of the series with those from the normal distribution. While probability is the probability that Jaque-Berra statistics exceeds (absolute values), the observed value leading to the acceptance or rejection of the null hypothesis of a normal distribution.

Table .2: Ordinary Least Square

Dependent Variable: LOGGDP
Method: Least Squares
Date: 08/18/22 Time: 12:42
Sample: 1989 2020
Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.427935	2.267682	2.834584	0.0084
LOGCBD	0.195402	0.539262	0.362351	0.7198
INFL	-0.124966	0.054006	-2.313922	0.0282

R-squared	0.203032	Mean dependent var	5.119355
Adjusted R-squared	0.146106	S.D. dependent var	2.867219
S.E. of regression	2.649494	Akaike info criterion	4.878380
Sum squared resid	196.5549	Schwarz criterion	5.017153
Log likelihood	-72.61489	Hannan-Quinn criter.	4.923617
F-statistic	3.566579	Durbin-Watson stat	1.460067
Prob(F-statistic)	0.041703		

Source: Computed by the Researcher using E-views 10 Econometric Software

The above table demonstrates the results of Ordinary Least Square Regression for impact of macroeconomic variables on Commercial Bank Deposits for the study period of 1989 to 2020. When

Commercial Bank Deposits is a dependent variable, R-square is 0.203 indicating that, 20.3 per cent of performance variation is accounted for by the combined linear impact of independent variables. Adjusted R square value is 0.146, implying that the model has accounted for 14.6 per cent of the variance in the criterion variable. The F-statistics is significant at all variables means that the hypothesized relationship between the Commercial Bank deposit and macroeconomic variables is validated. The value of Durbin-Watson statistics is 1.46 signifying that the model is suffering from Auto-correlation.The coefficient for impact of macroeconomic variables on Commercial Bank Deposits implies that Gross Domestic Product and Inflation are significant at 5 per cent significance level. T-Statistic values prove that Gross Domestic Products has positive relationship with Commercial Bank Deposits which means the total number of goods produced in a country persuades the Commercial Bank Deposits. Inflation Rate has Positive but significant impact on Commercial Bank Deposits which means the Inflation Rate sources converse impact in Commercial Bank Deposits.

Table 3: Serial correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.823203	Prob. F(2,26)	0.4501
Obs*R-squared	1.846120	Prob. Chi-Square(2)	0.3973

Changes in Gross domestic product and Inflation have significant positive impact on Commercial Bank Deposits in Nigeria. This is confirmed by their coefficient and probability as follow: GDP (0.4501), INF (0.3973). This evidence suggests that a 1% rise in these variables (GDP and Inflation) increases the Commercial Bank Deposits in Nigeria. Both variables agree with the a-priori expectation of the study.

Table 4: Correrlation matrix

Covariance Analysis: Ordinary
Date: 08/18/22 Time: 12:47
Sample: 1989 2020
Included observations: 31
Balanced sample (listwise missing value deletion)

Correlation t-Statistic Probability	LOGGDP	INFL	LOGBN
LOGGDP	1.000000 ----- -----		
INFL	-0.446425 -2.686648 0.0118	1.000000 ----- -----	
LOGCBD	0.225019 1.243661 0.2236	-0.377227 -2.193482 0.0364	1.000000 ----- -----

The Pearson correlation coefficient (r) is employed to establish the measures of associations between the variables. The table above shows the Pearson correlation coefficient (r) and the respective probabilities of the relationship between Macroeconomic Variables (GDP and INF) and Commercial Bank Deposits. The results show that the coefficient of the correlation between GDP and CBD stood at 0.2250195 which is

positive. This implies that an increase in GDP would lead to a substantial increase in CBD. This is supported by its p-value stating that the correlation is not significant at 5%. The coefficient of the correlation between INF and CBD stood at -0.446425, which is equally negative but strong. This implies that an increase in INFmay lead to a decrease in CBD. Furthermore, the coefficient of the correlation between INF and CBD stands at -2.686648, which is negative. This implies that an increase in INF would lead to a minimal increase in CBD.

Table 5: Heteroskedasticity test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	11.48863	Prob. F(2,28)	0.0002
Obs*R-squared	13.97280	Prob. Chi-Square(2)	0.0009
Scaled explained SS	17.66415	Prob. Chi-Square(2)	0.0001

The heteroskedasticity test is a post estimation test, which is usually conducted after the hypothesis. This is to make sure the variables are evenly distributed and to show whether the model used is accurate. And to note if the result can be relied upon. The Heteroskedasticity test above, which is Breusch-Pagan-Godfrey has an F-statistic of 0.0002 and the probability Chi-Square is at 0.0009 which shows that the variables are evenly distributed.

Decision Rule: The decision rule for accepting or rejecting the null hypothesis for any of these tests will be based on the prob-value of the F- statistic. If the value is less than 5%(0.05) it implies that the regressor in question is statistically significant at 5% level; and if the value is more than 5% or 0.05 (that is, if Value> 0.05), it is categorized as not significant at that level. This implies that the level of significance for the study is at 5% (for the two-tailed test). Thus, the decision rule for accepting or rejecting the null hypothesis is based on both the Probability Values.

Test of Hypotheses

H_o: we do not have sufficient reason to link the result with the null hypotheses, Given the prob-value of the F-statistic is 0.004 of the regression analysis which is less than 0.05, it means there is enough evidence to rejectthe null hypothesis of the study. This result implies that the overall regression ispositiveandstatistically significant at 4% level of significance, given that the prob-value of the F-statistic value is 0.04 less than 0.05.

Discussion of Findings

This study used two Macroeconomic variables of inflation rate and Gross Domestic Product (GDP) and investigates their impact on Commercial deposits in banks.Two major macroeconomic variables have been incorporated because quantified data of these variables is easily available from secondary resources and in past, these variables have been analyzed most, hence the cumulative study would help in getting a clear picture. INF, and GDPwere used as proxies for Macroeconomic variables.. After analyzing the 31 years (1989-2020) data using simple Ordinary Least Square regression, it is verified that in general, the selected macroeconomic variables contribute noticeably to the deposits of Commercial banks, so in order to maximize the risk-adjusted returns banks have to focus more on these variables toimprove bank deposits. The result of the analysis has shown that Gross domestic product have positive and significant relationship with Commercial Bank Deposits in Nigeria, while inflation rate has negative and significant relationship with Commercial Bank Deposits in Nigeria.

CONCLUSION AND RECOMMENDATIONS

From the findings of this study, it has been observed that macroeconomic variables such as inflation rate negatively but significantly affects Commercial Bank depositsof the Nigerian banking sector and Gross Domestic Product (GDP) positively and significantly affects Commercial Bank Deposits in Nigeria. This shows that the inflation rate in Nigeria has been on the increase and as such poses serious threat to the

banks in terms of securing more deposits from the public. This calls forn management of Commercial Banks in Nigeria to devise other strategies to manage these changes in the macroeconomic environment. Gross domestic product has significant positive impact on Commercial Bank Deposits in Nigeria. This is confirmed by their coefficient and probability This evidence suggests that a rise in GDP increases the Commercial Bank Deposits in Nigeria.Thus, the study concludes the Commercial Bank Deposits of the Nigerian banking sector are mostly affected by changes in the macroeconomic environment such as inflation rate and Gross Domestic Product (GDP). From the above conclusion, the study therefore recommends that;

i. Banks should encourage people to save more by fixing the interest deposit based on the level of customer's deposit such that customer's who deposit more of their surplus income should earn higher interest rate to act as compensation against the rising trend in inflation.
ii. Banks should be more socially responsive by partnering with the Government and other private sectors in giving loans to individuals to start businesses in the country. This will ensure that a good number of the unemployed persons are into paid employment and are earning. This will in turn boost their deposit base.

References

Ayalew, H.A. (2013), "Determinants of Domestic Saving in Ethiopia": An Autoregressive Distributed lag (ARDL) Bounds Testing Approach. Journal of Economics and International Finance. 5(6) 248 257.

Churchill RQ. (2014). Macroeconomic instability and banks lending behavior in Ghana: European Scientific Journal. 16(10), 397-414

Dr. (Smt.) Rajeshwari M. Shettar (2014), "Deposit Mobilization and Socio - Economic Impact: Case Study", IOSR Journal of Engineering (IOSRJEN), Vol. 04, Issue 05, ||V4|| PP. 21-26.

Dr. K.Karthikeyan and S.Vadivel Raja (2014), "Deposit Mobilization of Public Sector Banks In India Pattern Wise Analysis", International Journal of Business and Administration Research Review, 2(6)July - Sep. 117-121

Elser L. Strict (1999). dollarization and economic performance: Empirical Investigation Journal of Money, Credit and Banking, Eschborn, Washington .DC. 123 (5): 1327-1350

Iwedi M (2017). Impact of Macroeconomic Dynamic on Bank Lending Behavior in International Journal of Economics and Financial Research2(10): 131-139.

Khizer, A.,Farhan, A. M., & Zafar, A. (2011), "BankSpecific and Macroeconomic Indicators of Profitability: Empirical Evidence from the Commercial Banks of Pakistan", International Journal of Business and Social Science 2(6). 235-242.

Mohammad, B.A. (2011), "Impact of Micro and Macroeconomic Variables on Emerging Stock Market Return: A Case on Dhaka Stock Exchange (DSE)", Interdisciplinary Journal of Research in Business

Rao,K,R,M.& Lakew,T,B.(2012), "Determinants of Profitability of Commercial Banks in a Developing Country: Evidence from Ethiopia". International Journal of Accounting and Financial Management Research (IJAFMR) 2(3)1-20.2249-6882.

Ray, Sarbapriya (2013), Towards Examining the Relationship between Industrial Production and Stock Price in India. United States of America Research Journal (USARJ) 1 (03), 36-45.

Selvaraj N, Balaji Kumar P (2015), "A Study on the Deposit Mobilization Pattern of the Dindigul District Central Co-operative Bank Limited", J Tourism Hospit 4:138. doi: 10.4172/2167-0269.1000138.

Sufian,F. & Kamarudin,F. (2012), "Bank-specific and Macroeconomic Determinants of Profitability of Bangladesh's Commercial Banks". Bangladesh Development Studies.

Tafirei Mashamba, Rabson Magweva, Linda C. Gumbo (2014), "Analyzing the relationship between Banks' Deposit Interest Rate and Deposit Mobilization: Empirical evidence from Zimbabwean Commercial Banks (1980-2006)", IOSR Journal of Business and Management, 1(16). VI 64-75. .

Effect of Environmental Cost Disclosure on Profitability of Listed Oil and Gas Firms in Nigeria

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Abstract

The objective of this study was to ascertain the effect of environmental cost disclosure on profitability of oil and gas firms listed on Nigeria Exchange Group between 2010 and 2021. Eleven (11) listed oil and gas firms were purposively sampled. The proxies for environmental cost disclosure include waste management cost disclosure, employee health and safety cost disclosure and environmental remediation cost, while net profit margin was employed as profitability measure. Content analysis was employed while Pearson Correlation Coefficient and Panel Least Square (PLS) Regression analysis via STATA 13 statistical software were used to test the hypotheses of the study. The result of this study showed that waste management cost disclosure, employee health and safety cost disclosure and environmental remediation cost disclosure have a significant positive effect on net profit margin at 5% level of significance respectively. This study therefore recommends among others that since environmental cost is value relevant in making strategic business decision. Thus, oil and gas firms should constantly reposition their accounting system in order to provide information on environmental cost so that the true costs in an organization can be ascertained and properly allocated.

Keywords: Environmental Cost, Profitability, Remediation Cost, Waste Management Cost, Health and Safety cost

INTRODUCTION

The use of natural resources and continuous emissions of greenhouse gases by industries around the world are on increase. This is traceable to industrial revolution of late 18th century where economic activities in many areas moved from agriculture to manufacturing. Production shifted from its traditional locations in the home and thatched workshops to factories. The industrial revolutions lead to economic improvement for most people in the industrialized society. These economic developments are not without costs. Industrialization which required the use of natural resources including energy brought about factory pollutant and greater land use, which harmed the natural environment. This is evidenced in environmental degradation and atmospheric pollution generally experienced in the world and particularly in Nigeria today. However, the increase in global environmental awareness and the campaign for sustainable economic development is redirecting the attention of firms towards environmental sensitivity. Sustainable development as is generally known focuses on the creation of wealth and prosperity, whilst considering the true importance of social and environmental aspects, allowing business and public organizations to meet triple bottom line in sustainable management. The search for sustainability has made various global institutions to set out policies that guide human interaction with the environment. These guidelines have great effect on corporations, as they are made to understand that their business strategies affect the society, can influence behaviour and disorganize the physical, social and economic environment (Ezeokafor & Amahalu, 2019).

Environmental accounting, as defined by Ministry of Environment (2002) in "Environmental Accounting Guidelines",is an account aimed at achieving sustainable development, maintaining a favorable relationship with the community, and pursuing effective and efficient environmental conservation activities. This type of accounting enables a company to ascertain the cost of conserving the environment while carrying out her normal business activities, discover benefits and gains from such activities, and provide the best means possible for quantitative measurement and encourage the communication of the results. Proper disclosure of accounting information relating to the environment is a very important aspect of accountability. Environmental cost disclosure enables companies and other organizations to increase their public trust and

confidence. This however will lead to fair assessment of the organizations. According to an environmental protection agency based in USA, environmental costs include costs of complying with environmental laws. The agency specifically stated that it includes environmental remediation costs, pollution control equipment costs and non-compliance penalty. Based on the meaning of environmental degradation, environmental cost could also cover the cost incurred to prevent degradation, cost of re- stating the environment to its original state, cost of restoring depleted environment to its normal position. Profit ascertainment requires the subtraction of recurrent costs from revenues. Most often, the cost that leads to changes in the environment, which affect people adversely and cause damages to the environment, are not taken into consideration before profits are determined. In other words, the profits could be wrongly determined. The result of this, in most cases, is reporting of wrong and excessive profits which will also mislead the decision makers (Norhasimah*et al.,* 2016). The measure of environmental performance and propensity increasingly emphasizes the awareness and empowerment of stakeholders. The regulation of environmental performance seems to depend crucially on the content and quality of environmental information disclosure. The stakeholders pay much attention to environmental information disclosure and environmental risk measure with an increase of environmental risk and market risk, and they are anxious to capture more environmental information disclosure and improve environmental risk management. Currently it is widely believed that social responsibility reporting, sustainable development reporting and environmental-protection reporting constitute an effective and efficient way to understand environmental performance and environmental risks. Most firms naturally seek the goodwill of neighboring communities, employees, stockholders, investors, financial institutions, local government and citizens.

Environmental cost disclosure is an issue that has captured the attention of national and international, political and business leaders across the globe and the developed world. The creation of wealth has led to various environmental impacts such as depletion of non-renewable resources, global warming, diminution of land resources, acidification, reduction of water resources and potential threats to health and safety of employees. The issue of environmental abuses and degradation has led various sectors, governments and non-governmental organizations (NGOs) to engage with environmental sustainability debates and initiate strategies for responding to the challenges of sustainable development. The environment has a long history of being regarded as unrelated to the economic system (Amahalu*et al.*, 2018). Businesses for many decades have ignored the impact of their activities on the natural and social environment in which they operated, unless it had direct repercussions on the profit and loss account. However, the neglect by business of the negative externalities arising from the pursuit of economic objectives along with various environmental abuses by companies have created less than positive attitudes amongst stakeholders towards business. Rodriguez & Cruz (2017) argued that customers are gradually altering their purchasing attitudes towards behaviour that is more sensitive to the natural and social environment. This then risks a tarnished image for those firms not taking environmental issues seriously. Despite the rising interest in environmental issues, there have been divergent views regarding the nature of the relationship between corporate environmental cost disclosure and profitability. The findings from research to date are equivocal. Some studies purport to find a positive relationship (Amahalu*et al.*, 2017; Russo &Fouts, 2017; Judge & Douglas, 2018). Similar studies found a negative relationship (Thornton *et al.*, 2013; Worrell *et al*., 2015). While others showed either inconclusive results or no (neutral) effect (King & Lenox, 2010; Rocknesse*t al.*, 2016). From the foregoing it is crystal clear that there is a gap in knowledge. In order to resolve the obvious research gap left by the literature in terms of inconclusive outcomes from previous similar studies, to uncover specific and novel evidence that may account for the variability in earlier study outcomes, this study focused on upstream oil and gas companies in Nigeria from 2010-2019; generating three different explanatory data sets (employee health and safety cost disclosure, waste management cost disclosure and environmental remediation cost disclosure). In order to address the issue raised above, the following were hypothesis was formulated in null form:

Ho1: Waste Management Cost Disclosure has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Exchange Group.

Ho2: Employee Health and Safety Cost Disclosure has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Exchange Group.

Ho3: Environmental Remediation Cost Disclosure has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Exchange Group.

LITERATURE REVIEW

Conceptual Clarification

Environmental Cost Disclosure

Environmental costs are costs connected with the actual or potential deterioration of natural assets due to economic activities. Such costs can be viewed from two different perspectives, namely as (a) costs caused, that is, costs associated with economic units actually or potentially causing environmental deterioration by their own activities or as (b) costs borne, that is, costs incurred by economic units independently of whether they have actually caused the environmental impacts (Glossary of Environment Statistics, 2001). Environmental costs are one of the many different types of costs, businesses incur as they provide goods and services to their customers. Environmental performance is one of the many important measures of business success (Ezeokafor & Amahalu, 2019).

Waste Management Cost Disclosure

Waste (or wastes) is unwanted or unusable materials. Waste is any substance which is discarded after primary use, or is worthless, defective and of no use. Examples include municipal solid waste (household trash/refuse), hazardous waste, wastewater (such as sewage, which contains bodily wastes (feces and urine) and surface runoff), radioactive waste, and others. Wastes are substance or objects, which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law (UNSD Glossary of Environment Statistics, 2013). Waste collection and transport can generate up to 70% of the total costs of the system. Separated collection of recyclable supplies additional costs for which the sale of recycled waste often does not compensate, but there is increased pressure to reach the long-term recycling objectives set by law. The proper estimation and monitoring of waste collection costs are essential to define the most cost-effective waste collection system (Dijkgraaf & Gradus, 2017).

Employee Health and Safety Cost Disclosure

Employee Health and Safety Cost is a great way for employees to learn additional skills and knowledge and to reinforce quality work practices which will result in a change in workplace behaviour. Investing in effective employee training will increase skills, knowledge, productivity and morale as well as replace and avoid workplace incidents. Health and safety as a function focuses on securing and promoting safety and health of the persons working for the company including both physical and mental health (Amahalu*et al.*, 2017). Like most other management function this includes developing and implementing health and safety strategies, measuring and following up on performance issues and report these issues to internal and external stakeholders. Ignoring Health and Safety can be expensive. Resulting effects such as occupational accidents cost money for the companies in which they happen, they lead to financial losses for the employees to whom they happen and they cost society money in health care and loss of working capacity.

Environmental Remediation Cost Disclosure

Environmental remediation costs means all costs and expense of actions or activities to cleanup or remove hazardous materials from the environment, to prevent or minimize the further movement, leaching or migration of hazardous materials in the environment, prevent, minimize or mitigate the release or threatened release of hazardous materials into the environment, or injury or damage from such release, and comply with the requirements of any environmental laws. environmental remediation costs include, without limitation, costs and expense payable in connection with the foregoing for legal,

engineering or other consultant services, for investigation, testing, sampling, and monitoring, for boring, excavation, and construction, for removal, modification or replacement of equipment or facilities, for labor and material, and for proper storage, treatment, and disposal of Hazardous Materials (Crane & Scott,2012).

Profitability

Profitability is the state or condition of yielding a financial profit or gain. Profitability is the ability of a business to earn a profit. A profit is what is left of the revenue a business generates after it pays all expense directly related to the generation of the revenue, such as producing a product, and other expense related to the conduct of the business activities (Horton, 2018). Profitability is the primary goal of all business ventures. Without profitability the business will not survive in the long run. So measuring current and past profitability and projecting future profitability is very important. Profitability is measured with income and expense. Income is money generated from the activities of the business. Expense's are the cost of resources used up or consumed by the activities of the business (Amahalu *et al.*,2019).

Net Profit Margin

Net profit margin is the ratio of net profits to revenues for a company or business segment. Typically expressed as a percentage, net profit margins show how much of each naira collected by a company as revenue translates into profit (Amahalu*et al.*, 2016). The equation to calculate net profit margin is: net profit/revenue.

Waste Management Cost Disclosure and Net Profit Margin

Waste management is a serious issue due to its human health and environmental sustainability implications. It is really a pressing issue the world is facing today, since a high percentage of waste is currently disposed of by open dumping (Harts & Ahuja, 2016).To buttress this assertion (Agbo*et al.* 2017) posit that Waste Management is a globally challenging issue especially in developing countries, due to its adverse environmental effects. Prior studies that have analysed the relationship between waste management cost and profitability found varying results. For instance, Abrate*et al.* (2014) found a positive relationship between waste management cost and profitability while Jalil (2010) found a negative relationship between waste management cost and profitability on the other hand Ifurueze, Lyndon and Bingilar (2013) found that waste management cost has statistically significant and negative relationship with profitability.

Employee Health and Safety Cost Disclosure and Net Profit Margin

Despite the fact that people are working and spend most of their working hours at the workplace, little attention and resources are accorded to health and safety at work. In emerging economies, workplace safety and health has been overlooked in their industrial development policy and strategies. They are mostly focused on the production volume or profit undermining the latent effect of dissatisfactory working environment. Safe work places are profitable workplaces, whether measured in a company's bottomline, its market share, its broader consumer reputation, or its ability to attract and retain workers, managers, or investors. Healthy people are expected to contribute more to productivity and innovation. However, absenteeism from workplace site causes productivity loss. Huang *et al.* (2012) evidenced that employee health and safety cost has a positive and significant relationship with profitability, while Nordlöf*et al.* (2015) found no relationship between employee health and safety cost and profitability.

Environmental Remediation Cost Disclosure and Net Profit Margin

The industrial revolutions lead to economic improvement for most people in the industrialized society. These economic developments are not without costs. Industrialization which required the use of natural resources including energy brought about factory pollutant and greater land use, which harmed the natural environment. This is evidenced in environmental degradation and atmospheric pollution generally experienced in the world and particularly in Nigeria today. However, the increase in global

environmental awareness and the campaign for sustainable economic development is redirecting the attention of firms towards environmental sensitivity. Sustainable development as is generally known focuses on the creation of wealth and prosperity, whilst considering the true importance of social and environmental aspects, allowing business and public organizations to meet triple bottom line in sustainable management (Mohammad *et al.*, 2013; Norhasimah*et al.*, 2016).

Empirical Review

Amahalu*et al.* (2017) ascertained how corporate social responsibility (CSR) relates with financial performance of quoted deposit money banks in Nigeria from 2010-2016. Specifically, this study aimed to ascertain the extent of relationship that exists between donation and return on assets; determined the extent of relationship that exists between donation and return on equity and to evaluate the extent of relationship between donations and market-to-book value of quoted deposit money banks in Nigeria. The study employed ex-post fact research design. The sample size of this study consists of the fifteen quoted deposit money banks in Nigeria. Pearson Coefficient Correlation, Panel Least Square (PLS) regression analysis and Granger Causality test were employed via E-View 9.0. The study found a significant positive relationship between return on asset, return on equity, market-to-book value and donations at 5% level of significance. The implication of the findings is that CSR implementation maximizes future returns for deposit money banks in Nigeria. It was recommended among others that since CSR have a positive and significant relationship with financial position, deposit money banks should engage in CSR practices as this will guarantee a safer environment for smooth operations and maximization of shareholders wealth.

Okafor (2018) ascertained the effect of environmental costs on firm performance. To achieve the objective, the study made use of financial reports of Oil and Gas Companies quoted in the Nigeria Exchange Group Market from years 2006-2015. Regression analysis was employed with the aid of Statistical Package for Social Sciences (SPSS). The results of the statistical analysis indicated that better environmental performance positively impact business value of an organization. Moreover, environmental accounting provides the organization an opportunity to reduce environmental and social costs and improve their performance. Nyirenda *et al.* (2018) examined the impact of environmental management practices on the financial performance of a South African mining firm. The major aim of the study was to investigate whether such practices have a close relationship with the mining firm's financial performance (represented by return on equity [ROE]). The approach was a case study of a South African mining firm listed under the socially responsible index (SRI) of the Johannesburg Stock Exchange (JSE). It uses Green-Steel (pseudonym used in place of the real name) as a case study. Using multiple regression statistics, the return on equity of Green- Steel regressed on three environmental management practices of Green-Steel (carbon reduction, energy efficiency, and water usage). The result showed there is no significant relationship between the variables and this lends credence to information gathered from Green-Steel environmental reports that Green- Steel's environmental management practices are driven mostly by a desire to abide by regulations and also by a moral obligation to use environmental management practices to mitigate climate change impact.

Theoretical Discussions

Cradle to Grave Theory

A phrase coined by Walter R. Stahel in the 1970s and popularized by William McDonough and Michael Braungart in (2002). This framework seeks to create production techniques that are not just efficient but are essentially waste free. In cradle-to-cradle production, all material inputs and outputs are seen either as technical or biological nutrients. Technical nutrients can be recycled or reused with no loss of quality and biological nutrients composted or consumed. By contrast, cradle-to-grave refers to a company taking responsibility for the disposal of goods it has produced, but not necessarily putting products' constituent components back into service. Cradle to Cradle concept is a new approach for designing intelligent products, processes and systems taking into account the entire life cycle of the product, optimizing

material health, recyclabilty, renewable energy use, water efficiency and quality, and social responsibility.

Stakeholder Theory

According to Kriyantono (2014), Stakeholder theory pays attention to the concept of who is at risk of being influenced or potentially influencing organizational activities. Stakeholders can be defined as individuals, groups, or organizations, directly or indirectly, who have the potential or possibility to influence the activities of the organization. The stakeholder theory reminds managers to pay attention to all people and groups who can be influenced or influence the goals of the company. Legitimacy Theory The view of Utomo (2019), sees legitimacy theory as a theory that focuses more on the interaction of relationships between organizations and society. Legitimacy is a management system that is oriented on taking the side of the company towards the community. Legitimacy theory explains the social contract relationship between the company and the community, where the company must have integrity in implementing ethics in doing business and increase social and environmental responsibility, so that the company can be accepted by its existence in the community. Legitimacy is considered important for the company because the community's legitimacy to the company is a strategic factor for the company's future development.

METHODOLOGY

The research designs employed in this study are content analysis and *ex-post facto* research design. Content analysis method is concerned with the number of words and sentences on particular information while *ex-post facto* research design, was utilized in order to establish the meaningful relationship between environmental cost disclosure and profitability. The population of this study consists of all the of the fifty four (54) upstream oil and gas companies listed on the Nigeria Exchange Group as at 31st December, 2019. Eleven (11) Oil and Gas companies were selected as the sample size of this study with the utilization of Purposive sampling method. They are: Chevron Nigeria; ELF Petroleum Nigeria (EPNL); Mobil Producing Nigeria; Nexen Petroleum Nigeria; Nigerian Agip Oil (NAOC); Shell Petroleum Development Company of Nigeria; Amni International Petroleum Development; Camac Nigeria; Conoil Producing Company; Nigerian National Petroleum Corporation (NNPC); Yinka Folawiyo Petroleum Company. Data were gathered from the published financial statements of the eleven (11) Oil and Gas companies for a ten (10) year period spanning from 2010-2019, using Purposive sampling method.

This study made use of secondary data precisely. The data were sourced from publications of the Nigeria Exchange Group (NEG), fact books and the annual report and accounts of the selected quoted Oil and Gas companies and stand-alone sustainability report.

This study adopted the Global Reporting Initiative (GRI) framework disclosures according to the G4 guidelines for the purpose of developing the Environmental cost disclosure index. Environmental cost disclosure was evaluated by 34 indicators on policies and systems on social, economic and environmental issue: Employment; Labour/Management Relations; Occupational Health and Safety; Training and Education; Diversity and Equal Opportunity; Equal Remuneration for Women and Men; Investment and Procurement Practices; Non-discrimination; Freedom of Association and Clooective Bargaining; Child Labour; Forced and Compulsory Labour; Security Practices; Indigenous Rights; Assessment; Remediation; Local Communities; Corruption; Public Policy; Anti-Competitive Behaviour; Compliance; Customer Health and Safety; Product and Service Labelling; Market Communications; Customer Privacy; Market Presence; Indirect Economic Impacts; Materials; Energy; Water; Biodivrsity; Emissions, Effluents and Waste; Products and Services; Compliance; Transport. All the above indicators were rated on a scale from 0 to 3 points. When a company does not take into account the specific indicator at all, it is rated with 0 (i.e non-reporting). A company is ranked 1 or 2 depending on the broadness of the description (e.g. 1 if the company only names the indicator and 2 if there is a very poor or unclear description (partial reporting). The company is rated 3 if it takes the indicator into consideration with a

satisfying description (full disclosure). So, a total score for environmental costs disclosure could reach the maximum score of 102 (i.e3x34).

Therefore,

$$ECDI=TDP/MP \quad (1)$$

Where;
ECDI = Environmental Cost
Disclosure Index TDP = Total
Disclosure Points of afirm
MP = Maximum Points for a firm(102)

Research Variables

Independent Variables

The independent variable in this study is environmental cost disclosure which was proxied with: Waste Management Cost, Employee Health and Safety Cost, and Environmental Remediation Cost:

i) Waste Management Cost (WMC): Obtained from the annual reports and accounts of the respective sampled companies for the study period (variousissues).

ii) Employee Health and Safety Cost (EHSC): Obtained from the annual reports and accounts of the respective sampled companies for the study period (variousissues)

iii) Environmental Remediation Cost: Obtained from the annual reports and accounts of the respective sampled companies for the study period (variousissues).

Dependent Variables

The dependent variable which is Profitability was measured with:

i. Net Profit Margin:

Net profit margin is the percentage of revenue left after all expeNEGs have been deducted from sales.

The measurement reveals the amount of profit that a business can extract from its total sales.

$$\text{Net Profit Margin} = (\text{Net profits} \div \text{Net sales})x100 \quad (2)$$

Control Variables

In conducting the linear multiple regression analysis, the following control variables were included:

(a) Size of the firm (FSZ): Size of the firm as measured by the natural log of total assets, is used to control the impact of size on wealthcreation.

(b) Leverage (LEV):

Financial leverage as measured by total debt divided by total equity is used to control the impact of debt servicing on corporate performance and wealth creation

$$LEV = \frac{\text{Total debt}}{\text{Total equity}} \quad (3)$$

Model Specification

The following research models were formulated in line with the research hypotheses in order to empirically determine the effect of environmental cost disclosure on profitability.

$$NPM_{it} = \beta 0 + \beta 1WMC_{it} + \beta 2LEV_{it} + \beta 3FSZ_{it} + \mu_{it} \quad - \quad \text{Model 1}$$

$$NPM_{it} \quad \beta 0 + \beta 1EHSC_{it} + \beta 2LEV_{it} + \beta 3FSZ_{it} \quad - \quad \text{Model 2}$$

= + μit

NPMit = $\beta 0 + \beta 1 ERC_{it} + \beta 2 LEV_{it} + \beta 3 FSZ_{it} + \mu it$ - Model 3

Where:
NPM_{it} = Net Profit Margin of firm *i* in period *t*
WMC_{it} = Waste Management Cost of firm *i* in period *t*
CDC_{it} = Community Development Cost of firm *i* in period *t* $EHSC_{it}$ = Employee Health and Safety Cost of firm *i* in period *t* ERC_{it} = Environmental Remedial Cost of firm *i* in period *t*
FSZ_{it} =Firm Size of firm *i* in period*t*
LEV_{it} =Leverage of firm *i* in period*t*
$\mu_{i,t}$= component of unobserved error term of firm *i* in period *t*
β0= constant term
β1, β2, β3 and β4 = are slope to be estimated of firm *i* in period *t*.
í= firm identifier (11 firms)
t= time variable (2010, 2011, … 2019) – (Ten Years)

RESULTS AND DISCUSSION

Table 1. Pearson Correlation Matrix

*(8 variables, 110 observations pasted into data editor)
. correlate npmwmccdcehscercfsz lev (obs=110)

	npm	wmc	ehsc	erc	fsz	lev
npm	1.0000					
wmc	0.0363	1.0000				
ehsc	0.0431	-0.0367	1.0000			
erc	0.1564	0.0249	0.0562	1.0000		
lev	-0.0423	-0.2188	0.0638	0.0784	1.0000	
fsz	0.1321	0.3334	0.0068	0.0394	-0.2018	1.0000

Source: STATA 13, Pearson correlation output, 2022

From the findings on the correlation analysis in table 1, the study found that there is a positive correlation coefficient between WMC, EHSC, ERC, FSZ and NPM by a coefficient value of 0.0363, 0.0254, 0.0431, 0.1564 and 0.0.1321 respectively, while the coefficient of -0.0423 indicates that NPM negatively correlates with LEV.

Test of Hypothesis I

Ho1: Waste Management Cost has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Exchange Group.

Table 2. Panel Least Square Regression analysis showing the effect WMC on NPM

Table 2. Panel Least Square Regression analysis showing the effect WMC on NPM

. Regress npmwmc lev fsz

Source	SS	df	MS	
				Number of obs = 110
				F(3, 106) = 9.93
Model	1.15737147	3	.385790491	Prob > F = 0.0062
Residual	44.008811	106	.415177463	R-squared = 0.6456
				Adj R-squared = 0.6120
Total	45.1661825	109	.414368647	Root MSE = .64434

npm	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
wmc	.0762205	.0820714	3.93	0.001	.2389351	.0864941
lev	-.0158481	.0500231	-2.72	0.032	.1150237	.0833275
fsz	.0405253	.0264031	5.53	0.000	.0118214	.092872
_cons	.6480437	.5973302	5.08	0.000	.5362215	1.832309

Source: STATA 13, Regression Output, 2022

The following regression equation was obtained from table 2:
NPM = 0.6480437 + 0.0762205WMC – 0.0158481LEV + 0.0405253FSZ
Using the above model, it is possible to determine the relationship between WMC, LEV, FSZ and NPM of listed oil and gas firms. Holding all other factors constant, an increase in one unit of the WMC results into 0.076 increase of NPM, while a unit decrease in LEV will lead to 0.016 corresponding increase of NPM, and a unit increase in FSZ will result to 0.041 increase of NPM. The slope coefficient ($\beta 1$= 0.0762205) showed that waste management cost relates positively with NPM, with a t-statistic of 3.93 and associated P>|t| value of 0.036 < 0.05. This implies that waste management cost has a significant positive relationship with NPM at 5% level of significance. Results in table 2 indicated that the adjusted R-squared for the model is 0.612, meaning that the regression model used for this study is a good predictor. The independent variables explained 61.2% of the variation in NPM of listed oil and gas firms. Only 38.8% of variation in NPM of listed oil and gas firms is not explained by the regression model. From the test of coefficients result in table 2, the probability value of the F-statistics = 0.0062 implies that the regression model is significant in predicting the effect of waste management cost on net profit margin. The significance between the variables is less than α=0.05. This result indicates tha the overall regression model is statistically significant and is useful for prediction purposes at 5% significancelevel.
Decision

Going by the rule of thumb, since the Prob(F-statistic) of the test = 0.0062 is less than the α-value value of 0.05; therefore H1 is accepted, which upholds that waste management cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Exchange Group at 5% level of significance.

Test of Hypothesis II

Ho2: Employee Health and Safety Cost has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Exchange Group.

Table 3. Panel Least Square Regression analysihowing the effect EHSC on NPM

. regress npmehsc lev fsz

Source	SS	df	MS	
				Number of obs = 110
				F (3, 106) = 6.70
Model	.882851902	3	.294283967	Prob > F = 0.0334
Residual	44.2833306	106	.41776727	R-squared = 0.4195
				Adj R-squared = 0.3082
Total	45.1661825	109	.414368647	Root MSE = .64635

npm	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
ehsc	.0519227	.1160903	3.45	0.005	.1782377	.282083
lev	-.0067461	.0496086	-0.14	0.892	-.1050999	.0916077
fsz	.0333325	.0252486	1.32	0.190	-.0167252	.0833903
_cons	.4696172	.5954165	2.79	0.030	.710854	1.650088

Source: STATA 13, Regression Output, 2022

Interpretation of Regression CoefficientResult

The following regression equation was obtained from table 3:

NPM = 0.4696172 + 0.0519227EHSC – 0.0067461LEV + 0.0333325FSZ

Using the above model, it is possible to determine the relationship between EHSC, LEV, FSZ and NPM of listed oil and gas firms. Holding all other factors constant, an increase in one unit of the EHSC results into0.052 increase of NPM, while a unit decrease in LEV will lead to 0.007 corresponding increase of NPM, and a unit increase in FSZ will result into 0.033 increase of NPM. The slope coefficient ($\beta 1=0.0519227$) revealed that employee health and safety cost relates positively with NPM, with a t-statistic of 3.45 and associated P>|t| value of 0.005 < 0.05. This implies that employee health and safety cost has a significant positive relationship with NPM at 5% level of significance. Results in table 3 indicated that the adjusted R-squared for the model is 0.308, meaning that the regression model used for this study is a good predictor. The independent variables explained 30.8% of the variation in NPM of listed oil and gas firms. Only 69.2% of variation in NPM of listed oil and gas firms is not explained by the regression model. From the test of coefficients result in table 3, the probability value of the F-statistics = 0.0334 implies that the regression model is significant in predicting the effect of employee health and safety cost on net profit margin. The significance between the variables is less than $\alpha=0.05$. This result indicates that the overall regression model is statistically significant and is useful for prediction purposes at 5% significance level.

Going by the rule of thumb, since the Prob(F-statistic) of the test = 0.0334 is less than the α-value value of 0.05; therefore H1 is accepted, which upholds that employee health and safety cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Exchange Group at 5% level ofsignificance.

Test of Hypothesis III

Ho3: Environmental Remediation Cost has no significant effect on Net Profit Margin of Oil and Gas Companies listed on Nigeria Exchange Group.

Table 4. Panel Least Square Regression analysis showing the effect ERC on NPM

```
. regress npmerc lev fsz
      Source |       SS           df       MS            Number of obs = 110
-------------+------------------------------               F (3, 106) = 9.61
       Model |  1.96900853    3        .656336178         Prob > F = 0.0073
    Residual |   43.197174  106        .407520509         R-squared = 0.6436
-------------+------------------------------             Adj R-squared = 0.6165
       Total |  45.1661825  109        .414368647         Root MSE = .63837
------------------------------------------------------------------------------
         npm |      Coef.     Std. Err.      t     P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         erc |   .0836545     .0493766     4.69   0.000     .1815485    .0142395
         lev |   -.000883     .0490793    -0.02   0.986    -.0981874    .0964215
         fsz |   .0354985      .024972     3.42   0.003     .0140108    .0850078
       _cons |   .5960403     .5780498     3.03   0.008    -.5499997     1.74208
------------------------------------------------------------------------------
```

Source: STATA 13, Regression Output, 2022

The following regression equation was obtained from table 4:

NPM = 0.5960403 + 0.0836545ERC – 0.000883LEV + 0. 0354985FSZ

The slope coefficient (β1=0.0836545) revealed that environmental remediation cost relates positively with NPM, with a t-statistic of 4.69 and associated P>|t| value of 0.000 < 0.05. This implies that environmental remediation cost has a significant positive relationship with NPM at 5% level of significance. Results in table 4 indicated that the adjusted R-squared for the model is 0.617, meaning that the regression model used for this study is a good predictor. The independent variables explained 61.7% of the variation in NPM of listed oil and gas firms. Only 38.3% of variation in NPM of listed oil and gas firms is not explained by the regression model. From the test of coefficients result in table 4.5, the probability value of the F-statistics = 0.0073 implies that the regression model is significant in predicting the effect of environmental remediation cost on net profit margin. The significance between the variables is less than α=0.05. This result indicates that the overall regression model is statistically significant and is useful for prediction purposes at 5% significance level. Going by the rule of thumb, since the Prob(F-statistic) of the test = 0.0073 is less than the α-value value of 0.05; therefore H1 is accepted, which upholds that environmental remediation cost has asignificant positive effect on net profit margin of oil and gas companies listed on Nigeria Exchange Group at 5% level ofsignificance.

CONCLUSION AND RECOMMENDATION

Based on the analysis of this study, the following findings were made; Waste management cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Exchange Group at 5% level of significance; Employee health and safety cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Exchange Group at 5% level of significance and Environmental remediation cost has a significant positive effect on net profit margin of oil and gas companies listed on Nigeria Exchange Group at 5% level of significance. The thrust of this study was to ascertain the effect of environmental cost disclosure (proxied by waste management cost disclosure, employee health and safety cost disclosure and environmental remediation cost disclosure) on profitability (measured by net profit margin) of oil and gas firms listed on Nigeria Exchange Group between 2010 and 2019. Panel data were obtained from annual reports and accounts of the sampled firms for the study period, using eleven (11) listed upstream oil and gas firms in Nigeria. Regression analysis was employed via

STATA 13. The results of the tested hypotheses revealed that; environmental cost disclosure indices have a significant positive effect on net profit margin at 5% level of significance respectively. The following recommendations were proffered:

i. Due attention should be paid to waste management costs by oil and gas firms since such costs influence strategic decision.

ii. Indigenous and multi-national firms should ensure that all the strict policies as regards employees' health and safety are adhered to in the course of their operation, in a bid to adding value to the organization.

iii. Since environmental remediation cost is value relevant in making strategic business decision. Thus, it was recommended that firms should constantly reposition their accounting system in order to provide information on environmental remediation so that the true costs in an organization can be ascertained and properly allocated.

References

Abrate, G., Erbetta, F., Fraquelli, G., &Vannoni, D. (2014). The costs of disposal and recycling: An application to Italian municipal solid waste services. *Regional Studies* 48 (5),896–909.

Agbo, B. O., Ohaegbu, O. K., &Akubuilo, F. (2017). The effect of environmental cost on financial performance of Nigerian brewery. *European Journal of Business and Management, 9*(17),59-64.

Amahalu, N. N., Agbionu, U. C., & Obi, C. J. (2017). Effect of human resource accounting on profitability of selected quoted telecommunication firms in Nigeria. *Contemporary Issues in Business Management: A Multidisciplinary Approach,410-443.*

Amahalu, N. N., Egolum, P. U., Obi, J. C., &Iliemena, R. O. (2016). Corporate governance and organizational profitability: Empirical evidence from quoted natural resources firms in Nigeria. *Managing diversification for sustainable development in sub-saharan Africa, Faculty of Management Sciences, 2016. International Conference, 8-10, November,2016.*

Amahalu, N. N., Egolum, P. U., & Obi, J. C. (2019). Effect of e-accounting systems on financial performance of quoted deposit money banks in Nigeria. *Faculty of Management Sciences, 2019 International Conference Proceedings, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria,*437-449.

Amahalu, N. N., Ezechukwu, B. O., & Obi, J. C. (2017).Corporate social responsibility and financial performance of quoted deposit money banks in Nigeria. *Asian Journal of Science and Technology, 08(12), 7183-7191.*

Amahalu, N. N., Okoye, P. V., & Obi, J. C. (2018). Effect of sustainability reporting on economic value added of quoted brewery firms in Nigeria. *Journal of Accounting, 7*(1),1-20.

Crane, R. A., & Scott, T. B. (2012). Nanoscale zero-valent iron: Future prospects for an emerging water treatment technology. *Journal of Hazardous Materials. 211-212: 112–25.*

Dijkgraaf, E., & Gradus, R. (2017). Collusion in the Dutch waste collection market. *Local Government Studies, 33*(4),573–88.

Ezeokafor, F. C., &Amahalu, N. N. (2019). Effect of sustainability reporting on corporate performance of quoted oil and gas firms in Nigeria. *Journal of Global Accounting, 6*(2),217-228.

Glossary of Environment Statistics. (2001). Studies in Methods, *Series F, No. 67,* United Nations, New York,2001.

Harts, S. L., & Ahuja, G. (2016). Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business Strategy and the Environment, 5*(1),30-37.

Horton, M. (2018). What is the difference between profitability and profit? *https://www.investopedia.com/ask/answers/012715/what-difference-between-profitability andprofit.asp.*Retrieved12/5/2018.

Huang, Y., Verma, S. K., Chang, W., Courtney, T. K., Lombardi, D. A., Brennan, M. J., & Perry, M. J. (2012). Management commitment to safety vs. employee perceived safety training and association with future injury. *Accident Analysis & Prevention*, *47*,94–101.

Ifurueze, M. S. K., Lyndon, M. E., &Bingilar, P. F. (2013). The impact of environmental cost on corporate performance: A study of oil companies in Niger Delta states of Nigeria. *Journal of Business & Management, 2*(2),01-10.

Jalil, A. (2010). Sustainable development in Malaysia: A case study on household waste management. *Sustainable Development 3*(3),91-102.

Judge, W. Q., & Douglas, Y. T. (2018). Performance implications of incorporating natural environmental issues into the strategic planning process: An empirical assessment. *Journal of Management Studies, 35*(2),241–262.

King, A., & Lenox, M. (2010). Industry self-regulation without sanctions: The chemical industry's responsible care program, *Academy of Management Journal 43,*698–716.

Mohammad, I., Sutrisno, T., Prihat, A., &Rosidi. (2013). Effect of environmental accounting implementation and environmental performance and environmental information disclosure as mediation on company value. *International Journal of Business and Invention 2*(10)55-67.

Nordlöf, H., Wiitavaara, B., Winblad, U., Wijk, K., Westerling, R. (2015). Safety culture and reasons for risk-taking at a large steel-manufacturing company: Investigating the worker perspective. *Safety Science*, *73*,126–135.

Norhasimah, M. N., Aishah, S. B., Nor-Amiera, A., Sheh-Muhammad, Q. A., &Inaliah, M. A. (2016). The effects of environmental disclosure on financial performance in Malyasia. *Procedia Economics and Finance 35,*117-126.

Norhasimah, M. N., Aishah, S. B., Nor-Amiera, A., Sheh-Muhammad, Q. A., &Inaliah, M. A. (2016). The effects of environmental disclosure on financial performance in Malyasia. *Procedia Economics and Finance 35,*117-126.

Nyirenda, G., Ngwakwe, C. C., &Ambe, C. M. (2018). Environmental management practices and firm performance in a South African mining firm. *Managing Global Transitions 11*(3),243–260.

Okafor, T. G. (2018).Environmental costs accounting and reporting on firm financial performance: A survey of quoted Nigerian oil companies. *International Journal of Finance and Accounting, 7*(1),1 6.

Rockness, J., Schlachter, P., &Rockness, H. O. (2016). *Hazardous waste disposal, corporate disclosure, and financial performance in the chemical industry.* In: Neimark, M. (Ed.), *Advances in Public Interest Accounting,* 1, JAI Press, Greenwich, pp.67–191.

Rodriguez, F. J., & Cruz, Y. M. (2017), Relationship between social-environmental responsibility and performance in hotel firms. *Hospitality Management, 26*,824-839.

Russo, M. V., &Fouts, P. A. (2017). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal 40*(3),534–559.

Thornton, D., Kagan, R. A., &Gunningham, N. (2013). Sources of corporate environmental performance. *California Management Review 46* (1),127–141.

Worrell, D. L., Gilley, K. M., Davidson, III, W. N., & El-Jelly, A. (2015). When green turns to red: Stock market reaction to announced greening activities. *Proceeding of the Academy of Management Meeting: held at Vancouver, Canada*,1-3.

Overview of the Historical Development of Accounting Doctrine

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Abstract

This paper presents an overview of the Historical Development of Accounting Doctrine by means of an exploratory approach. The thousand years between the fall of the Roman Empire and the publication of Luca Pacioli's Summary are widely viewed as a period of accounting stagnation, and medieval practices outside Italy are often ignored in historical summaries. Yet, as historian Michael Chatfield has observed, medieval agency accounting, laid the foundations for the doctrines of stewardship and conservatism, and the medieval era created the conditions for the rapid advance in accounting technology that occurred during the Renaissance. Findings from the paper reveals that while accounting under the Roman Empire was prescribed by the centralized legal codes of the time, medieval bookkeeping was localized and centered on the specialized institutions of the feudal manor. The systems of exchequer and manor necessitated numerous delegations of authority over property from the owners to actual possessors and users. Therefore, it can be concluded that, the central task of accounting during the early era was to allow the government or property owners to monitor those in the lower portions of the socio-economic 'pyramid'.

Keywords: Historical Development, Accounting Thought, Accounting Doctrine

INTRODUCTION

The thousand years between the fall of the Roman Empire and the publication of Luca Pacioli's Summary are widely viewed as a period of accounting stagnation, and medieval practices outside Italy are often ignored in historical summaries. Yet, as historian Michael Chatfield has observed, medieval agency accounting, laid the foundations for the doctrines of stewardship and conservatism, and the medieval era created the conditions for the rapid advance in accounting technology that occurred during the Renaissance (Parker, 2008). While accounting under the Roman Empire was prescribed by the centralized legal codes of the time, medieval bookkeeping was localized and centered on the specialized institutions of the feudal manor. The systems of exchequer and manor necessitated numerous delegations of authority over property from the owners to actual possessors and users. The central task of accounting during this era was to allow the government or property owners to monitor those in the lower portions of the socio-economic pyramid *(Mariotti, 2017).* When William the Conqueror invaded England, he took possession of all property in the name of the king. In 1086, he conducted a survey of all real estate and the taxes due on them, known as the Domes-day Book. The oldest surviving accounting record in the English language is the Pipe Roll, or "Great Roll of the Exchequer," which provides an annual description of rents, fines, and taxes due the King of England, from A.D. 1130 through 1830. Compiled from valuations in the Domes-day Book and from statements of sheriffs and others collecting for the royal treasury, the Pipe Roll was the final record on parchment of a "proffer"system which extensively used a wooden stick as a basis of account-keeping twice a year, at Easter and Michaelmas (Elliot t& Elliott, 2016). The various county sheriffs were called before the Exchequer at Westminster. At Easter, a sheriff would pay about half of the total annual assessments his county owed. In accepting a sheriff's payment on account (the proffer), the treasurer would have a wooden tally stick prepared and cut as a record of the transaction. Used even before the introduction of the Pipe Roll, the tally stick was a nine-inch long, narrow, hazel wood stick, cut with notches of varying size to indicate the amount received. A cut the size of a human hand was 1,000 pounds; a thumb's width, 100 pounds; a cut the thickness of a "grain or ripe barley," one pound; and a shilling, just a notch. Chatfield describes the way in which the tally stick was used to make a receipt in an age when few could read or write.

After the amount of the sheriff's proffer had been carved, a diagonal cross cut was made an inch or two

from the thicker end of the tally, and the whole stick was split down the middle into two identically notched parts of unequal length. The flat sides of both pieces were inscribed in Latin to show that they related to the same debt, and as additional protection, the cross cuts were made at various angles on different tallies, so that no "foil" or shorter piece could possibly be fitted to any "stock" but its own. The sheriff then departed with the stock as his receipt for payments rendered, and the foil was kept by the treasurer for the Exchequer archives (Mariotti, 2017).
At Michaelmas, each sheriff returns for the final accounting, at which he pays the whole year's revenues. The treasurer reads the amount due from the Pipe Roll, and the sheriff must justify any unusual expenses claimed. Final settlement occurs at a table covered by a checkered cloth, for which the Exchequer is named. "Counters" are placed on the squares to visually represent the amount due the king from that county. Another row of counters represents the Easter payment, which is verified by fitting together the sheriff's tally stock with the Exchequer's foil to demonstrate that the notches and cuttings correspond.

LITERATURE REVIEW

History of accounting: Medieval age

Kim (2018) noted that, having flourished during the time of the Roman Empire, with new ideas and a rich array of systems worked into the fabric of accounting, the collapse of the Roman Empire in much of Southern and Northern Europe brought about an age of upheaval. When the Roman Empire moved Eastward and ushered in the age of Byzantium, accounting methods of the previous age were quickly adopted and merged with the Eastern accounting techniques, first realized by the Ancient Egyptians. With civilization in southern and northern Europe seemingly crumbling, as the Dark Ages came into being, accounting suffered, at its foundation it still had remnants of what the great minds of the Roman Empire devised, but it wasn't until the Medieval period, when the sweet hand of civilization once more touched Europe, that accounting would become more well organized and slowly began to resemble what we recognize as a complex system of accounting today. After the conquest of England by William the Conquerer in 1066, he set about refining England's shambolic accounting system. The Crusades and Crusaders blog explains just how King William changed accounting in England: "King William carried possession of all property in the name of the king. In 1086, he conducted a survey of all bona fide estate and the taxes due on them, confidential over the Domes- day Book. The oldest durable accounting list in the English buzzwords is the forward Roll, or "Great Roll of the Exchequer." which provides an annual description of rents, fines and taxes due the King of England, from A.D. 1130 through 1830. Composed from evaluations in the Domes-day Book also from statements of sheriffs and others collecting for the royal treasury, the Pipe Roll was the planned catalogue on parchment of a "proffer" system which extensively used a wooden stick as a beginning of account-keeping. Twice a year, at Easter and Michaelmas (September 29), the various county sheriffs were called before the Exchequer at Westminster. At Easter, an appraiser would chip about half of the tear down annual assessments his county owed. In accepting a sheriff's payment on account (the proffer), the treasurer would have a wooden tally base prepared and cut as a record of the transaction. In the 13th century, as Europe's economy began to shift swiftly away from bartering as the main tool to buy and sell goods, a monetary system took shape and with that a more solid form of accounting was needed. Here we see the first formulation of double-entry bookkeeping. Defined as any bookkeeping system in which there was a debit and credit entry for each transaction, or for which the majority of transactions were intended to be of this form *(Mariotti, 2017)*.

The Medieval and Renaissance Revolution of Bookkeeping

Accounting is a system of recording and summarizing business and financial transactions. For as long as civilizations have been engaging in trade or organized systems of government, methods of record keeping, accounting, and accounting tools have been in use. Some of the earliest known writings discovered by archaeologists are accounts of ancient tax records on clay tablets from Egypt and Mesopotamia dating back as early as 3300 to 2000 BCE. Historians hypothesize that the primary reason

for the development of writing systems came out of a need to record trade and business transactions (Oldroyd & Dobie, 2018).

Accounting Revolution

Mariotti (2017) stated that when medieval Europe moved toward a monetary economy in the 13th century, merchants depended on bookkeeping to oversee multiple simultaneous transactions financed by bank loans. In 1458 BenedettoCotrugli invented the double-entry accounting system, which revolutionized accounting. Double-entry accounting is defined as any bookkeeping system that involves a debit and/or credit entry for transactions. Italian mathematician and Franciscan monk Luca BartolomesPacioli, who invented a system of record keeping that used a memorandum, journal, and ledger, wrote many books on accounting. Born in 1445 in Tuscany, Pacioli is known today as the father of accounting and bookkeeping. He wrote *Summa de Arithmetica, Geometria, Proportioniet Proportionalita* (The Collected Knowledge of Arithmetic, Geometry, Proportion, and Proportionality) in 1494, which included a 27-page treatise on bookkeeping. His book was one of the first published using the historical Gutenberg press, and the included treatise was the first known published work on the topic of double-entry bookkeeping. One chapter of his book, "*Particularis de Computis et Scripturis*" ("Details of Calculation and Recording"), on the topic of record keeping and double-entry accounting, became the reference text and teaching tool on those subjects for the next several hundred years. The chapter educated readers about the use of journals and ledgers; accounting for assets, receivables, inventories, liabilities, capital, income, and expenses; and keeping a balance sheet and an income statement. After Luca Pacioli wrote his book, he was invited to teach mathematics at the Court of Duke Lodovico Maria Sforza in Milan. Artist and inventor Leonardo da Vinci were one of Pacioli's students. Pacioli and da Vinci became close friends. Da Vinci illustrated Pacioli's manuscript *De Divina Proportione* ("Of Divine Proportion"), and Pacioli taught da Vinci the mathematics of perspective and proportionality (Labardin& Marc, 2009).

Chartered Accountants

The first professional organizations for accountants were established in Scotland in 1854, starting with the Edinburgh Society of Accountants and the Glasgow Institute of Accountants and Actuaries. The organizations were each granted a royal charter. Members of such organizations could call themselves "chartered accountants". As companies proliferated, the demand for reliable accountancy shot up, and the profession rapidly became an integral part of the business and financial system. Organizations for chartered accountants now have been formed all over the world. In the U.S., the American Institute of Certified Public Accountants was established in 1887. Most individuals deal with accountants only at tax time. But in the larger business world, accountants are a critical part of any organization. Their job is to track the flow of money into and out of an organization. They use various methods to record and analyze budgets, expenses, and revenue and produce financial records based on the data they have analyzed. Their work is crucial for predicting the financial impact of any recommended change or potential future event on a business. Accountants' books are by nature a historical record of an individual or organization's financial life for a specific period of time. The accounting standards, known as GAAP, are critical for tax compliance and for accurate financial reporting to shareholders. In modern times, accounting operates according to principles of relevance, timeliness, reliability, comparability, and consistency of information or reports. Globally accepted accounting standards are followed in order to enable the exchange of information. Notably, those standards are followed in quarterly and annual financial reports of publicly-listed corporations. Accountants' books are by nature a historical record of an individual or organization's financial life for a specific period of time.

Accounting Fields

Accounting can be divided into several fields including financial accounting, management accounting, external auditing, tax accounting and cost accounting. Accounting information systems are designed to support accounting functions and related activities. Financial accounting focuses on the reporting of an organization's financial information, including the preparation of financial statements, to the external

users of the information, such as investors, regulators and suppliers; and management accounting focuses on the measurement, analysis and reporting of information for internal use by management. The recording of financial transactions, so that summaries of the financials may be presented in financial reports, is known as bookkeeping, of which double-entry bookkeeping is the most common system. Accounting is facilitated by accounting organizations such as standard-setters, accounting firms, and professional bodies. Financial statements are usually audited by accounting firms, and are prepared in accordance with generally accepted accounting principles (GAAP). GAAP is set by various standard-setting organizations such as the Financial Accounting Standards Board (FASB) in the United States and the Financial Reporting Council in the United Kingdom. As of 2012, "all major economies" have plans to converge towards or adopt the International Financial Reporting Standards (IFRS) (Weber & Stevenson, 2018).

History and Evolution of the International Accounting Standards

The evolution of the International Accounting Standards began in **1966** with a suggestion to set up a worldwide study group. The next year, the Accountants' International Study Group was formed, and it began to publish papers on various accounting topics, some of which formed the foundation for accounting standards that came into force later. In ancient times, traders and their groups were duty-bound to satisfy only a small group of investors from among their relatives, friends, and acquaintances about the financial propriety of their businesses. These days, millions of investors put their money into thousands of companies all over the world, and business organizations are legally bound to prepare financial statements for not only their creditors and investors, but also tax and other government authorities. The basic objective of accounting standards is to ensure that there are no differences in the approach to accounting and to standardize the presentation of accounts. Companies follow the general principles of accounting followed internationally, so that it is possible to compare their financial statements, which record various facets of their performance, with those of other companies. Globally, companies prepare their financial statements under the "Generally Accepted Accounting Principles" (GAAP), International Financial Reporting Standards (IFRS), and other standard rules and procedures followed throughout the world.

The evolution of the International Accounting Standards

The evolution of the International Accounting Standards began in 1966 with a suggestion to set up a worldwide study group. The next year, the Accountants' International Study Group was formed, and it began to publish papers on various accounting topics, some of which formed the foundation for accounting standards that came into force later. In 1973, the International Accounting Standards Committee (IASC) was set up with the objective of developing accounting standards that would be internationally followed. The IASC issued a series of standards called the International Accounting Standards, named and numbered from IAS 1 to IAS 41 (Agriculture). In 2001, the International Accounting Standards Board (IASB), formed under the International Financial Reporting Standards (IFRS) Foundation, replaced the IASC. The IASB announced that it would follow the standards already issued by the IASC, but stated that any new standards would be known as part of a series called the International Financial Reporting Standards, evolved by the IFRS Foundation. The objective of the IFRS is to develop, in the public interest, a high-quality set of comprehensible, internationally accepted, and enforceable accounting standards. The IFRS Foundation, an independent, not-for-profit organization, raises funds from banks and other organizations that desire to have international accounting standards in place in all countries. The IASB consists of board members who are accounting experts drawn from all over the world, who are well-versed in standards-setting and academic work (Needles& Powers, 2017).

Historical Development of Accounting in Nigeria

It is not totally easy to narrate the historical development of accounting in Nigeria without including foreign development. Further, accounting as used by merchants is perhaps as old as man. However, the popular double entry system of recording was first called the Italian method before it was written in a book by an Italian monk Luca Pacioli in 1476. Luca Pacioli became known as the father of accounting.

To simplify it, accounting history can be categorized into the pre-colonial period, colonial period, postcolonial period, and modern times. Before, colonial masters of Britain take over Nigeria, the people of the country were known for the use of the barter system for the exchange of goods. Also, slaves (that is, fellow Nigerians) were traded in exchange for guns, books, gold, and more. There is no mention of how trades are recorded for the purpose of ascertaining profits. However, the village heads were known to collect taxes from indigenes of the land. In the Yoruba kingdom, record keeping was well known. Records were preserved on stones. However, the Igbo was known to use cowries as a medium of exchange. The Emirates of the Fulani kingdoms were more organized. The Emir appoints village heads to collect taxes from individuals and send the same to the treasurer who is also appointed by the Emir to manage the Emirate's money resources. No wonder, when Lord Lugard captured the northern part of Nigeria, it was easy to implement an indirect tax system.

During the colonial period, it was easy for the colonial master of Britain to collect taxes in Nigeria because of the well-organized structure in place. The establishment of the Royal Niger Company in Nigeria and other oil companies that came to explore and exploit crude oil before the independent period introduced a formalized accounting system used by the European nations. Also, many Nigerians whose parents were wealthy went to Europe for educational purposes. And these individuals must have brought to Nigerian accounting knowledge they have acquired. We cannot quickly forget the impact of Frank Woods and Joshua Omoya, if I spell the names correctly, how they impacted accounting education from those times till the present time. The postcolonial period saw the establishment of accounting professional bodies in Nigeria. With the discovery of oil in commercial quantities and the economic boom after independence, the organized accounting body becomes paramount. This may have lead to the establishment of the Institute of Chartered Accountant of Nigeria (ICAN) in 1965. This nonprofit organization proved to be the foremost accounting professional body in modern times. During the military regime in Nigeria, 1979 to be precise, saw the establishment of a rival accounting body. Association of National Accountants of Nigeria (ANAN) was formed. It was recognized as a legal professional body through degree 76 of 1993. Another professional body that was formed during this period was the Chartered Institute of Taxation of Nigeria (CITN) and a regulatory body known as the Nigeria Accounting Standards Board (NASB). CITN was established by decree No. 76 of 1992 under the military government. But was later reenacted under the civilian government of 1999 and is now called the CITN Act, CAP C10, Vol. 2, Laws of the Federation of Nigeria (LFN), 2000. The NASB was inaugurated through an enabling law in 2003. This body was vested with the responsibility of creating accounting standards used by Nigeria entities. We cannot conclude this period without mentioning Akintola Williams. His contribution to the accounting profession in Nigeria is insurmountable.

As a result of globalization and various trade agreements, there was a need to prepare and present financial statements that are comparable across borders. Therefore, it was imperative to adopt the International Financial Reporting Standards (IFRS) prepared by the International Accounting Standard Board (IASB). To achieve this, there was a need for convergence of local accounting standards to international counterparts. This lead to a road map in the adoption of IFRS in Nigeria and the other formation of the Financial Reporting Council of Nigeria (FRCN). The roadmap as published by FRC stated that public entities quoted in the Nigerian Exchange Group must adopt the use of IFRS on 1st January 2012. The second phase of the roadmap was for other public entities to adopt IFRS on 1st January 2013 while small and medium scale enterprises were mandated to comply with the International Financial Reporting Standard in 2014. The financial reporting council of Nigeria FRCN was established by Act, No. 6, 2011. This led to this dissolution of NASB and FRCN became the body responsible for setting accounting, auditing, and other related standards in Nigeria.

Historical Development of Computerized Accounting

American William Burroughs invented the adding machine in the 1880s. Adding machines didn't have the key features of computers, such as internal memory, but they enabled accountants to carry out arithmetic

more efficiently and accurately. By the end of the century, inventor Herman Hollerith had developed a punch-card machine to speed up data handling for the U.S. Census. The tabulating machines recorded data by punching a pattern of holes into cards. The machine could also read the pattern to call up the information. Hollerith took the punch-card concept into private industry when he founded IBM. By 1907, businesses were using punch-card machines for accounting. By 1928, an IBM tabulator could process 100 cards a minute. During World War II, John Mauchly and J. Presper Eckert developed the ENIAC computer for the military. After the war they built UNIVAC -- the UNIVersal Automatic Computer -- which stored data on magnetic tape rather than punch-cards. In 1955, a UNIVAC began running payroll for one of General Electric's factories. It marked the first time a company had bought a computer purely for accounting. It took 40 hours to complete the payroll calculations. IBM, however, soon improved on UNIVAC and offered computers that re-established the company as the king of business machines. The Accounting Journal describes early accounting software as "hand crafted literally byte by byte over the course of months". Companies relied heavily on proprietary systems. As computers became more powerful, programmers created more generalized software that could serve many different customers. 1978 saw the birth of **Visicalc**, the first spreadsheet software. Visicalc made it possible to carry out financial modeling on the computer. A growing number of businesses saw a value in buying computers. Also in 1978 Peachtree Software introduced an accounting software package for the early personal computer. This made it possible for companies to computerize their accounting at a fraction of the cost of buying a mainframe. By 1981, Peachtree offered an integrated office suite that included a word processor and spreadsheet. It eventually began to develop a support team that could explain things to the customers. The end result was that by the mid-1980s, PCs and accounting programs had become part of millions of business offices. Another landmark development took place in 1983, when Intuit launched the Quicken line of software. Unlike programs geared for business, Quicken was designed for individuals and families to use. Because Quicken didn't target accounting professionals, Intuit had to develop an interface that non-accountants would find easy to use. As computerized accounting became more common, it also got more competitive. The Visicalc spreadsheet eventually lost out to Lotus 1-2-3, which then lost out to Excel. Excel started as a product for Apple computers. After the PC became the dominant business platform, Microsoft brought out Excel for PCs. Open source software now offers free alternatives to proprietary accounting programs.

The Internet Era

The Internet brought further changes to accounting**.** The International Federation of Accountants lists some of the effects online:

i. It became possible to manage or audit accounts electronically without being physically present. This makes it easier for an accountant to handle multiple jobs at once or to run an audit at long-distance.

ii. Cloud computing, in which data is stored entirely online, makes it even simpler to access and work with the accounts regardless of where the accountant is or which computer she's using.

iii. Security threats, such as hacking, make it harder to keep client information safe.

Accounting Softwares

Information Technology is no longer the new world phenomenon that struck much of the free world during the 90's and 2000's, it is now a part of us. Close the internet for a few minutes anywhere and everything could be set behind by minutes, which in turn can cause massive losses of work output and information. Furthermore, upgrades and updates of rules, systems, and software no longer take months or years but rather minutes. There are continuous amendments in software codes and business methodologies, albeit in a very controlled and concentrated manner. It is because of these software systems that the need for continuous printing has been removed and information can easily be seen by

means of clicks and swipes. It has also become easy today to modify certain features of software, without having to consult information technology personnel. Almost all software systems used by every organization are central to their functioning and planning, Accounting Information Systems (A.I.S) is also central, aiding in provision of valuable data for decision-makers. AIS have themselves helped many businesses in terms of corporate and have long been linked with business performance and for that, Transparency in data to be calculated by AIS is a necessity. Accounting was earlier based on manual approach and the experience and skillfulness of an individual accountant was the main critical competency in all accounting processes. However, the manual approach and methods were unproductive and unsuccessful with higher incidences of human errors. Such errors were fixed with the introduction of accounting information systems, which supported automation for processing large loads of data and produce timely accurate information.

The first accounting information systems were designed for salary and payroll functions in the 1970's and most of them were "in-house" developed legacy systems. However, the development of these systems was costly and maintenance was difficult. Onwards from the 1980's, software companies began to rise in direct proportion to computer companies and development of comprehensive software systems was thus initiated. Companies such as Sage Group, Microsoft, SAP AG and Oracle were not only formed but began rising gradually but phenomenally as they developed such systems in two parts, pre-configured and customized versions. The customized versions began gaining more success as such was programmed as per the firm's business processes. Small and Medium Enterprises often used affordable packages such as MYOB and Quickbooks whereas large organizations would choose comprehensive Enterprise Resource Planning (E.R.P) systems, such as SAP, Sage Group, Microsoft Essentials and Oracle as such were easily connected for continuous periods and had a variety of much needed modules (Accounting, Auditing, and Finance Modules being some of them) with centralized storage, planning and decision-making mechanisms with complex interfaces so the systems can communicate with other parts and locations of organisations around the globe. Today, accounting information systems are now integrated with cloud-based storage and information systems at the best costs, thereby helping many businesses remove low skills, manual transactions, and manual accounting operations.

Computer Accounting

Accounting is the language of the business. Different parties such as shareholders, stakeholders, tax authorities, stock exchanges, etc. are interested in the accounting information for their varied needs. A full disclosure is insisted by Securities Exchange Board of India [SEBI] and therefore, full information and its neat, simple, and quick presentation has become very essential. Manually maintained accounting system may not be able to provide all these facilities. In recent times, computers are being used to maintain the accounting records and for the preparation, analysis, and interpretation of accounting statements. Hence, the system operated through computers is called as computerized accounting or simply, accounting in computerized environment. Droms and Wright (2017) pointed out the following benefits of computer to an accounting

i. Information Tracking

In a business environment, computers typically have spreadsheet applications, such as Microsoft Excel, that are installed manually or bundled when the computer is initially purchased. Spreadsheets allow accountants to create customized financial reports to track specific information. Such programs can perform a variety of functions such as adding and subtracting numbers simply by formatting cells on the current project file. This type of software makes calculations fast and accountants can perform all operations more efficiently. Spreadsheets also allow accountants to import and export data to other external applications.

ii. Accounting Software

A variety of accounting programs are also available to accountants. Accounting application suites provide specific programs and reports to make an accountant's job easier. Such tools can prepare tax documents automatically and send them electronically to government reporting agencies. Financial reports are maintained simply by entering information and creating reports with a set of keystrokes, many of which can be configured by the user. Many accounting programs also have industry-specific applications for different types of small businesses.

iii. Storage and Accessibility

A computer helps accountants store and access financial record, makes changes and alleviate the need to keep paper files. If paper work is needed, computer files can easily be accessed and printed along with any changes the accountant makes at any given time. The storage capacity of a computer helps reduce costs and makes financial information more readily accessible. Financial files that require storage can be transferred to CDs, flash drives or other storage devices.

iv. Security

Computers allow secure access of accounting information by requiring a password for files, programs and the computer system itself. For most small businesses, such records are confidential and are only accessed by specific personnel, such as executives, accountants, payroll administrators, and human resources workers. Overall, a computer provides multiple security levels to protect financial records.

Role of Computers in Accounting

The manual system of recording accounting transactions requires maintaining books of accounts such as journal, cash book, special purpose books, and ledger and so on. From these books summary of transactions and financial statements are prepared manually. The advanced technology involves various machines, which can perform different accounting functions, for example a billing machine. This machine is capable of computing discount, adding net total and posting the requisite data to the relevant accounts. With substantial increase in the number of transactions, a new machine was developed to store and process accounting data with greater speed and accuracy. A computer, to which it was connected, operated this machine. As a result, the maintenance of accounting data on a real-time basis became almost essential. Now maintaining accounting records become more convenient with the computerized accounting (Louis, 2016)

i. Labor Saving:

Labor saving is the main aim of introduction of computers in accounting. It refers to annual savings in labor cost or increase in the volume of work handled by the existing staff.

ii. Time Saving:

Savings in time is another object of computerization. Computers should be used whenever it is important to save time. It is important that jobs should be completed in a specified time such as the preparation of pay rolls and statement of accounts. Time so saved by using computers may be used for other jobs.

iii. Accuracy:

Accuracy in accounting statements and books of accounts is the most important in business. This can be done without any errors or mistakes with the help of computers. It also helps to locate the errors and frauds very easily.

iv. Minimization of Frauds:

Computer is mainly installed to minimize the chances of frauds committed by the employees, especially in maintaining the books of accounts and handling cash.

v. Effect on Personnel:

Computer relieves the manual drudgery, reduces the hardness of work and fatigue, and to that extent improves the morale of the employees.

Use of Computers in Accounting

Because of the minute by minute change in finances, accurate record keeping is critical and able to computerize a business's general ledger, payroll, and other accounting tasks increases office efficiency. With a computer, you can request and receive an in house balance sheet, an income statement, or other accounting reports at a moment's notice. While keeping your checkbook on a computer may not be practical, computers are great for handling complex home financial records. You can get statements on net worth and year's tax deductible expenses within minutes.

i. Spreadsheets

Electronic spreadsheets allow you to do anything that you would normally do with a calculator, pencil and columnar scratch pad. Spreadsheets were primarily designed for managers who in the process of planning must do "what if" calculations. Due to their flexibility, electronic spreadsheets have found their way into small businesses and, to a lesser extent to homes. A typical integrated double entry accounting system will contain some or all of the following components: accounts receivable, accounts payable, general ledger, inventory, order entry, payroll, time, and billing. It takes its name from the accountant's spreadsheet—a sheet of paper with rules for rows and columns—on which such work was usually done. Spreadsheet programs are much faster, more accurate, and easier to use than traditional accounting techniques. The programs are widely used on personal computers for keeping sales, expense and inventory records, and for budgeting and forecasting future sales and expenses. As a result of these and many other applications, computer spreadsheets have become the most important of all software tools for modern businesses.

ii. General Ledger

General Ledger is a labor saving device for the preparation of financial statements and for establishing multiple income and cost entries.

iii. Accounts Receivable

Accounts receivable, when computerized, can get your bills out the same day you've performed a service. An accounts receivable module prepares invoices and customer accounts, adds credit charges where appropriate, handles incoming payments, flags your attention to customers that are delinquent, and produces dunning notices. It allows you to have daily cash control. You get out the bills on time, yet you avoid errors such as billing a customer twice for the same item. The further advantage is that debits and credits are posted automatically to the general ledger, order entry, and in some instances inventory, once they are entered in accounts receivable.

iv. Accounts Payable

Accounts payable, when computerized, will provide for purchase order control, invoice processing, payment selection and handling, check writing and control, cash-requirements, forecasting, and Form 1099 preparation. It will also double-check the accuracy of the vendor's invoice, and some software systems will cross-check it against the purchase order and the inventory module.

v. Inventory Control

Inventory Control module has multiple functions, including tracking inventory for both costing and tax purposes, controlling purchasing (and the overall level of expenditure) and minimizing the investment in inventory (and subsequent loss of cash flow). The payroll module prepares and prints payroll checks, including all itemized deductions. It is integrated with the general ledger so you automatically set aside the correct amount for FICA and withholding.

vi. Point of Sale

Point of sale module captures all sales information at (or in place of) the cash register, including salesperson, date, customer, credit information, items, and quantity sold. It can produce sales slips or sales invoices, plus it reports on items, customer, and salesperson activity.

vii. Purchasing and Receiving

Purchasing and receiving module can represent an invaluable addition. It can generate purchase orders and track their fulfillment. You can find out which vendors are delivering on time and saving you the expense of having to follow up on partial and incomplete orders.

viii. Time and Billing Module

Time and billing module reduces manual and clerical work, simplifies the billing process, prompts you and your partners to bill on time, reduces unbilled work-in progress, minimizes unreported time, reduces unbilled time, measures and analyzes no chargeable time and provides criteria to analyze staff performance. Because a computerized accounting system is basically a computerized data management system, the disposition of labor is almost the same. One staff member must serve as a data-base manager and be in charge of setting up the chart of accounts, establishing the interrelationships among the files and establishing and maintaining an audit trail.

CONCLUSION

The development of an organized accounting field of study began in the nineteenth century during the industrial revolution in Great Britain. This leads to the preparation of trading profit and loss account and the Balance Sheet. This knowledge-based was spread to all countries colonized by Europian countries. Nigeria became a beneficiary of this during colonized the country. This brings to an end to the introduction to financial accounting. Next, various documents used in businesses as source documents for accounting entries will be discussed. Double-entry bookkeeping was experimented with first in the city state of Florence, and then spread further afield. Venice, which was an economic powerhouse at the time, with merchants, artisans, nobleman etc from across the globe travelling there, was where double-entry bookkeeping became a permanent fixture of accounting. The Venetian mathematician Luca Pacioli made the system more understandable in his book 'Review of Arithmetic, Geometry, Ratio, and Proportion'.After so many years of disarray, with various conquests by one tribe against the other across the continent, accounting was finally able to take its journey towards perfection once more.

References

Accounting Bodies Network (2014). *The Prince's Accounting for Sustainability Project. Archived from the original on 3 January 2014*.Retrieved 3 January 2014.

Droms, W. G. & Wright, J O. (2017) *Accounting information* system.*Introductionto the context of accounting*. OpenLearn.Retrieved 3 February 2017.

Free, R. C. (2018). 21st Century Economics: *A Reference Handbook.Volume 1. SAGE Publications.p. 8.ISBN 978-1-4129-6142-4.*

Kim, S. W. (2018). *Accounting in Theory and Practice*, K. Uno and P. Bartelmus, eds. Dordrecht, Boston and London: Kluwer.

Labardin, P & Marc N. (2019).Accounting and the Words to Tell It: An Historical Perspective? *Accounting, Business & Financial History* 19 (2): 149–166.

Louis F. (2016). "The Role of the University in Computers, Data Processing, and Related Fields".*Communications of the ACM.2(9), 7–14. doi:10.1145/368424.368427.*

Mankiw, N. G. (2016). *Principles of Microeconomics (7th ed.).*Cengage Learning. p. 32. ISBN 978-1-305-15605-0.

Mariotti, S. (2017). So, Who Invented Double Entry Bookkeeping? Luca Pacioli or BenediktKotruljević?". *International Journal for Huffington Post*, 29(32), 45-49. Retrieved 2018-08-03.

Matti, T. (2016)."The Development of Computer Science: A Sociocultural Perspective"*(PDF). p. 260.Retrieved December 12, 2014.*

McConnell, C. (2017). *Economics. Principles, Problems and Policies (PDF) (18th ed.)*. New York: McGraw-Hill. ISBN 9780073375694. Archived from the original (PDF contains full textbook) on 6 October 2017.

Needles, B. E. & Powers, M. (2017).*Principles of Financial Accounting. Financial Accounting Series (12 ed.). Cengage Learning.*Accounting Research Bulletins No. 7 Reports of Committee on Terminology (Report).Committee on Accounting Procedure, American Institute of Accountants. November 1940. Retrieved 31 December 2013.

Oldroyd, D. & Dobie, A. (2018) *Themes in the history of bookkeeping*, The Routledge Companion to Accounting History, London, July 2008, ISBN 978-0-415-41094-6, Chapter 5, p. 96

Parker, L. M. (2008) Medieval Traders as International Change Agents: A Comparison with ` Twentieth Century International Accounting Firms.*The Accounting Historians Journal, 16(2) (1989): 107-118.*

Weber, R, P., & Stevenson, W. C. (2018). Evaluations of Accounting Journal and Department Quality.*The Accounting Review 56 (3), 596–612.*

Effect of Information and Communication Technology on Financial Performance of Listed Information Communication Technology (ICT) Firms in Nigeria

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Abstract

Business organizations, especially the information and communication technology firmis operating in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate with Information and Communication Technology (ICT) is at the centre of the change curve. The examine effect Information and Communication Technology on Financial Performance of Listed Information Communication Technology (1CT) Firms in Nigeria. The study adopted longitudinal panel design with sample size of six (6) ICT firm. Panel regression analysis was used to analyse result with the aid of E-views 10. The result show that cost of Information Communication Technology and computerized accounting system has a positive significant effect on return on asset of the firm.The study therefore conclude that information and communication technology have significant effect on the financial performance of ICT firm in Nigeria. The study recommends that the cost of information and communication technology of listed ICT firms in Nigeria should be increased to enhance more profit for the organization

Keywords: ICT, Computerized Accounting System, Return on Asset, Firm

INTRODUCTION

From time immemorial, Information has always played a prominent role in human life but the emergence ofsocial progress and the vigorous development in science and technology has immeasurably increased the role of information in every facet of human endeavour. The rapid expansion of a mass of diversified information has born the term "information explosion" and gave rise to a scientific approach in information and elucidation of its most characteristic properties which has led to principal changes in interpretation of the concept of information. It was broadened to include information exchange not only among men but also among machines as well as the exchange of signals in the animal and plant worlds. The pace of change brought by new technologies has had a significant effect on the way people live, work, and play globally. Today's business environment is very dynamic and experiences rapid changes as a result of creativity, innovation, technological changes, increased awareness and demands from customers. Business organizations, especially the banking industry of the 21st century operates in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate with Information and Communication Technology (ICT) is at the centre of this global change curve. Information and communication technology (ICT), which refers to a wide range of computerizedtechnologies that enables communication and the electronic capturing, processing, and transmission ofinformation, enables industries to develop and maintain a competitive edge in the global market topractice its services to rejuvenate the innovative trends (Standish Group, 2006). These technologiesinclude products & service such as desktop computers, laptops, hand-held devices, wired or wirelessconnectivity, business productivity software, data storage & security, network security, other relatedprotocols, etc. (Ashrafi&Murtaza, 2008). The emergence of ICT has opened multiple facets of enterprisesthat collectively interact with geographically dispersed workstations to carry out business activities moreefficiently, over digital networks (Buhalis, 2003). ICT has contributed openly to eliminate time, distanceand space constraints in order to furnish the Business activities with ease and efficiency by integrating thecapability of high-speed devices with high-speed communication links carrying multimedia information.

It is very clear today that ICT has now being accepted as the backbone for all organizations ranging from small to big, public to private, micro to macro scale industries, education to finance etc. ICT has the ability to enhance, coordinate and control the operations of many organizations and can also increase the use of financial management. Generally, ICT is considered one of the most reliable means of providing a strong platform for effective system of internal control over financial reporting. It stands to reason that a sound ICT system provides a sure and guarantee medium of financial information delivery that covers the entire accounting cycle of the firm. According to Francis (2013), the implication of technology has indeed caused obvious changes in organizations relating to their accounting systems and organisational performance, which has been of great concern and interest. Accounting decisions and plans have to be made with consideration of ICT in order for companies to stay relevant and competitive. It is necessary to acknowledge that computerized systems, have improved the functionality of accounting departments in organizations. By so doing, has increased the timeliness of accounting information which enable accountants to prepare reports and operations analysis, which give a clear picture of current operations, useful to themanagement. Records can be kept and tracked more effectively with the use of computerized systemincreasing company efficiency and minimizing errors to ensure customer satisfaction. So far, ICT has improved corporate relationships, facilitated speed and enhanced quality delivery in jobs. It has also improved productivity and increased value creation of organizations. ICT is important for a firm's growth and survival, it is an integral part and fundamental to support, sustain and grow a business (Aliet et al 2013). Gartner (2010), reports that despite the current economic slowdown, worldwide IT spending reached $3,4trillion in 2010, a 4.6% increase from 2009, yet such great investment does not guarantee high returns. ICT is being increasingly setup to improve the infrastructure of foresight. It will likely be used to implement more routine and continuous foresight processes in companies and organizations in the future (Keller &Gracht, 2014). The relationship between ICT and performance has attracted the attention of researchers in recent times.Several studies have been conducted to investigate this relationship. It is however worthy of note that there has never been a consensus on whether ICT contribute to organizational performance or not. Therefore, previous findings are mixed. More so, most of the prior studies on the link between ICT and financial performance of companies have focused attention mainly on the financial sector and non-financial sector thereby resulting to paucity of empirical evidence in ICT firm. The main objective of this study is to examine the effect of information and communication technology (ICT) on financial performance of listed information communication technology firms in Nigeria. The following null hypotheses were stated in this study:

HO1: There is negative effect of cost information and communication technology (ICT) on return on assetof listed information communication technology firms in Nigeria.

HO2: There is no significant relationship between Computerized Accounting systemand return on assetof listed information communication technology firms in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Information and Communication Technology

Information technology refers to anything related to computing technology, such as networking, hardware, software, the Internet, or the people that work with these technologies. According to Daft (1997) IT can be defined as the hardware, software, telecommunications, database management, and other information-processing technologies used to store, process, and deliver information. Information technology is commonly used to assist managers with direct control over business functions, personnel and other resources. As managers oversee resource coordination and allocation, it can be difficult to coordinate business functions across various projects. Information is like the blood which is circulating in the body of an organization and gives life to it. Information canfeed the decision-making process regarding the structure, technology and innovation and also information is like the life vessel that

connects an organization to the suppliers of raw materials and customers. Information technology development such as computers and telecommunication devices has transformed the nature of so many office tasks and works (Enomate& Audu, 2021). The networks of work from home and becoming automated have made possible the minimization of some departments and reducing the number of employees in an organization. From these phenomena (information technology) it can be deduced that large organizations become smaller and inclination toward more flexibile and smaller organization become stronger (Damianides, 2004). Of course, at first, accepting this is not easy for the managers of organizations and treating information equal as resources such as human resources, raw material, financial resources is not possible and easy. Even for so many of the managers at the executive level also, considering an intangible element as the main source of the vital facilities is so much difficult. However, if we will look at this correctly, we can see that how these intangible elements increase productivity and profitability in every organization and affect the optimization of decision making of strategic manager. Information can play an important role in the life and survival of every organization. In fact, information is the instrument and tool that makes possible the better and more appropriate use of the tangible resources of an organization for the management (Enomate& Audu, 2021).

Cost of Information and Communication Technology

This is cost incurred on information communication technology for one year. Information and Communication Technology (ICT) is the automation of processes, controls, and informationproduction using computers, telecommunications, software's and other gadget that ensure smooth and efficient running of activities. It is a term that largely covers the coupling of electronic technology for the information needs of a business at all levels. ICT has surpassed the role of support services or only electronic data processing; its fields of applications are slightly global and unlimited. Its devices especially the Internet and modern computer email facilities have further strengthened early modernizations like the telephone and fax. Other ICT devices include data recognition equipment, factory automation hardware and services, tele computing and teleconferences using real time and online system (Adeoti, 2005).The measurement is total cost on ICT in a year.

Computerized Accounting System

Marivic, (2009) described a computerized accounting system as a method or scheme by which financial information on business transactions are recorded, organized, summarized, analyzed, interpreted and communicated to stakeholders through the use of computers and computer-based systems such as accounting packages. He emphasized that it's a mechanized process of facilitating financial information inflows as well as the automation of accounting tasks such as database recording and report generation. Marivic adds that keeping accurate accounting records is a vital part of any organization. Apart from helping it to keep its float financially and legal, it is a requirement of funding bodies or donors. According to Abiahu (2014), computerized accounting system involves the use of computers and computer capabilities in the performance of accounting functions in an organization. To Frank Wood and Alan, (2005) it is the total suit of components that together comprises all inputs, storage, transactions, processing, collecting and reporting of financial transaction data.

Financial Performance

Financial performance has various measurement but basically two domains are emphasized in the literature. The financial one represented by profitability, growth and market value; and the operational domain that includes nonfinancial competitive aspects such as customer satisfaction, quality, innovation, employee satisfaction and reputation (Enomate& Audu, 2021). The financial indicators of financial performance of an organisation include profitability, sales turnover, return on investment, shareholders fund/net asset, profit before tax, profit after tax and cash flow; while the non-financial ways are market share, number of employees, and the number of products. Standard measurements of profitability of an organisation are gross profit margin, operating margin, net profit margin and net asset or shareholders fund (Enomate& Audu, 2021).

Return on Asset

Return on Assets expresses the net income earned by a company as a percentage of the total assets available for use by that company. ROA suggests that companies with higher amounts of assets should be able to earn higher levels of income. ROA measures management's ability to earn a return on the firm's resources (assets). The income amount used in this computation is income before the deduction of interest expense, since interest is the return to creditors for the resources that they provide to the firm. The resulting adjusted income amount is thereby the income before any distribution to those who provided funds to the company. ROA is computed by dividing net income plus interest expense by the company's average investment in asset during the year.

Empirical Review

Enomate and Audu (2021) examine the effect of information and communication technology (ICT) on financialperformance of listed non-financial service firms in Nigeria. In order to generate the data for the study, a sample of twenty (20) non-financial service companies drawn from foods and beverages, pharmaceuticals, foot wears, chemicals and paints, listed in the Nigeria Stock Exchange for the period of 2016 – 2020, was considered for the study and the ex post facto research design was adopted. The data generated for this study were analysed with both descriptive and inferential statistics using the arithmetic mean, standard deviation, minimum and maximum values, and the Ordinary Least Squares (OLS) regression technique.The findings show that investment in information and communication technology (ICT) infrastructure has a positive effect on the financial performance of listed non-financial firms in Nigeria whereasinformation and communication technology (ICT) personnel has a positive but insignificant effect on financial performance of listed non-financial service firms in Nigeria. Based on the findings of this study, the following recommendations were made, regular training should be given to the ICT Personnel from time to time to keep them abreast of the currentinnovations in the use of ICT. This will enhance their efficiency and quality of service delivery that will ensurecustomers retention and productivity, which will translate to the firm profitability, therefore, listed nonfinancial service firms should give emphasis on efficientutilization of the ICT equipment such as credit and electronic cards to pay at retailoutlets, points of sales (POS), phone banking, among others.

Nwala et al (2020), study evaluates the effect of investments in ICT on financial performance of listed insurance companies in Nigeria. The population of this study is made up of 25 listed insurance companies on the Nigerian Stock Exchange from year 2012 to 2018. Insurance companies that have complete data set for the periods of 2012-2018 were selected purposively for this study, the sampled insurance companies were 16 in number. Secondary data in the form of panel data are used for this study. The data are collected from the 16 selected insurance companies' annual financial reports and accounts. Based on the result of the Hausman specification test, the study adopted the Random effect regression and it revealed that Investment in ICT Hardware and software have significant positive effect on financial performance of listed insurance companies in Nigeria. The study concludes on a general note that investment in ICT improves the financial performance of listed insurance companies in Nigeria. The study therefore, recommends that listed insurance companies in Nigeria should be proactive in adoption of ICT, as investments in ICT, does not erode profitability. Akinboade (2020) conducted to investigate the usage of ICT and its impact of ICT on financialperformance manufacturing companies in Lagos State, Nigeria. The study focused on quoted manufacturing companies in Lagos State, Nigeria. Survey design was adopted in conducting this study. To achieve the objective of this research primary and secondary data were used. Primary data was collected via interview and questionnaire, while secondary data for 10 years was retrieved from the published annual reports of the companies. In all, 44 companies were sampled in this study. Although 44 companies were sampled, questionnaires from only 31 of the companies were returned. It was found that quoted companies sampled in this study have deployed ICT to different departments in these organizations; the level of usage however differs; investment in ICT had positive relationship with financial performance. More so, it has been empirically established that the use of ICT has brought about a significant difference in the sales turnover, profit before tax, profit after tax

and net asset/shareholder'sfund. However, the use of ICT has not brought about any significant difference in the earnings per share of these companies. It is recommended that future studies can be conducted using other financial variables and more financial data to determine the effect of ICT use on pre-ICT adoption and post ICT adoption of quoted manufacturing companies in Nigeria.

Nwakoby et al (2017), examine impact of information and communication technology on the performance of deposit money banks in Nigeria. ex post facto research design and secondary data was adopted in this study. ICT usage can sustain performance of deposit money banks in the long run. Return on equity is good proxy for measuring bank performance. The ordinary least square (OLS) multiple regression model was used to estimate the variables, the scatter diagram was plotted to determine whether the structural model is linear or non-linear. The log-linear regression model was used to test the impact of various forms of information and communication technology on the banks return on equity (ROE), the computation of the result was done using the econometric computer software package, e-view version 7.0. The result shows that the adoption of various forms of information and communication technology has greatly influenced the quality of banking operations, performance and has specifically increased banks return on equity and information and communication technology usage can sustain returns on equity of deposit money banks in the long run. The study recommends that investment in information and communication technology should form an important component in the overall strategy of banking operation, as these will make Nigerian banks to be efficient, profitable, and competitive, the banks should therefore give emphasis to efficient utilization of the information and communication technology enabled services, and should also partner with the government to make internet connectivity cheap and accessible**.** Balogun (2016), examine effect of Information Technology on organizational performance in Nigerian banking industries. Primary data was used in the study and have affected employee performance and customers' responses, customer's and employee's responses to technology innovation, and their effects on the performance of the Nigerian banks. Fifteen (20) major banks were selected for the research. Two null hypotheses based on sets of questionnaires distributed to selected banks' employees and customers were formulated to test whether there is no significant relationship between technology innovation and customer's satisfaction; and between technological innovation and Nigerian banks employee's performance. Four hundred and fifty (450) questionnaires were distributed to customers to test the first hypothesis out of which 400 were collected which is 88.88% of the distributed questionnaires, Chi square was used to test the hypothesis. Findings revealed that technological innovation influenced banks employee's performance, customer's satisfaction and improvement in banksprofitability. The study recommends effective management of technological innovation for improved employees'performance, customer's satisfaction, sustainable profit, increased return on investment, returns on equity, and to promote competitiveness in the Nigerian banking industry.

Taiwo (2016), examine effect of information and communication technology on organizational performance of ICT sector. Organizational performance in this study was related to ability finances, ability to meet set goals and actions. However, to maximise the benefits of information technology systems, the appropriate implementation and adoption procedures have to used, or else, there is little or no impact of these technologies on the earlier mentioned variables. This study investigates empirically the impact of information technology on accounting systems and organizational performance. This study utilizes secondary data and Pearson's correlation was used for analysis using SPSS for a sample of 20 staff in financial services and other related accounting departments inCovenant University. The results of the empirical findings show thatthere is a significant positive relationship between ICT system and accounting system and a significant positive relationship between ICT and organizational performance. The study recommended that organization should be encouraged to invest more in technologies. Adekunle and Rafiu (2014) investigated the impact of Information and Communication Technology CostEfficiency (ICTCE) on the performance of banks as well. The study assessed the impact of ICT on the performance of South African banking industry using annual data over the period 1990-2012 published by Bank scope – World banking information source. Data analysis is carried out in a dynamic panel environment using the orthogonal transformation approach. The robustness of the results was affirmed by residual

cointegration regression analysis using both Pedroni and Kao methods. The findings of the study indicated that the use of ICT increases return on capital employed as well as return on assets of the SouthAfrican banking industry. The study discovers that more of the contribution to performance comes frominformation and communication technology cost efficiency compared to investment in information and communication technology. The study recommends that banks emphasize policies that will enhance proper utilization of existing ICT equipment rather than additional investments.

Sadeghimanesh and Samadi (2013) examined the effect of information technology on the financial performance of the banks listed on Tehran Stock Exchange. For this purpose, 183 of the staff experts of information technology and finance departments of the banks listed on Tehran Stock Exchange have been selected as research sample by using simple random sampling method and responded to the questionnaire. In the end, the obtained data from these questionnaires were analyzed by using two-variable linear regression test and the results indicated that information technology dimensions including IT knowledge, IT operations and IT infrastructures have significant effect on financial performance of the banks listed on Tehran Stock Exchange. The results from Friedman's test also indicated that infrastructures of information technology has the first rank, information technology knowledge has the second rank and information technology has the third rank.It is recommended that banks should establish an official department of Management Information Systems and also using computer systems for analyzing customer and market information. Obasan (2011), examine effect of information and communication technology on profitability of Nigerian banks. The study uses primary data sourced through a structured questionnaire administered to selected banks in south-west Nigeria and the Ordinary Least Square approach econometric techniques, this study examined the nature of the relationship that exist between Banks Profitability and the Adoption of Information and Communication Technology. The data analysis showed that a positive correlation exists between ICT and banks profitability in Nigeria. This implies that a marginal change in the level of the investment and adoption of ICT in the banking industry will result to a proportionate increase in the profit level. This is confirmed by the level of the regression coefficient as well as the factor analysis which revealed that an insignificant size of profit exists without the introduction of the ICT. The study recommend that appropriate policies must beput in place to ensure proper monitoring and the determination of the optimum size required to attain organizational efficiency.

Theoretical Framework

Contingency Theory

Contingency theory was propounded by Hunton and Flowers (1997) which suggests that an information system should be designed in a flexible manner so as to consider the environment and organizational structure confronting an organization. Information systems also need to be adapting to the specific decisions being considered. In other words, information systems need to be designed within an adaptive framework. Review of accounting information system literature also indicates that most AIS studies have incorporated contingency factors such as organizational structure, business strategy, and environmental condition in their research model but have neglected the influence of IT on AIS design. Furthermore, the few studies that have examined the relationship between AIS design and IT have defined IT from a narrow perspective (Ismail, 2004). Similar to IT researches, these studies viewed IT from the technological perspective only but failed to incorporate other perspectives of IT sophistication such as informational, functional and managerial. Hunton and Flowers (1997) suggested that a more comprehensive AIS study is needed to explain the relationship between IT and accounting and its subsequent impact on the organization in general and accounting/accountants in particular. Furthermore, most of previous IT/AIS studies were conducted in developed countries (Ismail and King, 2005). Very few of such studies have been carried out in developing countries especially in the Middle East. Due to the continuous flow of considerable number of empirical studies which investigate the contingency factors and accounting and/or IS and indicates the importance and vitality of this theory, this study is theoretically and empirically constituted upon contingency theory which has long been applied in both accounting and information system disciplines. The contingency theory suggests that an organization's

structure is based on contextual factors such as environmental conditions, business strategy, organizational structure, production technology, and management style (Ismail and King, 2005).

Technological Diffusion Theory

This theory originated in communication to explain how an idea or product gains momentum and spreads through a specific population or social system and was developed by Rogers (1962). Technology diffusion theory is the common lens through which theorists study the adoption and development of new ideas. Diffusion is defined basically as the process by which an innovation is adopted and gains acceptance by individuals or members of a community. The Diffusion theory represents a complex number of sub-theories that collectively study the processes of adoption. The most famous account of diffusion research by Rogers (1995) where the definition of diffusion comprises of four elements which are defined as innovation, communication channels, time and social system. Rogers (1995) also came up with the perceived attributes theory that assumes that innovation bears the following characteristics: Relative advantage: degree in which an advantage is perceived as better than the idea it supersedes, Compatibility: degree that an innovation is seen to be consistent with existing values and norms, Complexity: the degree in which an innovation is seen to be difficult or easy to understand and use.

Socio-Technical Systems Theory

The term socio-technical systems were originally developed by Emery Trist (1960) to describe systems that involve a complex interaction between humans, machines and the environmental aspects of the work system nowadays, this interaction is true of most enterprise systems. The socio-technical systems perspective has become influential in the analysis of the organizational impact of information technology. The theory views any organization as an open system of interdependent sub-units transforming inputs to desired outputs. The gainful employment of any technology hinges on the ability and willingness of users to employ it for worthwhile tasks (i.e., those deemed central to the organization's goals). Socio-technical systems theory has given birth to a framework for technology design that emphasizes holistic job satisfaction (rather than just task performance) and user participation throughout the development process. Thus, socio-technical theorists recommend the analysis of all stakeholders, not just the direct users of a technology, the formation of planning groups to oversee the design, the performance of prototyping exercises, and the analysis of likely impact the technology will have on the organization. In studying technology acceptance, socio-technical theorists conceptualize acceptance in terms of two competing forces: control and enhancement. Control factors are those that impose rules or structures upon the users, thereby removing autonomy (control over their own actions) from them. Among the control issues raised with respect to technology design are: access, reliability, confidentiality, monitoring, pacing, stress, social contact. Low or high presence of certain factors (e.g., low reliability, high pacing) with the introduction of a new technology is likely to reduce the user's perception of control and thus increase the risk of resistance (Connor, 1997).

METHODOLOGY

This study adopted the use of longitudinal panel design. The longitudinal panel design was an appropriate design preferred by the researcher as it aim at establishing relationships between dependent and independent variables through quantifiable results. The population of this study consists of the 9 ICT firms listed on the Nigerian Exchange Group (NGX) as at December 2021 in which six (6) was used as sample size.This study used secondary sources of data. The data were obtained from the annual reports and accounts of the sampled firms covering the period of ten years (2010-2019). In analyzing the collected data, descriptive statictics and panel multiple regression analysis were used. The technique was made possible with the use of the E-view 10 package. The model that will be used in testing the hypotheses of the study is presented below:

$$R0A = \beta 0 + \beta_1 CICT + \beta_2 CAS + \mathcal{E}it \text{..(i)}$$

Where:

ROA = Return on asset
β0, β1 – β2 = parameters to be estimated
CICT = Cost of Information Communication Technology
CAS= Computerized Accounting System
Ɛ = error term signifying other variables not captured in the study
it = Firm i at time t

Study Variables and their Measurement

Variable Acronym	Variable Name	Variable types	Measurement	Source
ROA	Return on Asset	Dependent	Dividing net income plus interest expense by the company's average investment	Nwakoby et al (2017)
CICT	Cost of ICT	Independent	Total amount spent in a year on ICT	Nwakoby et al (2017)
CAS	Computerized Accounting System	Independent	If firm has computerizedaccounting system is dichotomize as 1 and '0' If firm does not have	Balogun (2016)

Source: Researcher Compilation (2022)

RESULT AND DISCUSSION

Descriptive Statistics

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations obtainable. The table below shows the descriptive statistics for the variables applied in the study

	ROA	CICT	CAS
Mean	17.52467	0.801833	0.800000
Median	16.67000	0.670000	1.000000
Maximum	26.44000	1.990000	1.000000
Minimum	11.00000	0.120000	0.000000
Std. Dev.	4.324532	0.558431	0.403376
Skewness	0.322866	0.690546	-1.500000
Kurtosis	1.942877	2.277574	3.250000
Jarque-Bera	3.836200	6.073291	22.65625
Probability	0.146886	0.047996	0.000012
Sum	1051.480	48.11000	48.00000
Sum Sq. Dev.	1103.393	18.39890	9.600000
Observations	60	60	60

Source E-views output (2022)

Table 4.1 presented the descriptive statistics of the effect of information and communication technology on financial performance of information and communication technologyfirms in Nigeriaduring the period of 2012 to 2021. The table shows that return on asset (ROA) as a measure of financial performance has a mean of 17.52467, with a standard deviation of 4.32453as well as a minimum value of 11.0000 and

maximum values of 26.44000 respectively. Given that the range between the minimum and maximum is not so wide, it implies a stable performance as the standard deviation indicated that there is no wide dispersion of the data from the mean value. For the other measure of information and communication technology, cost information and communication technology (CICT) and computerized accounting system (CAS) shows a mean of value of 0.80183 and 0.80000 with standard deviation of 0.55843 and 0.40337 with a minimum value of 0.120000 and 0.00000 with maximum value of 1.9900 and 1.0000 respectively. This implies that the ICT in terms CICT and CAS witnessed a marginal increase during the study period, as the standard deviation is not so large compared to the mean, together with the low range between the minimum and maximum values. Skewness which measures the shape of the distribution and equally shows the measure of the symmetry of the data set. A negative value of skewness shows that the data has a normal distribution of skewness while a positive value of skewness shows that the data has an abnormal distribution of skewness. From the above table, ROA, CICT and CAS has abnormal distribution of skewness 1.942877, 2.27757 and 3.25000 respectively.

Correlation Analysis

Table 4.2 presents correlation values between dependent and independent variables and the correlation among the independent variables themselves. These values are generated from Pearson Correlation output. The Table contains correlation matrix showing the Pearson correlation coefficients between the dependent and independent variables and among the independent variables of the study.

Table 4.2: Covariance Analysis Result

Covariance Analysis: Ordinary
Date: 08/13/22 Time: 04:33
Sample: 2012 2021
Included observations: 60

Correlation Probability	ROA	CICT	CAS
ROA	1.000000 -----		
CICT	-0.181249 0.1658	1.000000 -----	
CAS	0.337796 0.0083	0.312411 0.0151	1.000000 -----

Source E-views output (2022)

Table 4.2 shows the correlation between the dependent variable, ROA and the independent variables of CICT and CAS on one hand, and among the independent variables themselves on the other hand. Generally, a high correlation is expected between dependent and independent variables while a low correlation is expected among independent variables. A correlation coefficient between two independent variables of 0.80 is considered excessive, and thus certain measures are required to correct that anomaly in the data. From the table, it can be seen that all the correlation coefficients among the independent variables are below 0.80. This point to the absence of possible multicollinearity among the independent variables and the correlation between the dependent variables shows that there is a mix of both positive and negative correlation among the dependent and independent variables.The Table revealed a negative correlation coefficient between ROA and CICT(-0.181249), during the period of investigation. The weak negative coefficient between the two variables of the sampled companies is an indication that CICT is

associated with decrease in ROA of ICT firm during the study period.ROA is positively correlated with CAS (0.337796) during the study period.

Fixed Effect Likelihood Ratio Test

The Fixed Effect Likelihood Ratio test is a test for model specification in panel data analysis and this test is employed to choose between pooled effect model and the fixed effects model. Due to the panel nature of the data set, both pooled effect and fixed effect regressions were run (as shown in appendix 2 and 3 as attached). Fixed effect likelihood ratiospecification test was then conducted to choose the preferred model between the pooled effect and the fixed effect regression models. The test basically checked if the error terms were correlated with the regressors. Thus, the decision rule for the fixed effect likelihood ratiospecification is stated thus; at 5% Level of significance:

H_0: Pooled effect is most appropriate for the Panel Regression analysis
H_1: Fixed effect is most appropriate for the Panel Regression analysis

As stated above, if the p-value is greater than 0.05 the decision rule is to accept the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis (meaning that the fixed effect model is to be rejected). Similarly, if the p-value is less than 0.05 the decision rule is to reject the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis (meaning that the fixed effect model is to be accepted).

Table 4.3: Fixed Effect Likelihood Ratio Table
Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	37.501748	(5,52)	0.0000
Cross-section Chi-square	91.640771	5	0.0000

Source: E-View 10 Output (2022)

The Result of fixed effect likelihood ratio test shows that chi-square statistics value is 91.64077 while the probability values of is 0.0000. This implies that there is enough evidence to reject the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis. It thus stands that error component model (pooled effect) estimator is not appropriate because the pooled effects are probably correlated with one or more regressors. Thus, the most consistent and efficient estimation for the study, given the options of a pooled effect analysis and a fixed effect analysis, is the fixed effect model of regression analysis. Consequently, the result suggests that the fixed effect regression model is most appropriate for the sampled data (given the two options as stated above). It is most logical therefore to proceed to another test which is the hausman test, which will show the appropriateness of otherwise of using the fixed effect model or the random effect model.

Hausman Test

The Hausman test is a test for model specification in panel data analysis and this test is employed to choose between fixed effects model and the random effects model. Due to the panel nature of the data set utilized in this study, both fixed effect and random effect regressions were run. Hausman specification test was then conducted to choose the preferred model between the fixed effect and the random effect regression models. The test basically checked if the error terms were correlated with the regressors. Thus, the decision rule for the Hausman specification test is stated thus; at 5% Level of significance:
H_0: Random effect is most appropriate for the Panel Regression analysis
H_1: Fixed effect is most appropriate for the Panel Regression analysis

As stated above, if the p-value is greater than 0.05 the decision rule is to accept the null hypothesis which states that random effect is most appropriate for the Panel Regression analysis (meaning that the preferred model is random effects). Similarly, if the p-value is less than 0.05 the decision rule is to reject the null hypothesis which states that random effect is most appropriate for the Panel Regression analysis (meaning that the fixed effect model is to be accepted).

Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.135000	2	0.0020

Source: E-View 10 Output (2022)

The Result of Hausman test shows that chi-square statistics value is 12.13500while the probability values of is 0.0020. This implies that the null hypothesis which states that random effect is to be rejected and the most appropriate estimate for the panel regression analysis is the fixed effect. It thus stands that error component model (fixed effect) estimator is the most appropriate because the fixed effects are well correlated with the regressors. Thus, the most consistent and efficient estimation for the study is the fixed effect cross-sectional model. Consequently, the result suggests that the fixed effect regression model is most appropriate for the sampled data because the Hausman test statistics as represented by corresponding probability value less than 5%.

Table 4.4: Panel Regression Result (Fixed Effect)

Dependent Variable: ROA
Method: Panel Least Squares
Date: 08/13/22 Time: 04:31
Sample: 2012 2021
Periods included: 10
Cross-sections included: 6
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.86378	0.615461	22.52586	0.0000
CICT	1.675437	0.595475	2.813614	0.0069
CAS	2.896832	0.669119	4.329322	0.0001

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.827450	Mean dependent var	17.52467
Adjusted R-squared	0.804222	S.D. dependent var	4.324532
S.E. of regression	1.913469	Akaike info criterion	4.259278
Sum squared resid	190.3909	Schwarz criterion	4.538524
Log likelihood	-119.7784	Hannan-Quinn criter.	4.368507
F-statistic	35.62304	Durbin-Watson stat	1.190261

Prob(F-statistic)	0.000000

Source: E-View 10 Output (2022)

From table 4.4 above, the coefficient of multiple determinations (R^2) is 0.82745 and In line with the panel nature of the data used in this study, the regression model shows that the range of values between adjusted R^2 and R^2 falls between 82%, and 80% respectively. This indicates that about 82% of the total variations in return on asset (ROA) is explained by the variations in the independent variables (CICT and CAS), while the remaining 18% of the variation in the model is captured by the error term. Similarly, from the table above, the coefficient of the intercept (for the fixed effect result) is positive. This indicates that at any given point of time where these explanatory variables are held constant, ROA (financial performance) of the firms improves by 13.86378. The standard error test is applied in order to measure the size of the error and determine the degree of confidence in the validity of the estimates. The result presented in the above table revealed that among the explanatory variables of the study CICT and CAS was found to be statistically significant with the probability values of 0.0069and 0.0001 which is less than 5%. However, when taken collectively, the regressors (CICT and CAS) against the regressed (ROA), the value of F-statistic is 35.6230and the value of the probability of F-statistic is 0.0000. This result implies that the overall regression is both positive and statistically significant at 5%.

Discussion of Findings

This study examined the effect of information and communication technology on financial performance of ICT firm in Nigeria, using panel series data and regression analysis approach. Information and communication technologyas the independent variable was proxied by cost information and communication technology (CICT) and computerized accounting system (CAS), for the six (6) listed ICT firms in Nigeria, for a period of 10 years ranging from 2012 to 2021. Return on asset used to proxy financial performance was the dependent variable of the study. The effect of the independent variable on each dependent variable was analyzed in terms of strength and significant and the panel regression analysis was used to compare the relationship among the variables. The result of the estimated model of the study model of the study showed that when taken individually, CICT and CAS has a positive and significant effect on the return on assets of information and communication technologyfirm in Nigeria.The result agrees to the findings of Nwala et al, (2020) and Akinboade (2020) who found a positive association between Cost of ICT and profitabilty of firms. The result however, contradicts the findings of Enomate& Audu (2021) who documented a negative relationship between information and communication technology cost and financial performance of firms.

CONCLUSION AND RECOMMENDATIONS

The study was basically undertaken to examine the effect of information and communication technology on financial performance of ICT firm in Nigeria from 2012-2021 in Nigeria. The information and communication technologyand variables have a significant effect on the financial performance of ICT firm in Nigeria.The study conclude that information and communication technology have significant effect on the financial performance of ICT firm in Nigeria. Based on the findings of this study and the conclusion made, the following recommendations are made to management of information and communication technology firm in Nigeria:

i. The study recommends that the cost of information and communication technology of listed ICT firms in Nigeria should be increased to enhance more profit for the organization
ii. Management should use the latest computerized accounting software which will prove financial performance of firm.

References

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

Abdulrahman, K. M. A., &Altmimi, L. A. (2015). Effect of information and communication technology investment on the profitability of the Jordanian commercial banks. *European Journal of Business and Management, 7*(28).

Adejola, P. A. (2011). Information and communication technology investments and financial institutions earnings: An appraisal of Nigerian commercial banks. *A Quarterly Journal of Association of national Accountants of Nigeria,* 19(1), 31-36.

Adewoye, J. O., & Akanbi, T. A. (2012). Role of information and communication technology investment on the profitability of small and medium scale industry–a case of sachet water companies in Oyo State, Nigeria. *Journal of Emerging Trends in Economics and Management Sciences*, 3(2), 64-71.

Akinboade, A. A. (2020), Impact of ICT usage on financial performance of quoted manufacturing companies in Lagos State, Nigeria,*Management,* 13(2), 28 – 42.

Akinade, O.S. (2013). ICT adoption and integrationist impact on performance of business units of Universities in South West Nigeria. *Journal of Research and Development,* 1(2).

Balogun E.O (2016). Effect of information technology on organizational performance in Nigerian banking industries. *Research Journal of finance and Accounting*. 7(3), 52-64

Beccalli, E. (2005). Does IT investment improve bank performance? Evidence from Europe. Macerata, Italy. Retrieved from http://erepository.uonbi.ac.ke/bitstream/

Brynjolfsson, E., & Hitt, L. (1996). Paradox Lost? Firm-Level Evidence on the Returns to Information Systems Spending. *Management Science,* 42(4), 541-558.

Byrd, T.A., & Turner, E.D. (2000). An exploratory analysis of the information technology infrastructure flexibility construct. *Journal of Management Information System,* 17(1), 167-208.

Calderon T.G., Seo S., & Kim II-Woon (2001). Information technology and the performance of financial companies in South Korea. *Journal of Applied Business Research, 17*(2).

Casolaro, L., & Gobbi, G. (2007). Information technology and productivity changes in the banking industry. *Economic Notes, 36*(1), 43-76.

Chagbadari M. F. (2011). Corporate governance and firm performance. *International Conference on Sociality and Economic Development,* 10 (1), 484-489.

Dandago, K. I., & Farouk, B.K. (2012). Impact of Investment in information technology on the return on asset of selected banks in Nigeria. *International Journal of Arts and Commerce, 1*(5),

Dauda, Y. A., & Akingbade, W. A. (2011). Technology innovation and Nigeria banks performance: The assessment of employee's and customer's responses. *American Journal of Social and Management Sciences,* 2(3), 329-340.

Enomate B & Audu I.O (2021). Effect of information and communication technology on financial performance of listed non-financial firms in Nigeria. *Bingham International Journal of Accounting and Finance,*2(2), 182-194

Emmanuel, O. S. (2011). ICT's, service delivery and operational performance in Nigerian banks: A survey of empirical research. *African Research Review,* 5(4), 44-59.

Epps, R. W., &Cereola, S. J (2008). Do institutional shareholder services corporate governance ratings reflect a company's operating performance? *Critical Perspectives on Accounting,* 19 (1), 1138-114.

Fadun, S.O. (2013). Information and communication technology and insurance companies profitability in Nigeria. *International Journal of Business and Management Invention,* 2(1), 84-92.

Hassan, S.U. (2013). Electronic banking products and performance of Nigerian listed deposit money banks. *American Journal of Computer Technology and Application*, 1(10), 138-148.

Hernando, I., & Nieto, M. J. (2007). Is the internet delivery channel changing banks' Performance? The Case of Spanish Banks. *Journal of Banking & Finance,*

Ho, S. J., & Mallick, S. K. (2006). The impact of information technology on the banking industry:

Theory and empirics. Queen Mary, University of London, UK.

Ibikunle, F., & James, O. (2012). Impact of information technology on Nigeria Banking Industry: A case Study of Skye Bank. *International Journal of Computing Academic Research, 1(*1), 25-35.

Jimoh, A. O. (2012). Information system and insurance business in Nigeria. *JORIND 10*(3), 1596-8308.

Kim, Y.J., Kang, H., Sanders, G.L., & Lee, S. T. (2008) Differential effects of it investments: Complementarity and the effect of GDP Level. *International Journal of Information Management,* 28, 8, 508-516.

Nwakoby N.P; Sidi C.P &Ofobruku S.A (2017). Impact of information and communication technology on performance of deposit money bank in Nigeria. *Nigerian Academy of Management Journal*, 14(2), 68-78.

Malit, A., & Muendo, D. (2017). The effect of information communication technology strategy implementation on organizational performance of insurance sector in Kenya, 4(2), 742 - 762,

Mashal, A. (2006). Impact of Information technology investment on productivity and profitability: The case of a leading Jordanian Bank. *Journal of Information Technology Case and Application Research, 8*(4), 25- 46.

Morton, M.S. (1991). How information technologies can transform organizations", in Kling, R. (Ed.), Computerization and Controversy: Value Conflicts and Social Choices, 2nd ed., Academic Press, San Diego, CA.

Obasan, K. (2011). Information and communication technology and banks profitability in Nigeria. *Australian Journal of Business and Management Research,* 1(4), 102-107.

Olorunsegun, S. (2010). *The impact of electronic Banking in Nigeria Banking System.* Unpublished MBA Research Project, Ladoke Akintola University of Technology, Ogbomoso, Oyo State Nigeria, 23-29. Retrieved online on 20/06/2016.

Osabuohien, A. (2008). ICT and Nigerian banks reforms: Analysis of anticipated impacts in selected banks. *Global Journal of Business Research, 2*(2).

Rogers, E. M. (1995). *Diffusion of innovations.* (5th ed.). New York: Free Press.

Sadeghimanesh, M. & Samadi, A. (2013). The effect of information technology on financial performance of the banks listed in Tehran stock exchange. *Journal of Natural and Social Sciences: Special Issue on Accounting and Management,* 2 (3), 2911-2919.

Saleem, F., Salim N., AL-Ghamdi, A., & Ullah (2015). Building framework for ICT investments Evaluation: Value on Investment Perspective. *Journal of Engineering and Applied Sciences* 10(3).

Schniederjans M. J. (2010). Information technology investment: Decision-making methodology. World Scientific.

Stella, M. I. (2010). Evaluating Banking Productivity and Information Technology Using the Translog Production Function. *International Journal of Engineering Science.*

Taiwo J.N (2016) effect of information and communication technology on organizational performance of information and communication technology sector in Nigeria. *European Journal of Business and Social Science*, 5(2), 1-15

Trist, E. (1990). Introduction to volume II: A Tavistock anthology. Eds. E. Trist and H. Murray. Philadelphia, PA: University of Pennsylvania. 36 – 60.

Ugwuanyi, W., & Ugwuanyi, G. O. (2013). Evaluation of information technology investments on bank returns: Evidence from Nigerian Banks. *Research Journal of Finance and Accounting, 4*(4), 155-164.

Uwala M.N; Abubakar I.A &Onibiyo E.R (2020). Effect of investment in information and communication technology on financial performance of listed insurance companies in Nigeria. *Journal of Economics and Allied Research,* 4(3), 125-139.

Effect of International Financial Reporting Standards Adoption on Value Relevance of Accounting Information of Listed Commercial Banks in Nigeria

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Abstract

This study examines the effect of IFRS adoption on value relevance of accounting information of listed commercial banks in Nigeria. The specific objectives were to determine the effect of IFRS adoption on value relevance of book value of equity per share, earnings per share and dividend per share of listed commercial banks in Nigeria. The study covers a period of 14 years from 2005 to 2018. Thus, 7 preceding years before the adoption of IFRS (2005-2011) and 7 years after the adoption of IFRS (2012-2018). It adopts ex-post facto research design and the population of the study is made up of fourteen (14) listed commercial banks on the floor of the Nigerian Stock Exchange. Statistical sampling was not employed due to the small size of the population; however all the commercial banks were census. It utilized panel data mainly from secondary sources, which was extracted from audited annual financial reports of listed commercial banks in Nigeria. It employs panel multiple regression-variations approach of analysis. The analysis is based on the modified Ohlson's (1995) valuation model. The study revealed that IFRS adoption has no significant effect on value relevance of book value of equity per share and dividend per share. Furthermore, the study showed that IFRS adoption has significant effect on value relevance of earnings per share. It concludes that book value of equity per share has no value relevance after the adoption of IFRS. It also concludes that earning per share is value relevant after the adoption of IFRS. Dividend per share in the pre adoption of IFRS has value relevance higher compared to the adoption era of IFRS. It recommends that management of listed commercial banks in Nigeria should ensure full compliance to IFRS

Keywords: Book Value of Equity per Share, Dividend per Share, Earnings per Share, IFRS

INTRODUCTION

In order for accounting information to be relevant, the quality of financial reporting is essential and must be enhanced continuously. In this vein, Mousa and Desoky (2014) declare that the users of accounting information who require useful information from financial statements for investment and other decision-making are equally interested in the value relevant of financial reporting. Although, several other factors may affect the value relevant of financial information, the accounting standards applied in preparing financial statement is essential. Accounting standards prescribe guidelines for the treatment of financial transactions in accounting books as well as the presentation and disclosure of information in the financial statement (Paiva & Lourenco, 2014; Kaaya, 2015). The use of different domestic accounting standards in preparation of financial statement in different countries result in diversity in accounting practices across the globe and this is not without economic consequences. One observed consequence is that the understanding and interpretation of financial statement based on domestic standard is hindered due to differences in accounting practices across countries. In addition, the use of domestic accounting standards makes comparability of accounting information difficult. It is for this reason that Ding et al. (2007) declare that the differences in accounting standards across countries reduce the quality and the relevance of accounting information. The weaknesses of the domestic standards provide the impetus for the call for harmonising of accounting rules and principles among countries. For this purpose, concerted efforts have been made towards harmonisation of

accounting standards at international level since 1970s (Callao, Jarne & Larnez, 2007; Wu & Zhang, 2008). The effort culminated in the formation of International Accounting Standard Committee (IASC) in 1973 with 9 countries as the initial members (Alabede, 2004). The IASC was responsible for issuance of standard known as International Accounting Standard (IAS).

Value relevance studies became necessary by the fact that listed firms use financial information as a medium of communication to the stakeholders' of the firm. Value relevance literature deals with the usefulness of financial statement information in equity valuation, financial information assists the owner's, stakeholders and the general public to evaluate and know the performance of firms. In 2012, Nigeria joined other countries to adopt IFRS in order to improve the quality of its financial reports (Khanagha, 2011; Erin, Olojede & Ogundele, 2017). Understanding the effect of IFRS on value relevance of accounting information is critical to the capacity of investors, regulators, auditors, financial analysts, as well as those in academia to take informed decisions. In this regard, IFRS supposed to improving the value relevance of accounting information to shareholders thereby enabling them to objectively evaluate firm performance for sustainable investment decisions (Umoren & Enang, 2015). Although, some studies such as Omokhudu and Ibadin (2015), Okafor, Ogbuehi and Anene (2017), Alade, Olweny and Oluoch (2017), Uwuigbe et al. (2017), Erin, Olojede and Ogundele (2017), Muhammad (2017), Ibanichuka and Asukwo (2018), Ezejiofor (2018) have been conducted to ascertain the effect of IFRS adoption on value relevance of accounting information of listed non-financial firms, consumer goods firms, insurance firms, petroleum marketing firms, and manufacturing firms in Nigeria, there is limited literature on the effect of IFRS adoption on value relevance of accounting information amongst listed commercial banks in Nigeria. This has created a gap in terms of the area of the study. Although, all these studies to the best of the researcher's knowledge has been conducted on value relevance of accounting information of companies in the different sectors in Nigeria.

However, there are previous studies (Akpaka, 2015; Yahaya, Onyabe & Usman, 2015; Uwuigbe et al., 2016; Pavtar, 2017; Umoren, Akpan & Ekeria, 2018) on IFRS and value relevance which was only restricted to listed commercial banks in Nigeria. These studies that focused on listed commercial banks in Nigeria did not measure dividend per share as part of the explanatory variables, and this has also created a gap in terms of the variable measurement. This study, therefore, seeks to expand the scope of literature by examining the consumer goods and financial services sector listed on the Nigerian Stock Exchange (NSE) for seven year pre-IFRS period (2005-2011) and seven year post-IFRS period (2012-2018). This is a wider scope than prior empirical studies. Thus, the main objective of this study is to examine the effect of IFRS adoption on value relevance of accounting information of listed commercial banks in Nigeria.

LITERATURE REVIEW

International Financial Reporting Standards

IFRS is an abbreviation for International Financial Reporting Standards. It represents a single set of high quality, globally accepted accounting standard that can enhance comparability of financial reporting across the globe (Fasina & Adejare, 2014). IFRS are a set of accounting principles that is rapidly gaining acceptance around the world. They are published by the London based International Accounting Standards Board (IASB). IFRS is a more focused and conscious way of reporting financial statements. In Nigeria on the 28th July 2010, the Nigerian Federal Executive Council

approved January 1, 2012 as the effective date for the convergence of Nigerian Statement of Accounting Standards (SAS) or Nigerian GAAP (NG-GAAP) with IFRS.

Value Relevance of Accounting Information

Oshodin and Mgbame (2014) defined value relevance of accounting information as the usefulness of financial accounting information, given the investors' decision to invest or to maintain their investment in shares of companies arising from the relationship between the financial statements and market share prices. Value relevance is the power of accounting data that affect investors' perception about the future earnings of an entity (Barth et al., 2001). Accounting information can be deemed value-relevant when a significant part of firm's equity value or other important information can significantly affect investor's decision. Therefore, the power of financial information to effectively affect investors' decision on key investment matters depends largely on the relevance of such financial information.

Empirical Review

Akpaka (2015) investigated the impact of IFRS adoption on value relevance of financial information of listed Deposit Money Banks in Nigeria. Edwards Bells and Olhson (1995) model was adopted to conduct a pre (2006-2009) and post (2010-2013) IFRS analyses on seven (7) listed banks. The Generalized Least Square revealed that Pre-IFRS financial information is value relevant; post IFRS financial information has weak value relevance and post IFRS financial information has no relative value relevance over pre-IFRS financial information. Onalo et al. (2015) investigated whether changes in Malaysia and Nigeria accounting standards affects value relevance of financial statement information. The study used a sample of 21 banks representing 8 Malaysian banks and 13 Nigerian banks for a study period of 4 years (2009-2012). The study discovered that Malaysia Financial Reporting Standard impact more significantly and positively on the value relevance of financial statement information of Malaysia banks than the previous Financial Reporting Standard. Yahaya, Onyabe and Usman (2015) examined post-IFRS adoption value relevance of accounting information of listed DMBs in Nigeria using two models. A regression-variations approach measures value relevance based on the explanatory power of accounting information as a measure of market value. A comparison of coefficients indicates that the EPS has a higher explanatory power than any other variables. The results also demonstrate that explanatory power of accounting numbers increased from pre-adoption to post-adoption. The study of Prihatni et al. (2016) examined the value relevance of accounting information between the manufacturing industry and the Financial Services for the periods of 2008 and 2014 and compare the results for both groups of sectors. The results showed that accounting information such as earnings, book value and cash flow have value relevance fluctuates on the phase of adoption and implementation of IFRS.

Uwuigbe et al. (2016) examined the effect of value relevance of financial statements on listed banks share price in Nigeria for the period 2010-2014 were used. A total of 15 listed banks in the NSE market were selected and analyzed for the study. The Fixed Effects Panel data analysis result showed that a significant positive relationship existed between EPS and Last day share price. The work of Umar (2017) examined the value relevance of IFRS adoption in the Nigerian financial service firms for the periods 2008 to 2015; 2008-2011 for pre IFRS adoption and 2012-2015 for post adoption. Multiple regression models revealed that book value per share is more value relevant in post IFRS adoption on share price of listed financial service firms in Nigeria. While, earnings per share is more

value relevant in pre-IFRS adoption. Outa, Ozili and Eisenberg (2017) examined the relative value relevance of accounting information arising from the adoption of converged and revised IAS/IFRS in East Africa. The results showed that accounting information prepared from revised and converged IAS\IFRS display higher value relevance and also increased following the revision and convergence of IAS\IFRS. Aksu, Cetin and Mugan (2017) investigated the effect of accounting reforms on value relevance that is measured as the strength of the association between a firm's accounting earnings and book value of equity and its market value over the years 1992–2006. The study found that book value of equity is more value relevant than accounting earnings in Istanbul Stock Exchange. The study also found that inflation accounting and consolidations have enhanced the value relevance of book value of equity, while IFRS has increased the value relevance of accounting earnings, but reduced that of book value of equity.

Okafor, Ogbuehi and Anene (2017) determined the effect of IFRS adoption on value relevance of book value, earnings per share, and cash flow from operations of consumer firms' sector in Nigerian firms for a period of eight years (2008-2015). Multiple regression analysis revealed that IFRS adoption has an incremental effect on the value relevance of book value, earnings per share, and cash flow from operations, with earnings per share showing the highest increment. The study of Uwuigbe et al. (2017) examined the impact of IFRS adoption on the value relevance of accounting information in Nigeria. The fact book and the annual reports for the period 2010-2013 were used. The study also observed that EPS exhibits a stronger explanatory power both in pre and post IFRS adoption periods. Erin, Olojede and Ogundele (2017) examined value relevance of accounting data in the pre and post IFRS period in Nigeria. The study sampled 52 public entities from consumer goods and financial services sector in Nigeria. The findings also revealed that IFRS implementation in Nigeria has enhanced the value relevance of accounting data such as earnings, cash flow, book value and net income. The study of Oraby (2017) determined whether accounting information under IFRS is value relevance or not and which accounting information is more value relevance in Saudi Arabia. The study conducted a quantitative study on a sample of 11 banks listed in Saudi Stock Exchange during the period from 2006 to 2015. Results indicated that changes in share prices and earnings per share are significant but book value per share is not significant.

Muhammad (2017) examined the impact of IFRS adoption on the value relevance of accounting information of listed insurance firms in Nigeria. Data was collected from a sample of 20 listed insurance firms for the period 2009–2014. OLS regression model showed that the adoption of IFRS has decreased the value relevance of accounting information in the listed insurance firms, however, the individual independent variables EPS, dividend per share and BVS showed an increase after the adoption of IFRS and positive relationship with market per share. Pavtar (2017) investigated the effect of IFRS adoption on value relevance of accounting information of listed Deposit Money Banks in Nigeria. Regression analysis revealed that there is no significant impact of post IFRS earnings per share and book value per share on the share price of deposit money banks in Nigeria while post IFRS volume of shares issued significantly affect the share price of Deposit Money Banks in Nigeria. The study of Musa and Tanimu (2017) investigated the IFRS and value relevance of financial information among Nigerian listed companies after the adoption of IFRS. The regression result revealed that there is a positive and significant relationship between book value of equity and net income on stock price. The study of Elbakrya et al. (2017) employed panel cointegration with a corresponding vector error correction model to investigate the changes in the value relevance of accounting information before and after the mandatory adoption of IFRS in Germany and the UK. The results indicate that the explanatory power of linear equity valuation models is higher in UK than in the Germany, also, a

long-run Granger-causal relationship exists between accounting variables and share prices in common law countries like the UK.

Alkalia, Zurub and Kegudua (2018) determined the effect of IFRS as a new accounting reporting among Nigerian listed firms. The study used book value, earnings and dividends using a sample of 126 Nigerian listed firms in the stock market from 2009 to 2013. The study found that combined book value, earnings and dividends do not provide statistical significance effects on IFRS after adoption on the quality of accounting information. The study of Ezejiofor (2018) evaluated the extent the adoption of IFRS has significantly improved the book value per share, EPS and the cash flow of manufacturing companies in Nigeria for the periods of 2008-2015. Regression analysis revealed that the adoption of IFRS has improved the book value per share, market share price, EPS and cash flow of manufacturing companies in Nigeria. Alnodel (2018) investigated whether the adoption of IFRS increases the value relevance of accounting information for insurance firms listed in the Saudi stock market. The data was collected for 21 insurance companies listed in the Saudi stock market during the period 2007–2014, which covered pre and post-IFRS periods. The results reveal that the book value of equity becomes less value relevant whereas earnings are more value relevant. The work of Juniarti, Novitasari and Tjamdinata (2018) examined the value relevance of IFRS adoption in Indonesia. The OLS regression tool of analysis revealed that EPS and book value of equity increased after IFRS adoption than before adoption. The study of Nijam and Jahfer (2018) investigated the impact of IFRS adoption on value relevance of accounting information in Sri Lanka by comparing value relevance of accounting information in pre- and post-IFRS adoption periods. It is found that both book value of equity per share and EPS significantly and positively explain market value per share during the periods followed by IFRS adoption although EPS was not a significant predictor of market value per share prior to IFRS adoption. Umoren, Akpan and Ekeria (2018) investigated the value relevance of accounting information such as book value and EPS on the market price of shares before and after the adoption of the IFRS in Nigeria for 10 years (2007 – 2016) and the OLS regression showed insignificant relationship between book value per share and market price per share as well as insignificant relationship between EPS and market price per share before and after the adoption of IFRS in Nigeria.

Omokhudu and Ibadin (2015) examined the extent to which accounting information is associated with firm value in Nigeria from 1994 to 2013. The sample covers all industries excluding firms in the financial industry. The OLS estimation found that earnings, cash flow and dividends were statistically significantly associated with firm value but book value was related but not statistically significant. Alade et al. (2017) investigated plausible influence of IFRS adoption on value relevance of earnings and book value of the Nigerian listed non-financial firms between 2008 and 2015. Panel least square regression results showed that earnings per share and book value are jointly and individually more value relevant positively and significantly during IFRS regime than under erstwhile Nigerian SAS. The work of Ibanichuka and Asukwo (2018) examined the effect of IFRS adoption on the financial performance of petroleum marketing entities in Nigeria. A sample size of ten (10) Listed Petroleum Marketing companies in which their data were available on NSE as at December 31, 2015 was used. The findings of the study revealed that Pre-IFRS and Post-IFRS adoption have no significant effect on Return on Asset and on Return on equity; however, both Pre-IFRS and Post-IFRS adoption have a significant impact on EPS. Umobong (2015) examined the impact of IFRS on market performance of food and beverages manufacturing firms in Nigeria. Earnings per share, price earnings ratio and dividend yield were selected as performance criterion. Findings indicate that differences on market performance between Pre and Post IFRS periods are not significant suggesting a weak correlation

between adoption of IFRS and market performance of quoted food and beverage manufacturing firms in Nigeria Stock Exchange.

Theoretical Framework

Signaling Theory

This theory can be traced back to the renowned works of Spence (1973) which won a Nobel Prize in 2001 in economics for their work in information economics. Before that, signaling was the idea that one party (termed the agent) credibly conveys some information about itself to another party (the principal). Signaling theory explains how a firm by acting in a specific way can create a specific reputation (Spencer, 1973). In the context of this study, IFRS adoption is seen as the action in a specific way, the information thus released after the adoption can be said to the specific reputation. The adoption of IFRS is a new standard, although quite a number of researchers feel it is the best to thing that has happened to accounting profession. The proponents argue that a single global accounting has the prospects of improving information quality across borders and foster cross border investments (Masud, 2013). Information published as an announcement will give a signal to investors in making investment decisions. If the announcement contains a positive value, it is expected that the market will react to the timing of the announcement is received by the market (Hartono, 2003), At the time the information was announced and all market participants have received such information, market participants prior to interpret and analyze information such as signal (good news) or the signal is bad (bad news). If the announcements of such information as a good signal for investors, then there is a change in the volume of stock trading. This theory was also employed in the empirical studies of Muhammad (2017); Alade et al., (2017); Prihatni et al., (2018).

Stakeholders Theory

Stakeholder's theory explains information disclosure as an obligation and the right of the stakeholders. Stakeholders are groups, which are influenced by the corporate activities or which can affect the corporation. The organization's survival in the long run requires stakeholder's support and approval. The more powerful the stakeholders are, the more the organization must adapt to their interests and demands. The basic proposition of the stakeholder's theory is that the firm's success is dependent upon the successful management of all the relationships that a firm has with its stakeholders a term originally introduced by Stanford research institute to refer to those groups without whose support the organization would cease to exist (Freeman, 2003). The main concern of the stakeholder's theory in environmental accounting is to address the environment cost elements and valuation and its inclusion in the financial statements.

METHODOLOGY

This study adopts ex-post facto research design. The population of this study is made up of fourteen (14) listed commercial banks on the floor of the Nigerian Stock Exchange from year 2005 to 2018. In this study, statistical sampling is not employed due to the small size of the population; however listed commercial banks studied are selected based on census method. These listed commercial Banks are; Access Bank Plc, Ecobank Plc, Fidelity Bank Plc, First Bank of Nigeria Plc, First City Monument Bank Plc, Guaranty Trust Bank Plc, Polaris Plc, Stanbic IBTC Plc, Sterling Bank Plc, United Bank of Africa Plc, Union Bank Plc, Unity Bank Plc, Wema Bank Plc, and Zenith Bank Plc. The study utilized panel data mainly from secondary sources, which was extracted from audited annual financial reports of listed commercial banks on the Nigerian Stock Exchange for the period of pre IFRS (2005-

2011) and post IFRS adoption era, that is (2011-2018). The study employs panel multiple regression-variations approach to investigate the effect of IFRS adoption on value relevance of accounting information amongst listed commercial banks in Nigeria.

The analysis is based on the modified Ohlson's (1995) valuation model which states that the firm value is a linear function of book values of owners' equity and earnings. Following Dechow (1994) and Ortega (2006), this study includes the basic Ohlson's (1995) model which was also modified to accommodate dividends following Brief's (2000) suggestion. This study used modified Ohlson's model (1995) which include dividends per share following the work of Omokhudu and Ibadin (2015). Econometrically the model is as thus;

$MSP_{it} = \beta_0 + \beta_1 BVS_{it} + \beta_2 EPS_{it} + \varepsilon_{it}$ ---(i)

The basic model is modified by adding dividends per share to the model, therefore, the model is adapted from Ohlson's model of 1995 and thus the model is stated as

$MSP_{it} = \beta_0 + \beta_1 BVS_{it} + \beta_2 EPS_{it} + \beta_3 DVS_{it} + \varepsilon_{it}$ --(ii) Pre IFRS Adoption Era

$MSP_{it} = \beta_0 + \beta_1 BVS_{it} + \beta_2 EPS_{it} + \beta_3 DVS_{it} + \varepsilon_{it}$ -------------------------------------(ii) Post IFRS Adoption Era

MSP_{it}: Market share price of bank i at time t

BVS_{it}: Book value of earning per share of bank i at time t

EPS_{it}: Earnings per share of bank i at time t

DVS_{it}: Dividend per share for the period at time t

β_0: The intercept of the regression line

ε_{it}: Represents error term

β_1 to β_3: Coefficients of the explanatory variables.

Variables Measurement

Table 1: Variables Measurement

Variable Name	Variable Acronym	Variable Measurement	Support from Empirical Studies
Market Share Price	MSP	the share price of a company that is publicly traded	Erin, Olojede and Ogundele (2017)
Book value of equity per share	BVS	Net assets divided by the number of ordinary shares outstanding.	Erin, Olojede and Ogundele (2017)
Earnings per share	EPS	Profit accrued divided by ordinary shares outstanding.	Erin, Olojede and Ogundele (2017)
Dividend per share	DVS	Is calculated by dividing annual dividends by the number of shares	Umobong (2015); Omokhudu and Ibadin (2015); Muhammad (2017); Alkalia et al. (2018).

Table Compiled by the Researcher, 2022.

Data Analysis and Results

Summary of Descriptive Statistics

Table 2: Descriptive Statistics

	Pre IFRS				Post IFRS			
Statistics	**MSP**	**BVS**	**EPS**	**DVS**	**MSP**	**BVS**	**EPS**	**DVS**
Mean	18.0729	1.9228	2.6414	1.6941	16.9623	1.9012	2.5318	1.7197

Maximum	49.5	7.38	12.3	3.55	38.34	4.95	12.3	3.86
Minimum	1.98	-4.46	-0.36	0.18	4.21	0.10	-0.42	0.25
StdDev	9.585	1.4584	2.2736	0.8465	6.2394	1.3125	1.8279	0.8607
Skewness	1.1588	0.0881	2.1506	0.3956	0.6972	0.7620	1.9855	0.4104
Kurtosis	3.9749	6.9648	8.6108	2.3957	3.3124	2.3906	10.125	2.5368
JB	25.8139	64.3158	204.096	4.0065	8.3383	11.001	271.73	3.4791
Probability	0.0000	0.0000	0.0000	0.1348	0.0154	0.0040	0.0000	0.1755
Observation	98	98	98	97	98	98	98	94

Source: Eview 10 Output, 2022.

Table 2 shows the characteristics of all the variables before and after IFRS adoption. In the pre-IFRS era, Market Share Price (MSP) has a minimum and maximum value of N1.98 to N49.5. The descriptive statistics indicates that mean score of post IFRS which is 16.9623 is lower than N18.0729 in the pre IFRS period. The minimum value of MPS in the post IFRS era is 4.21 while the maximum value is 38.34. Concerning the Book Value of Equity per Share (BVS), the descriptive statistics of the variables shows that book value per share has the highest value of 7.38 and minimum value of -4.46 in the pre IFRS adoption era. The average value of BVS is 1.9228. In the post IFRS era, the mean value is 1.9012, comparing this value with the value of pre IFRS era of 1.9228. The maximum value of BVS in the post IFRS era is 4.95 while the minimum value of BVS is 0.10.

Relating to Earnings per Share (EPS), EPS in the pre-adoption era had an average of 2.6414 and 2.5318 during the post IFRS adoption era depicting a slight decrease in the value of EPS in the post IFRS era. The minimum and maximum before adoption of IFRS were -0.36and 12.3 respectively. The minimum and maximum after the adoption of IFRS were -0.42 and 12.3 respectively. Regarding Dividend per Share (DVS), DVS has an average value of 1.6941 with maximum value of 3.55 in the pre IFRS adoption era. However, the post IFRS adoption era had an increase of 3.86 as maximum value and an increase in the minimum value of 0.25.

Correlation Coefficient Matrix

Table 3: Correlation Matrix

PRE IFRS					**POST IFRS**			
VARIABLES	**MSP**	**BVS**	**EPS**	**DVS**	**MSP**	**BVS**	**EPS**	**DVS**
MSP	1				1			
BVS	0.3124 0.0018	1			0.29932 0.0034	1		
EPS	0.1389 0.1748	0.1257 1 0.2198	1		0.20773 0.0445	0.0908 2 0.3840	1	
DVS	0.5051 0.0000	0.2624 7 0.0094	0.23619 0.0199	1	0.39081 0.0001	0.1639 9 0.1142	0.1819 9 0.0792	1

Source: Eview 10 Output, 2022.

The table above presents the correlation matrix of the independents variables. It is observed that the variables correlate fairly well (between 0.09 and 0.50). There is no correlation coefficient greater than 0.8, hence there is no problem of multicollinearity of data (Wallace & Naser, 2005).

Variance Inflation Factor

Table 4: Variance Inflation Factor

PRE IFRS			POST IFRS	
Variable	VIF	1/VIF	VIF	1/VIF
C	NA	5.991463	NA	7.840686
BVS	1.079737	2.975831	1.031714	3.257792
EPS	1.065119	2.517571	1.038359	3.787959
DVS	1.126317	5.458747	1.058254	5.328615

Source: Eview 10 Output, 2022.

The tolerance values and the variance inflation factor are two good measures of assessing multicolinearity between the independent variables in a study. The result shows that variance inflation factor were consistently smaller than ten (10) indicating complete absence of multicolinearity. This shows the suitability of the study model been fit with the three independent variables. Also, the tolerance values were consistently smaller than 1.00, therefore extend the fact that there is complete absence of multicolinearity between the independent variables (Tobachmel & Fidell, 1996).

Fixed Effect Model Regression Results

Table 5: Fixed Effect Regression Results

	Pre IFRS					Post IFRS		
Variable	Coeff	Sd Error	t-stat.	Prob	Coeff.	Sd. Error	t-stat.	Prob
C	6.574438	2.210834	2.973	0.0037	10.72115	1.828516	5.863	0.0000
BVS	1.687872	0.548893	3.075	0.0028	0.657991	0.446411	1.473	0.1440
EPS	0.480909	0.365403	1.316	0.1913	0.646499	0.385671	1.676	0.0972
DVS	4.164207	1.025430	4.060	0.0001	2.124195	0.688014	3.087	0.0027
R^2	0.32				0.17			
Adj. R^2	0.30				0.14			
F-Statistics	15.26				6.34			
Prob(F-Statistics)	0.000				0.000			
Hausman Prob. Value	0.1901				0.7160			
Heteroskedasticity Test	0.1354				0.4278			

Serial Correlation LM Test	0.0908	0.7982

Source: Eview 10 Output, 2022. Dependent Variable: Market Share Price (MSP).

Discussion of Findings

The regression line in the pre IFRS era shows that MSP = 6.574438 + 1.687872BVS + 0.480909EPS + 4.164207DVS indicates that Market share price increases by 1.687872 units for every unit increase in book value of equity per share. The *P-value* of book value of equity per share is 0.0028 which is less than the t-value of 0.05, it indicates that book value of equity per share has significant effects on market share price of listed commercial banks in Nigeria. This means that book value of equity per share is value relevant in the pre IFRS era. Under post-IFRS adoption era, the regression line shows that that Market share price increases by 0.657991 units for every unit increase in book value of equity per share. The significant value of book value of equity per share is 0.1440 which is greater than the t-value of 0.05, it indicates that book value of equity per share has no significant effects on market share price of listed commercial banks in Nigeria. This means that book value of equity per share in the post IFRS adoption period is not value relevant. The coefficient of book value of equity per share in the post IFRS adoption era is 0.657991 which is less than the coefficient of pre IFRS book value of equity per share of 1.687872, this means that book value of equity per share in the pre IFRS adoption period is more value relevant than the pre IFRS era. This study therefore accepts the null hypothesis that IFRS adoption has no significant effect on value relevance of book value of equity per share of listed commercial banks in Nigeria. This study revealed that IFRS adoption has no significant effect on value relevance of book value of equity per share of listed commercial banks in Nigeria. This finding is in line with the studies of Akpaka (2015); Onalo, et al., (2015); Aksu et al., (2017); Uwuigbe et al., (2017); Oraby (2017); Pavtar (2017); Alkalia et al., (2018); Alnodel (2018). The result is also contrary to the studies of Outa et al., (2017); Okafor et al., (2017); Erin et al., (2017); Muhammad (2017); Musa and Tanimu (2017); Ezejiofor (2018); Umoren et al., (2018); Juniarti et al., (2018); Nijam and Jahfer (2018) which established that book value of equity per share is value relevant after the adoption of IFRS.

The regression line indicates that Market share price increases by 0.480909 units for every unit increase in earnings per share. The P-value of earnings per share is 0.1913 which is more than the t-value of 0.05, it indicates that earnings per share has no significant effects on market share price of listed commercial banks in Nigeria in the pre IFRS period. This means that earning per share is not value relevant in the pre IFRS era. The result revealed that Market share price increases by 0.646499 units for every unit increase in earnings per share. The *P-value* of earnings per share is 0.0972 which is greater than the t-value of 0.05, though earnings per share have a significant effect on market share price at 10% significant level. It indicates that earnings per share have significant effects on market share price of listed commercial banks in Nigeria. The coefficient of EPS in the post IFRS adoption era is 0.646499 which is greater than the coefficient of pre IFRS EPS of 0.480909, this means that earnings per share in the post IFRS adoption period is more value relevant than the pre IFRS era. This study therefore accepts the alternative hypothesis which states that IFRS adoption has significant effect on value relevance of earnings per share of listed commercial banks in Nigeria. Earnings per share is found to be value relevant after the adoption of IFRS. This finding is in line with the studies of Yahaya, et al., (2015); Prihatniet al., (2016); Oraby (2017); Alade et al., (2017); Okafor et al., (2017); Muhammad (2017); Erin et al., (2017); Nijam and Jahfer (2018); Ibanichuka and Asukwo

(2018); Alnodel (2018); Juniarti et al., (2018). The result is also contrary to the studies of Pavtar (2017); Umar (2017); Umoren et al., (2018); Alkalia, et al., (2018) which established that IFRS adoption has no significant effect on value relevance of earnings per share.

The regression result indicates that Market share price increases by 4.164207 units for every unit increase in dividend per share. The *P-value* of dividend per share in the pre IFRS is 0.0001 which is less than the t-value of 0.05, it indicates that dividend per share has significant effects on market share price of listed commercial banks in Nigeria. This means that dividend per share is value relevant in the pre IFRS era. Under post-IFRS adoption era, the regression result revealed that Market share price increases by 2.124195 units for every unit increase in dividend per share. The *P-value* of dividend per share is 0.0027 which is less than the t-value of 0.05, it indicates that dividend per share has significant effects on market share price of listed commercial banks in Nigeria. This means that dividend per share in the post IFRS adoption period is also value relevant. The coefficient of dividend per share in the post IFRS adoption period is 2.657991 which is less than the coefficient of dividend per share in the pre IFRS period of 4.164207, this means that dividend per share in the pre IFRS adoption period is more value relevant than the pre IFRS era. This study therefore accepts the null hypothesis that IFRS adoption has no significant effect on value relevance of dividend per share of listed commercial banks in Nigeria. The study showed that IFRS adoption has no significant effect on value relevance of Dividend per share of listed commercial banks in Nigeria. This finding is similar to the studies of Umobong (2015); Alkalia et al., (2018) and contradicts the studies of Omokhudu and Ibadin (2015) and Muhammad (2017) which found that IFRS adoption has significant effect on value relevance of dividend per share.

CONCLUSIONS AND RECOMMENDATIONS

The study concludes that IFRS adoption has not influenced the value relevance of accounting information of listed commercial banks in Nigeria. This study concluded that transition in accounting standards has no significant influence on the accounting information as a predictor of value. The study also concludes that book value of equity per share has no value relevance after the adoption of IFRS and it has not improved with the adoption of IFRS in the listed commercial banks in Nigeria. The study concludes that earning per share is value relevant after the adoption of IFRS and it has improved with the adoption of IFRS in the listed commercial banks in Nigeria. The study likewise concludes that dividend per share in the pre adoption of IFRS has a value relevance higher compared to the adoption era of IFRS. This shows that dividend per share for the post IFRS period is lower compare to the pre IFRS period.The following recommendations are proffered based on the findings derived from the study;

i. Management of listed commercial banks in Nigeria should pay more attention to IFRS by ensuring full compliance to IFRS. This can be accomplished by strengthening internal control unit in the commercial banks to ensuring that every aspect of accounting processes undergone a holistic check of IFRS compliance checklists.
ii. Management of listed commercial banks should pay attention to the magnitude of earnings reported in their financial statements. Since earnings have been demonstrated to be associated with share values, the implication is that commercial banks undertake innovation and investments that generate more earnings.
iii. The management of commercial banks should set their dividend policy in such a way that allow the possibility of paying regular dividend since dividend is found to have impact on their share price.

References

Akpaka, N.C. (2015). International Financial Reporting Standards Adoption and value relevance of financial information of listed deposit money banks in Nigeria. (M.Sc. Thesis, Ahmadu Bello University, Zaria).

Aksu, M., Cetin, A.T., & Mugan, C.S. (2017). Value relevance of accounting data in an emerging market: Did accounting reforms make a Difference? *Intechopen,* 141-164.

Alabede, J. O. (2014). *Financial accounting for Nigerian students*. Bauchi: Alpha Publisher.

Alade, M. E., Olweny, T., & Oluoch, O. (2017). Impact of IFRS adoption on value relevance of earnings and book value of Nigerian listed non-financial firms. *European Journal of Business, Economics and Accountancy,5*(4), 53-69.

Alkalia, M.Y., Zurub, N.L., & Kegudu, D.S. (2018). Book value, earnings, dividends, and audit quality on the value relevance of accounting information among Nigerian listed firms. *Accounting,* 4, 73–82.

Alnodel, A. A. (2016). The effect of the adoption of international financial reporting standards on capital market integration in the Gulf cooperation council countries. *Risk Governance and Control: Financial Markets & Institutions, 6*(4), 464-474.

Barth, M.E., Beaver, W.H., & Landsman, W.R. (2001). The relevance of value relevance literature for financial accounting standard setting: Another view. *Journal of Accounting and Economics*, 31, 77-104.

Callao, S., Jarne, J., & Larnez, A. (2007). Adoption of IFRS in Spain: Effect on the comparability and relevance of financial reporting. *Journal of International Accounting, Auditing and Taxation*, 16, pp. 148–178.

Ding, Y., Hope, O.-K., Jeanjean, T., & Stolowy, H. (2006). Differences between domestic accounting standards and IAS: Measurement, determinants and implications. *Journal of Accounting & Public Policy,* 26, 1–38.

Elbakry, A., Nwachukwu, J., Abdou, H., & Elshandidy, T. (2017). Comparative evidence on the value relevance of IFRS based accounting information in Germany and the UK. *Journal of International Accounting, Auditing, and Taxation* 28, 10-30.

Erin, O., Olojede, P., & Ogundele, O. (2017). Value relevance of accounting data in the pre- and post-IFRS era: Evidence from Nigeria. *International Journal of Finance and Accounting, 6*(4), 95-103.

Ezejiofor, R.A. (2018). Effect of IFRS on value relevance of accounting information: Evidence from quoted manufacturing firms in Nigeria. *International Journal of Trend in Scientific Research and Development,* 2(5), 2255-2291.

Fasina, H. T., & Adegbite. T. A. (2014). Empirical analysis of the effect of international financial reporting standard (IFRS) adoption on accounting practices in Nigeria. *Archives of business research,2*(2), 1-14.

Hartono, J. (2003). *Teori Portfolio danAnalisisInvestasi.*EdisiKetiga. Penerbit BPFE. Yogyakarta

Ibanichuka, E.A.L., & Asukwo, I.S. (2018). International Financial Reporting Standards Adoption and financial performance of petroleum marketing entities in Nigeria. *International Journal of Advanced Academic Research, Accounting & Economic Development*, *4*(2), 1-15.

Juniarti, F. H., Novitasari, K., & Tjamdinata, V. (2018). The value relevance of IFRS Adoption in Indonesia. *Jurnal AkuntansidanKeuangan, 20*(1), 13-19.

Kaaya, I. D. (2015). The International Financial Reporting Standards (and value relevance: A review of empirical evidence. *Journal of Finance and Accounting,3*(3), 37-46.

Khanagha .J. (2011). Value relevance of accounting information in the United Emirates. *Journal of Economics and Financial Issues*, *1*(2), 228-248.

Masud, B. (2013). Effects of IFRS adoption on the financial reports of Nigerian listed firms. *Archives of business research, 2*(2), 1-14

Mousa, G., & Desoky, A. (2014). The value relevance of IFRS: The case of GCC Countries, *Journal of Accounting, Finance, and Economics, 4*(2), 16-28.

Muhammad, A.C. (2017). IFRS adoption and value relevance of accounting information: A study of listed insurance firms in Nigeria.Being a Dissertation Submitted to the School of Postgraduate Studies, Ahmadu Bello University.In Partial Fulfillment of the Requirements for the Award of Master of Science (M.Sc) Degree in Accounting and Finance.

Musa, A., & Tanimu, I.M. (2017). International Financial Reporting Standards and value relevance of financial information: An empirical evaluation of selected Nigerian listed companies. *International Journal of Accounting & Finance Review, 1*(1), 1-11.

Nijam, H.M.,& Jahfer, A. (2018). IFRS adoption and value relevance of accounting information: Evidence from a developing country. *Global Business Review, 19*(6) 1416–1435.

Ohlson, J.A. (1995). Earnings, book values and dividends in equity valuation. *Contemporary Accounting Research,11*(2), 661-687.

Okafor, G.T., Ogbuehi, A., & Anene, N.O. (2017). IFRS adoption and the value relevance of accounting information in Nigeria: An empirical study. *Journal of Modern Accounting and Auditing*, *13*(10), 421-434.

Omokhudu, O. O., &Ibadin, P. O. (2015). Incremental value relevance of disaggregated book values and disaggregated earnings: Evidence from Nigeria. *Accounting and Finance Research, 4*(3), 20– 30.

Onalo, U., Lizam, M., & Kaseri, A. (2016). Do IFRS influence Malaysian and Nigerian banks earnings management goals. *British Journal of Economics, Management and Trade, 12*(3), 1-12.

Oraby, S.A. (2017). IFRS and accounting information relevance: The case of Saudi Arabia. *Journal of Business & Economic Policy, 4*(1), 145-155.

Oshodin, E., & Mgbame, C. O. (2014). The comparative study of value relevance of financial information in the Nigeria Banking and Petroleum Sectors. *Journal of Business Studies Quarterly, 6*(1), 43-54.

Outa, E., Ozili, P., & Eisenberg, P. (2017). IFRS convergence and revisions: Value relevance of accounting information from East Africa. Emerald Insight, 18.

Paiva, J. C. & Lourenco, I. C. (2014). Determinants of accounting quality: Empirical evidence from the European Union after IFRS adoption. Portugal:ISCTE – IUL business schoolAvenidaForças Armadas. Paper, Umea university.

Pavtar, A.A. (2017). A comparative analysis of the effect of IFRS adoption on value relevance of accounting information in an emerging economy: A focus on listed deposit money banks in Nigeria. *International Journal of Banking and Finance Research, 3*(2), 76-99.

Prihatnia, R., Subrotob, B., Saraswatic, E., & Purnomosidid, B. (2016). Analysis of value relevance of accounting information during IFRS Period of 2008 –2014 at The Stock Exchange of Indonesia. *International Academic Journal of Accounting and Financial Management*, 3(3), 1-10

Spence, A. M. (1973). Job market signaling. *Quarterly Journal of Economics,* 87(3), 355-374.

Tabachnick, B., & Fidell, L. (2007). *Using multivariate statistics* (5th ed.). Boston: Allyn and Bacon.

Umar, A. (2017). Value relevance of International Financial Reporting Standard adoption in Nigeria financial service firms. A Dissertation Presented to the School of Postgraduate Studies, Ahmadu Bello University Zaria, in Partial Fulfilment of the Requirements for the Award of Master of Science (Msc) Degree in Accounting and Finance. Department of Accounting Faculty of Administration Ahmadu Bello University, Zaria.

Umobong, A.A. (2015). IFRS adoption and firms performance: A comparative analysis of quoted food and beverage manufacturing firms in Nigeria. *European Journal of Accounting Auditing and Finance Research, 3*(8), 70-83.

Umoren, A., & Enang, E. (2015). IFRS adoption and value relevance of financial statement of Nigeria listed banks. *Journal of Finance and Accounting,* 4(1) 1-7.

Umoren, A.O., Akpan, P.W., & Ekeria, E.V. (2018).Value relevance of accounting information in Nigerian listed financial companies. *Advances in Research, 16*(1), 1-8.

Uwuigbe, O.R., Uwuigbe, U., Jafaru, J., Igbinoba, E.E., & Oladipo, O.A. (2016). Value relevance of financial statements and share price: A study of listed banks in Nigeria. *Banks and Bank Systems,11*(4), 135-143.

Uwuigbe, U., Uwuigbe, O.R., Durodola, M.E., Jafaru, J., & Jimoh, R. (2017). International Financial Reporting Standard adoption and value relevance of accounting information in Nigeria. *International Journal of Economics and Financial Issues*, 7(3), 1-8.

Wu, J. S., & Zhang, I. (2008). The voluntary adoption of internationally recognised accounting standards and firm internal performance evaluation. Retrieved from www.ssrn.com/abstract=1086699.

Yahaya, O., A., Onyabe, J. & Usman, S. (2015). IFRS adoption and value relevance of accounting information of listed deposit money banks in Nigeria. *Journal of Economics and Sustainable Development, 6*(12), 85-93.

Effect of Forensic Accounting Tools on Fraud Detection and Prevention in Listed Financial Institutions in Nigeria: Evidence from Deposit Money Banks

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Abstract

The study examines the effect of forensic accounting tools onfraud detection and prevention in listedfinancial institution in Nigeria. Survey research design was employed for the study with extensive reliance on primary data obtained through the use of structured Likert scale questionnaire. The data were tested using descriptive statistics and regression analysis on Statistical Package for Social Sciences (SPSS version 20.0). The study findings showed that forensic accounting techniques of conducting investigation, analyzing financial transactions and reconstructing incomplete accounting records have significant effect on fraud detection in deposit money banks in Nigeria. In the light of the study findings, the following recommendations were provided; more forensic accountants should be employed by DMBs in Nigeria to assist curb modern day financial fraud brought about by advancement in technology. The Central Bank of Nigeria (CBN) should in collaboration with all financial institutions establish an electronic fraud risk information center staffed with forensic accountants. DMBs should incorporate automated control measures such as biometric authentication of transactions to serve as deterrent for fraud occurring.

Keywords: Forensic Accounting, Fraud Detection, Deposit Money Banks

INTRODUCTION

Forensic accounting, in recent years, can be said to be gaining more awareness as stakeholders are seeking more enhanced methods of curbing the menace of fraud. Since its emergence as a tool for detecting fraud, it has become a very important subject among researchers and scholars in various countries. Forensic accounting can be described as the practice of utilizing accounting, auditing, and investigative skills to assist in legal matter and the application of specialized body of knowledge to the evidence of economic transaction and reporting suitable for the purpose of establishing accountability or valuation of administrative proceeding. In wide sense, it can be said to be the integration of accounting, auditing and investigative skills to obtain a particular result (Mukoro et al, 2014). Stanbury and Paley-Menzies (2010) also defined Forensic accounting as the science of gathering and presenting information in a form that will be accepted by a court of jurisprudence against perpetrators of economic crime. Fraud, on the other hand, cannot be effortlessly detected, prevented or deterred in any situation or setting, either in the home, an organization or society at large without the reviewer having adequate training and skill on fraud detection. The Association of Certified Fraud Examiners defined fraud as the use of one's occupation for personal enrichment through deliberate misuse of the employing organization's resources or assets. It is therefore any act of misappropriation, theft or embezzlement of corporate assets in a particular economic environment (Efiong, 2013).

Nwaze (2012) defined fraud as a predetermined as well as planned tricky process or device usually undertaken by a person or group of persons with the sole aim of cheating another person or organization to gain ill-gotten advantage which would not have accrued in the absence of such deceptive procedure. Fraud can be described as the use of dishonesty or trickery means with the aim of gaining undue advantage, evading a commitment, or causing loss to person, a group of persons or an organization. Fraud refers to a thoughtful act that commonly consist of the use of deception, in the form of an intentional dishonesty or a willful misrepresentation of a material fact, to acquire some form of financial value or advantage from a situation of authority or trust that ultimately results in some form of loss to the organization deceived. With the advancement in technology around the globe, there is a massive change

in the way banks as well as their customers do business, which place more reliance on the use of electronic medium, the nature of fraud and fraudulent practices has also changed and requires a timely and professional approach to avoid the inherent risk and losses associated with fraud. According to the Centre for Forensic Studies (2010) report, the increasing need for forensic and investigative accounting in the banking sector results from the nature of modern-day banking that involve large volume of complex data, which makes it difficult to monitor those transactions by applying manual audit processes. Virtually all the weaknesses and challenges identified in the banking industry in Nigeria's post-consolidation (such as inadequate system-based controls, insider trading, creative accounting to boost financials by carrying unrealizable assets with huge values, etc.) and criminal investigations and prosecutions arising from them, are issues for forensic accounting. Authors such as McMahon, Serrato, Bressler and Bressler, (2015), Zimbleman, Albrecht, Albrecht and Albrecht (2012) and Bressler, (2011) revealed that of the different fraud prevention and detection mechanisms that are being adopted to combat the menace of fraud,forensic accounting techniques appears to be the most effective and currently used in most developed countries of the world (Efiong, 2013). There is need to consider how forensic accounting impacts on fraud detection in deposit money banks in Nigeria. If well applied, forensic accounting could be used to reverse the leakages that cause corporate failures, this is because of the fact that forensic accounting is a technique that encapsulates accounting, auditing and investigative skills to address issues relating to financial fraud (EnofeAgbonkpolor&Edebiri, 2015). Owojori and Asaolu (2009) opined that there is an alarming increase in the number of fraud and fraudulent activities in various sectors in Nigeria calling for the use of forensic accounting services. In the light of the aforementioned, the study was undertaken to review the effectiveness of the components of forensic accounting in financial fraud detection in the deposit money banks in Nigeria; the study specifically considered three of such components, which included conducting investigation, analyzing financial transactions and reconstructing incomplete accounting records.

Every organization make consented effort to distant itself from fraud and fraudulent activities, knowing the effect it can have on both the performance and corporate image. As organizations are working hard to curtail this menace, the fraudsters are also developing new methods. Recent rise in bank frauds such as look-alike frauds, card payment frauds, dud cheques, compromise of customer details, call for tightening of security mechanism (Khanna & Arora, 2009). With this, security is a fundamental and increasingly important issue in today’s banking industry (Kanniainen, 2010). In the quest to ensure the security of resources on behalf of its owners, customers and the general public, deposit money banks are constantly looking out for better ways to tackle the menace called fraud. Forensic accounting as a method for curbing fraud and fraudulent activities is gaining wider awareness and acceptance globally. Owojori and Asaolu (2009) reveal that there is an alarming increase in the number of fraud and fraudulent activities in various sectors in Nigeria calling for the use of forensic accounting services. A number of studies such as Enofe, Agbonkpolor and Edebiri (2015), Modugu and Anyaduba (2013) and Okunbor and Obaretin (2010), had been done on the concept of forensic accounting services in Nigerian banks. Notwithstanding the volume of research work dedicated to the topic of forensic accounting, the nature of the recommendations from each of them advocates that this area of research work to more validate empirical findings. To the best of the researcher’s knowledge there has not been satisfactory emphasis on the effectiveness of the components of forensic accounting in fraud detection, particularly empirical evidence; thus the study explored further the impact of forensic accounting on financial fraud detection in deposit money banks in Nigeria, by examining the effectiveness of conducting investigation, analyzing financial transactions and reconstructing incomplete accounting records on financial fraud detection in deposit money banks. The researcher is of the opinion that the effectiveness of these components in detecting fraud have not been studied considering the changes that advancement in technology has brought to banking in Nigeria, therefore justifying the need for the study. For the purpose of this study, the following null hypotheses are proposed to guide the study;

HO1: Conducting investigation has no significant effect with regards to financial fraud detection in DMBs in Nigeria.

HO2: Analyzing financial transactions has no significant effective on financial fraud detection in DMBs in Nigeria.

HO3: Reconstructing incomplete accounting records has no significant effect in detecting financial fraud in DMBs in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Forensic Accounting

Forensic accounting integrates an understanding of accounting principles with investigative techniques to determine whether the actions behind financial records and statements are suspicious. Forensic accounting is the practice of utilizing accounting auditing and investigative skills to assist in legal matter and the application of specialized body of knowledge to the evidence of economic transaction and reporting suitable for the purpose of establishing accountability or valuation of administrative proceeding. In wide sense, it can be said as the integration of accounting, auditing and investigative skills to obtain a particular result (Mukoro, Faboyede&Eziamaka, 2014). Stanbury and Paley-Menzies (2010) also defined Forensic accounting as the science of gathering and presenting information in a form that will be accepted by a court of jurisprudence against perpetrators of economic crime. The AICPA defines forensic accounting as services that involve the application of specialized knowledge and investigative skills possessed by Certified Public Accountants. Forensic accounting services utilize the practitioner's specialized accounting, auditing, economic, tax, and other skills (AICPA, 2010). Singleton and Singleton (2006) opined that forensic accounting comprehensively entails fraud investigation, prevention of fraud and analyzing antifraud controls in addition to gathering non-financial information. Hopwood, Leiner and Young (2008) defined forensic accounting as the application of investigative and analytical skills for the purpose of resolving financial issues in a manner that meets standards required by courts of law. They asserted, however, that while forensic accounting may not make explicit reference to fraud, fraud investigations are integral part of forensic accounting. Dhar and Sarkar (2010) averred that forensic accounting is the application of accounting concepts and techniques to legal problems. It demands reporting where fraud, bribery or embezzlement is established, and the report is considered as evidence in the court of law or in administrative proceedings. Arokiasamy and Cristal (2009) opined that forensic accounting is the application of financial skills and investigative mentality to unsettled issues, conducted within the context of the rules of evidence. Zadeh and Ramazani (2012) are of the view that Forensic accountants provide services in accounting, auditing investigation, damages claims, analysis valuation and general consultation and also have critical roles in divorce, insurance claims, personal damage claims, fraud claims, construction, auditing of publication right and in detecting terrorism by using financial precedence.

Howard and Sheetz (2006) defined forensic accounting as the process of interpreting, summarizing and presenting complex financial issues clearly, succinctly and factually in a court of law as an expert. Okunbor and Obaretin (2010) added that it is concern with the use of accounting discipline to help determine issues of facts in business litigation. Forensic accounting, if well applied, could be used to reverse the leakages that cause corporate failures; this is because of the fact that forensic accounting is a technique that encapsulates accounting, auditing and investigative skills to address issues relating to financial fraud. It went on to state that the increasing need for forensic and investigative accounting in the banking sector for the complexities of modern-day banking with large volume of complex data cannot be overemphasized (EnofeAgbonkpolor&Edebiri, 2015).

Need for Forensic Accounting

Aduwo, (2016) opined that the need for forensic accountant aroused because of the failure of audit system in organizations to reveal certain errors in the managerial system. Experts in the field pointed out that economic pressure with many companies facing bankruptcy jobs and employees support managers,

thereby giving room for employees and managers to commit financial and economic crimes. Forensic accountants are therefore called upon to meticulously search through documents, to discover new information and help in putting together the pieces of company's financial puzzle to solve the financial problems. Aduwo put forth the following as important reasons for the growth of forensic accounting; Internal audit and audit committee could not throw light on the different fact and other hidden aspects of corporate fraud; The method of appointing the statutory auditors involves lobbying and the certificates of the auditors are hardly scrutinized especially when the reports are qualified; and The internal auditors can surely detect financial frauds but they are in difficult position to initiate proper action on fraud matters.

Fraud

Fraud like most social and management concept does not have a definite definition, it is mostly defined base on the circumstance in which it occurred; it has been describe by many researchers that defining fraud is as difficult as identifying it. Fraud is any deliberate deceitful conduct or omission designed to gain an advantage to which a person or entity is not entitled. It is the intentional use of false representations or deception to avoid an obligation, gain unjust advantage or in the context of public administration, commonly referred to as 'rorting the system' – that is to take unfair advantage of something (Watterston 2014). Fraud is an act of dishonesty in which illegal means are used to acquire or benefit from resources belonging to others (Damagum, 2005). Archibong (1992) described the concept as a predetermined and well-planned tricky process or device usually undertaken by a person or group of persons, with the sole aim of checking another person or organization, to gain ill-gotten advantages, be it monetary or otherwise, which would not have accrued in the absence of such deceitful procedure.

Kanu and Okorafor, (2013) described fraud as anything calculated to deceive, whether by a single act or combination or by suppression of truth or suggestion of what is false whether it be by direct falsehood or innuendo, by speech or silence, word of mouth, look or gesture. Anti-fraud professionals agree that fraud (and misconduct) encompasses activities involving dishonesty and deception that can drain value from a business, either directly or indirectly, whether or not the perpetrator(s) benefit. Fraud involves the intent to defraud; that is, the perpetrator relies on his or her deception to accomplish—or hide—the fraudulent activity. Fraud is not accomplished via honest mistake or error (Tilton, 2006) From the above definitions and descriptions, irrespective of the vocabulary used, fraud can be viewed as a means of obtaining the resources of others or organization in a wrong manner, because defrauding people or entities of monies or valuables is the common purpose of any fraudulent act. Fraud is perhaps the most fatal of all the risks confronting banks. The enormity of bank fraud in Nigeria can be inferred from its value, volume and actual loss.

Bank Fraud

Bank fraud is the use of fraudulent means to obtain money, assets, or other property owned or held by a financial institution. While the specific elements of a particular banking fraud law vary between jurisdictions, the term bank fraud applies to actions that employ a scheme or artifice, as oppose bank robbery or theft. For this reason, bank fraud is sometimes considered a white collar crime. Oboh (2005) states that banks being the main channel for remitting and processing funds are left highly vulnerable to the nefarious activities of the perpetrators of economic and financial crime. The damaging effect of which is immeasurable both on the side of the banks and as well as the general economic system. Abiola (2009) buttress on that fraud and management have been the participating factors in the distress of banks, and as much as various measures have been taken to minimize the incidence of fraud, it still rises by the day because fraudsters always device tactical ways of committing fraud. Bank fraud as described by Abiola (2009), can be classified into three, that is: by flow, by victims and by act. Flow frauds describe the frequency and the value involved in the fraud, which are basically two type; the first are those that are not frequent but the value is high in a short period of time this is referred to as Smash and Grab, and the second are those that are frequent, small in value and repetitive over a period of time this is referred to as Frip Fraud. Victim fraud classification is based on those affected by loss from fraud, which could be either those against the company (bank) or those against outsiders. Lastly, Act frauds is the action that

takes place in cases of fraud, that is the people involved and the methods or form by which these people perpetrate fraud.

Electronic Banking Fraud

Banking system is the lifeblood and backbone of the economy. Information Technology has become the backbone of the banking system. It provides a tremendous support to the ever – increasing challenges and banking requirements. Presently, banks cannot think of introducing financial product without the presence of Information Technology (Reddy, 2009). Electronic crimes can be of a variety of types such as Telecommunications Piracy, Electronic Money Laundering and Tax Evasion, Sales and Investment Fraud, Electronic Funds Transfer Fraud etc. From the security assessment of Nigerian banks, e-fraudsters had in recent years invaded Nigeria's banking platforms at will, deploying over 185 fake mobile applications on the websites of no fewer than 15 deposit money banks in the country and in the process, extracted customers' personal and financial information with intent to defraud billions of naira from their accounts (Nwosu, 2015) Credit card fraud has become ordinary on internet which not only affects card holders but also online merchants. Credit card fraud can be completed by taking over the account, skimming or if the card is stolen. The term "Internet fraud" refers usually to any type of fraud scheme that uses one or more components of the Internet - such as chat rooms, e-mail, message boards, or Web sites - to existing fraudulent solicitations to prospective victims, to conduct fraudulent transactions, or to broadcast the proceeds of fraud to financial institutions or to other connected with the scheme (Ahuja, 2010).

However, of late, as stolen identities seem to have served as the 'hacking channel' for most of the cyber-criminals, analysts generally believe that improper management of the Administrative Passwords, which are often aptly referred as 'Keys to the Kingdom', is at the root of many security threats. Another harsh fact is that many a sabotage had been caused by the insiders of the enterprises. Keltie (2009) opined that most frauds are committed by or involve an insider, typically an employee in a position of trust. When an organization suspects that it is the victim of an employee fraud, often the first thing it does is launch an internal investigation. There are also concerns about whether information is being transferred securely and if there is a risk of sensitive information being exposed. As mobile payments become equipped with security features such as tokenization and biometric authentication which do not impact theirusability, they will be more widely accepted as a payment solution (McDonnell, 2015).

Empirical Reviews

Many researchers have attempted to examine the subject matter of forensic accounting and its impact in combating financial fraud. Several of these empirical studies were reviewed below. Aduwo (2016) examined the role of forensic accounting in combating the menace of corporate failure. The study conceptually reviewed the impact of forensic accounting towards utilizing professional accounting, auditing and corporate failure. The study concluded that forensic auditing can go a long way to influence financial scandals in corporate organizations. It recommended empirical validation of the work and with specific reference to organizations in another country.judgments, accounting skills, auditing and law procedures to fight the dreaded disease of corporate liquidation. The work merely reviewed the concepts of forensicaccounting, auditing and corporate failure. The study concluded that forensic auditing can go a long way to influence financial scandals in corporate organizations. It recommended empirical validation of the work and with specific reference to organizations in another country. The study was merely a conceptual review and only the concept of forensic accounting was reviewed, leaving out the aspect of corporate failure; there was also no variable tested. Eliezer and Emmanuel (2015) examined the relevance of forensic accounting in the detection and prevention of fraud in Nigeria. The study was a theoretical research which considered the role of forensic accountants in combating fraudulent activities, differences between a forensic accountant and traditional accountant, and the impact of forensic accountants to detect and prevent fraud. From the study, it was found among others that forensic accounting services will assist audit committee members in carrying out their oversight functions by providing assurance on internal audit report. The research recommended that government should ameliorate the cost of hiring the services

of forensic accountants and treat culprits equally without favoritism. The study had not specified problem it set out to provide answers to; there were no research questions nor hypotheses stated and no variables were tested. Though the study was stated to be a theoretical review, no specific theory was reviewed in the work.

Enofe, Agbonkpolor and Edebiri (2015) examined the role of forensic accounting in curbing financial crimes in Nigerian banks. The survey research design was employed for the study with an extensive reliance on primary data retrieved through the use of well-structured Likert scale questionnaire. The chi-square non-parametric statistical technique was utilized for the data analysis procedure. The study findings show that; there is a need for forensic accountants in the Nigerian banking system, forensic accounting is an effective tool for addressing financial crimes in the banking system and there are significant differences between the roles of forensic accounting and that of conventional accounting in curbing financial crimes. The study recommended that; there is the need for banks in Nigeria to engage the services of forensic accountants, and secondly, banks also need to focus on training and up-dating the skills of the internal control and audit staffs. The problem of the study was not clearly stated. There were no theories reviewed and only one concept (Forensic accounting) was reviewed. Hypotheses were only stated at the section for discussion of findings, which does not give the work a good structure. Enofe, Idemudia and Emmanuel (2015) examined forensic accounting as a panacea to fraud reduction in Nigeria firms. Primary data were collected through the use of questionnaires. Data retrieved were analyzed with the help of tables, pie-chart, regression and chi-square. The findings of the study are that forensic accounting enhances financial fraud reduction in Nigeria firms through fraud prosecution and prescription of punishment for fraudsters; forensic accounting has significant effect in improving internal control systems of firms in Nigeria leading to fraud reduction; forensic accounting has significant impact on the financial reporting credibility of firms in Nigeria; forensic accounting has significant impact on firms transparency in Nigeria. The study recommended that forensic accountants should always be invited in setting up the organizational internal control system to ensure efficiency and effectiveness. The work was well structured, and all variables stated were tested, however, the findings of the study were not discussed; it only gave a summary of the findings and there was no specific aspect of forensic accounting related in the study.

Enofe, Utomwen and Danjuma (2015) examined the role of forensic accounting in mitigating financial crime. The study adopted a survey research design and the population of the study comprised staff of selected banks from which data were collected through the use of questionnaires to test the formulated hypotheses. Regression analysis was used for data analysis. The study findings revealed that there is a need for forensic accountants in the Nigerian banking sector, forensic accounting is an effective tool for addressing financial crime in the banking sector and that conventional accounting techniques are not effective in curbing financial crimes. The study then recommended that there is need for corporations in Nigeria to engage the services of forensic accountants, they need to also focus on training and up-dating the skills of the internal control and audit staff. Oladejo and Oluwaseun (2015) investigated the impact of forensic Accounting on reducing fraud in the Nigerian banking sector and was carried out in Lagos state on 125 senior and management staff in one of the quoted banks (Eco-Bank) in Nigeria. Data were collected through questionnaire and analyzed using descriptive statistic tool. Hypotheses were tested through chi-square statistics. The result of the findings shows that Forensic Accounting is significantly useful in fraud control and reduction in the Nigeria Banking Industry and positively influence banks performance. The study recommended that banks management should ensure the role and functions of forensic accountants and auditors clearly defined, most especially in the area of reducing fraud in the banking sector. No recent literature was reviewed, the earliest work reviewed was a work done in 2006. For a work done in 2015, recent work on the subject should have been reviewed. The study also generally reviewed the concept of forensic accounting, with no particular mention of any aspect of forensic accounting being referred to.

Onodi, Okafor and Onyali (2015) examined the effect of forensic investigation methods in corporate fraud deterrence in Nigerian banks. Statistical tools used to analyze the data include percentages, mean score, frequency tables, regression analysis and Z-test. Three hypotheses were formulated and tested. The result revealed that there is a significant relationship between the forensic investigative methods and corporate fraud deterrence. The study recommended improvement on accounting curriculum, since there is a failure of accounting and control methods that lies in the methodology taught in Nigeria Universities to discover financial fraud cases. The study has a clearly stated problem and objectives, it reviewed recent relevant works in the area of the study. Both primary and secondary data were used, generally the study was quite impressive; also owing to the fact that the study consider the component of investigation. Augustine and Uagbale-Ekatah (2014) examined the relevance of forensic accounting as a tool for combating fraud and corruption. Their views were obtained through structured interviews and evaluated against known research findings on the practice of forensic accounting in Nigeria. The key findings of this study are that: forensic accounting practice is largely considered to be at its infancy stage and although it is relevant, yet it lacking statutory support. The study recommends among others the need to accord forensic accounting statutory role and distinct professional recognition by the government and professional bodies in Nigeria. The study was basically descriptive in nature and portrayed the views of various stakeholders on the subject of forensic accounting, there was no clearly stated problem it sought to resolve. There was no specific mention of any aspect of forensic accounting being addressed, the study gave a general knowledge of the concept.

Mukoro, Faboyede and Eziamaka (2014) examined the effectiveness of forensic accountants in strengthening internal control of business organizations in Nigeria. The study employed survey design and purposive sampling was used to select five companies. Data were collected using questionnaires and all the hypotheses were tested using Regression Analysis. The results of the empirical findings show that internal control and its components play a significant role in controlling fraud in business organizations. It is recommended that internal control should be undertaken with effective continuous monitoring of the controls and companies should be stricter with compliance to control procedures. The research work was well structured, however, there were not recent literature reviewed for a study done in 2014, the earliest work reviewed was a decade before the study (2004). The subject of forensic accounting was reviewed and largely, there was no specific mention of any aspect of forensic accounting being addressed. Odelabu (2014) examined the effects of forensic accounting on the performance of commercial bank in Nigeria. The sampling frame of twenty-one commercial banks was taken. A sample of sixty-one respondents was used which was spread proportionately across 6 stratum. The study used primary data that was collected through self-administered questionnaires and analyzed using regression analysis. The findings indicated that forensic investigation and forensic litigation was statistically significant in explaining changes in financial performance of commercial banks. The study recommended that majority of commercial banks in a developing economy ought to adapt forensic accounting to mitigate financial irregularities. The study had no stated problem; while it had only one objective stated, the work had two hypotheses. Forensic accounting was reviewed broadly, there was no specific mention of any aspect of forensic accounting being addressed Peter, Masoyi, Ernest and Gabriel (2014) examined the application of forensic auditing in fraud control in Nigerian banks. The study analyzed the trend in fraud cases from 2001 to 2012. The descriptive analysis revealed that there are up and down movements in fraud cases. The study suggested employment of forensic auditing in Nigerian banks by amending the existing statutes, in such a way that forensic auditors are included in the audit team. Through this, auditors will have more tools to effectively deal with challenges in detecting fraud. The study had no clear-cut problem, objectives or variable stated. It merely reviewed the concept of forensic auditing and descriptively analyze fraud figures for a decade and collated by Nigeria Deposit Insurance Corporation.

Theoretical Framework

The Fraud Triangle Theory

Figure 2.1: Fraud triangle

Source: Researchgate.net

The Fraud Triangle Theory was propounded by Donald Cressey in 1950. Donald Cressey, a criminologist, started the study of fraud by arguing that there must be a reason behind everything people do. The fundamental observation of Donald Cressey (1919-1987), in the Fraud Triangle Theory was that fraud is likely to occur given a combination of three factors. This theory is made of a triangle of different fraud aspects that include perceived opportunities, perceived pressures and rationalizations (Chiezey&Onu, 2013). Ngalyuka (2013) maintains that the term perceived is vital in the context that the pressures, rationalizations, and opportunities may not necessarily be real. Chiezey and Onu, (2013) put forth that financial and non-financial pressures present the first temptation to commit frauds. Ngalyuka (2013) stated that 95% of the committed frauds are due to financial pressures such as debts, vices such as drug abuse and work related pressures such to show good sales performance amongst others. The second factor is perceived opportunity. According to Wanyama, (2012), the perceived opportunity is the ability of the potential fraudster believing that that they can get away with the fraud or the consequences of being caught are manageable. Chiezey and Onu (2013) stated that the opportunity to commit fraud in the bank is characterized by employee access to assets and information that presents them with dual advantage of committing and concealing fraud. Kanu and Okorafor, (2013) buttressed that these opportunities are presented through weak control measures, lack of control measures enforcement, lack of sufficient punishment measures to act as a deterrence and inadequate infrastructure. The last factor contributing towards frauds is the concept of perceived rationalization. This involves rationalization or justification of the fraud aspect as acceptable (Njenga&Osiemo, 2013). While Ngalyuka (2013) opined that rationalization refers to the justification that the unethical behavior is something other than criminal activity. Fraud triangle theory is relevant to the study impact of forensic accounting on fraud detection in deposit money banks in Nigeria, as the theory gives forensic accountants insight into the subject matter of fraud and the facts that can give rise to it in almost all circumstances.

The Fraud Diamond Theory

Figure 2.2: Fraud diamond

Source: Karunia dhi.blogspot.com

The Fraud Diamond Theory was first presented by Wolfe and Hermanson in the CPA Journal (December 2004). It is generally viewed as an expanded version of the Fraud Triangle Theory. In this theory, an element termed capability has been added to the three initial fraud elements of the Fraud Triangle Theory. Wolfe and Hermanson (2004) argued that although perceived pressure or incentive might coexist with an opportunity to commit fraud and a rationalization for doing so, it is unlikely for fraud to take place unless the fourth element (i.e., capability) is also present. In other words, the potential perpetrator must have the skills and ability to commit fraud. According to Wolfe and Hermanson (2004:38) "Opportunity opens the doorway to fraud, and incentive (that is, pressure) and rationalization can draw a person toward it. However, the person must have the capability to recognize the open doorway as an opportunity and to take advantage of it by walking through, not just once, but repeatedly". With the additional element presented in the Fraud Diamond Theory affecting individuals' decision to commit fraud, the organization and auditors need to understand employees' individual traits and abilities in order to assess the risk of fraudulent behaviors in the public sector. The elements of Fraud Diamond Theory are interrelated to the extent that an employee cannot commit fraud until all of the elements are present. The theory proposes that pressure can cause someone to seek opportunity, and pressure and opportunity can encourage rationalization. Atthe same time, none of these two factors, alone or together, necessarily cause an individual to engage in activities that could lead to fraud until the fraudster has the capability to do so (Hooper &Pornelli, 2010). The additional element, i.e., capability is what differentiates the Fraud Diamond Theory of Wolfe and Hermanson (2004) from the Fraud Triangle Theory of Cressey (1950).

Fraud diamond theory is relevant to this study, as the theory broaden the horizon on the subject matter of fraud, stating that there must be the capability to carry out fraud for it to occur. This theory further expands the scope and perspective of forensic accountants in the bid to detect fraud. Fraud Diamond theory gave a step further from where the fraud triangle theory stopped by adding that for fraud to occur there must also be the capability to perpetuate it. The theory is relevant to this study as it further expand the scope of what to check out for in detecting fraud. The theory also broaden the perspectives of the forensic accountant in carrying out it functions as it relate to fraud.

Fraud Management Lifecycle Theory

Figure 2.3: Fraud management lifecycle

Source: Arctic-intelligence.com

The Fraud Management Lifecycle Theory was first presented by Wilhelm in the Journal of economic crime management (Spring 2004, Volume 2, Issue 2). Our review of this theory is solely on the work of Wesley Kenneth Wilhelm. Fraud can only be adequately managed if all stakeholders identify and carry out their roles effectively. Fraud management is the process of monitoring, identifying, reporting and prevention of fraud in an organization. Fraud management lifecycle highlight the inter-play of policy, process andpeople in the end-to-end handling of fraud. According to Wilhelm (2004) The Fraud Management Lifecycle is a network lifecycle where each node in the network, each stage in the lifecycle, is an aggregated entity that is made up of interrelated, interdependent, and independent actions, functions, and operations. These activities can, but do not necessarily, occur in a sequential or linear flow. Effective fraud management requires a balance in the competing and complementary actions within the Fraud Management Lifecycle. Effective management of the Fraud Management Lifecycle starts with a common understanding or definition of the stages in the lifecycle.

In his work, Wilhelm (2004) stated that the Fraud Management Lifecycle is made up of eight stages. The Fraud Management Lifecycle is dynamic, evolving, and adaptive. The eight stages are: Deterrence, Prevention, Detection, Mitigation, Analysis, Policy, Investigation, and Prosecution. Wilhelm (2004) went on to expand the stages as follows: Deterrence, the first stage, is characterized by actions and activities intended to stop or prevent fraud before it is attempted; that is, to turn aside or discourage even the attempt at fraud through. The second stage of the Fraud Management Lifecycle, prevention, involves actions and activities to prevent fraud from occurring. In detection, the third stage, actions and activities, such as statistical monitoring programs are used to identify and locate fraud prior to, during, and subsequent to the completion of the fraudulent activity. The intent of detection is to uncover or reveal the presence of fraud or a fraud attempt. The goal of mitigation, stage four, is to stop losses from occurring or continuing to occur and/or to hinder a fraudster from continuing or completing the fraudulent activity, by blocking an account, for example. In the next stage, analysis, losses that occurred despite deterrence, detection, and prevention activities are identified and studied to determine the factors of the loss situation, using methods such as root cause analysis. The sixth stage of the Fraud Management Lifecycle, policy, is characterized by activities to create, evaluate, communicate, and assist in the deployment of policies to reduce the incidence of fraud. Balancing prudent fraud reduction policies with resource constraints and effective management of legitimate customer activity is also part of this stage. Investigation, the seventh stage, involves obtaining enough evidence and information to stop fraudulent activity, recover assets or obtain restitution, and to provide evidence and support for the successful prosecution and conviction of the fraudster(s). The final stage, prosecution, is the culmination of all the successes and failures in the Fraud Management Lifecycle. There are failures because the fraud was successful and successes because the fraud was detected, a suspect was identified, apprehended, and charges filed. The fraud management lifecycle theory was adopted for this study, this is because the theory gives a holistic approach to the subject of fraud and fraud management; also worthy of note for adopting the theory is the fact that the theory is evolving and can be adapted by any organization.

METHODOLOGY

This study adopted the survey research design. The choice of this design was anchored on fact that survey research design is one that focuses on a definite person(s), group(s), organization or issue(s). Survey research allows the collection of a large amount of data from a sizeable population in an economical way. It is a design that tend to identify and describe the basic and specific characteristics, features and peculiarities on the study group, for which inferences may be drawn, a set of action may be taken or utilize the identified state of things depending on the objectives of the research. The population of the study comprises of 1305 internal control staff from the ten (10) deposit money banks (DMBs) in Nigeria with international authorization as categorized by the Central Bank of Nigeria (CBN) as at May 25, 2016. This category of DMBs were chosen on the premise that they interact with other stakeholders both locally and internationally hence they are likely to face more sophisticated fraudulent activities and therefore be in a much better position to provide the relevant responses to the research questions. This study used

purposive sampling technique to select it sample size. The choice of the technique is premised on its defining feature of allowing selection of sample on purpose or based on the judgment of the researcher. To this end, the sample of this study was one hundred (100) internal control staff purposively drawn from the ten deposit money banks licensed with international authorization operating in Nigerian banking sector.

For the purpose of this study, the researcher sourced for data from primary source. Primary source of data involves collecting data from original sources, which is first hand data. 'Primary data was collected from internal control, audit and compliance staff from the Ten (10) deposit money banks license with international authorization operating in Nigerian banking sector through well-structured Likert scale questionnaire. To enable effective computation of the data, the responses gotten from the Likert scale questionnaires were assigned numeric values in the following form and rank: Strongly agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1); this is further summarized in a tabular for the questionnaires were administered to the respondents and retrieved from same within the first quarter of 2018.

RESULT AND DIISCUSSION

Hypothesis One
Ho1: Conducting investigation has no significant effect with regards to financial fraud detection in DMBs in Nigeria

From the regression results, the t-value of the coefficient of conducting investigation with financial fraud detection as dependent variable is 2.060 which is outside the region of nonrejection of -1.96 and +1.96. This shows that the null hypothesis can be rejected, indicating that conducting investigation has a significant effective on financial fraud detection in DMBs in Nigeria. Similarly probability value of the coefficient of conducting investigation is 0.043 which is less than 0.05 critical value.

Hypothesis Two
Ho2: Analyzing financial transactions has no significant effective on financial fraud detection in DMBs in Nigeria

The t-value of the coefficient of analyzing financial transactions as a forensic accounting technique for financial fraud detection is 2.535 which is outside the region of non-rejection of -1.96 and +1.96. This shows that the null hypothesis can be rejected, indicating that analyzing financial transactions has a significant effective on financial fraud detection in DMBs in Nigeria. Similarly probability value of the coefficient of analyzing financial transactions is 0.013 which is less than 0.05 critical value.

Hypothesis Three
Ho3: Reconstructing incomplete accounting records has no significant effect in detecting financial fraud in DMBs in Nigeria

From the regression results, the t-value of the coefficient of reconstructing incomplete accounting records as a forensic accounting technique for detecting financial fraud is 2.209 which is outside the region of non-rejection of -1.96 and +1.96. In like manner, probability value of the coefficient of reconstructing incomplete accounting records is 0.030 which is less than 0.05 critical value. Given the decision rule earlier stated, the null hypothesis is rejected. This implies that the alternative hypothesis was accepted; meaning that reconstructing incomplete accounting records significantly help in detecting financial fraud in DMBs in Nigeria.

Discussion of Findings

With respect to objective one, the study found that conducting investigation has a positive and significant effect on financial fraud detection in DMBs in Nigeria. This is shows that, forensic accounting investigation can be used to detect fraud, unearth hidden fraudulent activities and probing suspicious financial transactions. This finding is in line with the finding of Onodi, Okafor and Onyali (2015) who

found that there is a significant relationship between the forensic investigative methods and corporate fraud deterrence. With respect to objective two the study found that analyzing financial transactions has a positive and significant effect on financial fraud detection in DMBs operations. This shows that, financial transaction analysis is a useful technique for financial fraud detection in deposit money banks in Nigeria. Therefore, it can be said that the technique is capable of detecting suspicious and fraudulent activities. With respect to objective three, the study reveals that reconstructing incomplete accounting records has a positive and significant effect in detecting financial fraud in DMBs. This implies that, forensic accountants can detect colossal financial fraud capable of collapsing the bank from just a piece of information by reconstructing incomplete accounting records. Therefore it can be said that with slight information on transactions, employing the technique of reconstruction of incomplete accounting records, forensic accountants can unearth massive fraudulent activities.

CONCLUSION AND RECOMMENDATIONS

Advancement in technology brought massive innovation in the way and manner banking operations are done in recent times; as the banking operations advanced with technology so also did fraud and fraudulent activities. The importance of putting in place adequate techniques for detecting and preventing fraud in an organization cannot be overemphasis, this among other things lead to the use of forensic accounting techniques in combating fraud in the banking sector. The study examines the impact of forensic accounting on fraud detection in deposit money banks in Nigeria and used survey research design and the major findings from the study includes; Conducting investigation has a positive and significant effect on financial fraud detection in deposit money banks in Nigeria; Analyzing financial transactions has a positive and significant effect on financial fraud detection in deposit money banks in Nigeria and Reconstruction of incomplete accounting records has a positive and significant effect
in detecting financial fraud in deposit money banks in Nigeria.

Bank operations over the years have changed drastically majorly due to developments in the field of information and communication technology. These developments also changed the way fraud and fraudulent activities are perpetuated, and the effect on banking operations. The concerns of stakeholders across all organizations are to seek ways to combat these sophisticated fraudulent activities. The essence of all the measure that organizations adopt is to ensure smoothness of activities, avoid errors (intention and unintentional), detect and prevent fraud and fraudulent practices and discourage those with such intentions. In view of the rapid development in information and communication technology that is changing banks mode of operations and bringing innovations to banking, and even the method fraudsters operate as well as the likely effects of their activities on the banks and customers if not tackled; and in consideration of the findings of this study that forensic accounting has a significant effect on fraud detection, the research made the below recommendations:

i. More forensic accountants should be employed by deposit money banks in Nigeria, considering the growing relevance of forensic accounting techniques in curbing modern day fraud and financial crime brought about by advancement in technology, changes in the modus operandi of banks in developing economies like that of Nigeria and in line with the findings of this study that revealed that forensic accounting components are effective in fraud detection.
ii. The APEX bank (Central Bank of Nigeria) in collaboration with all financial institutions in the country should establish an electronic fraud risk information center (similar to those in developed countries) and staffed by forensic accountants to help in tracking cases of banking frauds, considering that banking operations are accelerating digitally, the sector is vital to the nation’s economy and the findings of this study thatrevealed that analyzing financial transactions is capable of detecting suspicious and fraudulent activities.
iii. The researcher recommends that DMBs in Nigeria should incorporate automated control measures such as introduction of biometric authentication of transactions as it will serve as a major deterrent for fraud occurrence and a proactive measure in fraud detection.

iv. The researcher recommends that Management of DBMs should ensure continuous training and retraining of Forensic accounting units/Fraud management desk personnel to be abreast with latest trends as mode of banking transactions are changing continuously with advancement in technology; as no technique will succeed without efficient personnel.

References

Abiola, I. (2009). An assessment of fraud and its management in Nigeria commercial banks. European journal of social sciences, 10, 628-640

Adebisi. A.F (2009). The bankers' fortress, Lagos: Mega synergy Nigeria limited

Adegbie, F. F. &Fakile, A. S. (2012). Economic and financial crime in Nigeria. Forensic accounting as antidote. British Journal of Arts and Social Sciences, 6(1), 37-50.

Aduwo, O.O. (2016). The role of forensic accounting in combating the menace of corporate failure. International journal of economics, commerce and management, 10(1), 40-60

Akenbor, C.O. &Oghoghomeh, T. (2013). Forensic auditing and financial crime in Nigerian banks: a proactive approach. Business and management review, 4(2), 48-61

Mercer, G. (2006). Audit internal control. Atlanta: Mercer university press.

Modugu, K.P. &Anyuduba, J.O. (2013). Forensic accounting and financial fraud in Nigeria: An empirical approach. International journal of business and social sciences, 4(7), 281-289.

Moore. T, Clayton. R & Anderson. R (2009). The Economics of Online Crime. Journal of economic perspectives, 23 3 , 3-20

Mukoro, O.D., Faboyede, O.S. &Eziamaka, C.B. (2014). The effectiveness of forensic accountants in strengthening internal control of business organizations in Nigeria.

Journal of management research, 6(1), 40-69.

Mutesi, J. (2011). Information sharing, risk management and financial performance of commercial banks in Uganda. Journal of emerging issues in economics, finance and banking, 2(2).

Ngalyuka, C. (2013). The relationship between ICT utilization and fraud losses in commercial banks in Kenya. International journal of business and public management, 2(3), 56–59.

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Effect of Internal Control System on Risk Management in the Nigerian Public Sector

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Abstract

This study examines the relationship between internal control system and risk assessment in Board of Internal Revenue in Bauchi State. Data were generated with the aid of necessary information collected from the study through the cross sectional survey through the administered of questionnaire. A total population size of 150 were selected and sample size of 109 was determined using Taro Yamane's formula at 0.05 level of significance. Also, 109 copies of questionnaire were distributed to the respondents, while 87 copies were completed and retrieved. The instruments were validated with reliability above 0.8 co-efficient, using Cronbach Alpha Technique. six research questions and six hypotheses were raised which was tested with spearman's rank order co-efficient of correlation using SPSS 20 version. From the findings, the concept of internal control system creates positive impact on risk assessment and risk financings. In conclusion, internal control system has a significant impact in risk assessment in the Nigerian public sector. Based on the findings and conclusion, it could be recommended that any internal auditor who cannot demonstrate the appropriate skills and knowledge should not undertake work in the area of risk assessment. Furthermore, internal control system should maintain high level of objectivity and independence in carrying out their core function of evaluating and providing management with assurance on risk assessment.

Keywords: Internal Control, System, Risk Management, Nigerian Public Sector

INTRODUCTION

The effect of internal control system on risk assessment in public sector prevention of fraud cannot be over emphasized as each case of fraud has its devastating effect on not only public sector organizationbut also the national economy at large. Fraud has racked the economy of this nation, it is now a generally accepted fact that the problem of managing the economy now depends on the ability of the manager to keep this fraud at a distance, if they must succeed. Public institutions set up by an Act of parliament are by that Act, mandated to provide services or products for public good interest. In developing economy, like Nigeria, public sector represents one of the most dominant economic forces; perhaps due to the fact that government constitutes the largest single business entity and her pattern of expenditure through its various Ministries, Agencies and Departments (MDAs) stimulate a lot of economic activities. No organization whether public or private has the luxury of operating in a risk free environment. Organizations operate in a very complex and competitive environment, facing many risks as well as internal and external forces, continuously hamperingorganization objectives. So, public institutions in the course of carrying out their constitutional mandate are exposed and vulnerable to numerous risks that threatens their corporate existence and effective service delivery to the public. Public sector environment is characterized with peculiar and unique challenges such as limited resources, excessive bureaucratic bottleneck, inadequate human and technological capacity, nepotism, political aggressiveness and will, corruption, misappropriation of fund, silo mentality, competing needs and priority and infrastructural backlogs etc. All these dynamics among others, increases the risk profile of the public sector as a whole and places an extra duty of care on public sector management to contain risk within acceptable limit, and internal control system has a role to play in minimizing these risk exposures affecting organizational objectives. Hence, the concept of Risk Assessment technique (risk control and risk financing) is a valuable management tool which increases an institution's prospects of success through minimizing negative outcome and optimizing opportunities. Gerrit *etal*. in his work titled: Risk Management and internal Control in Public Sector emphasized that Risk Management is important to the success of public

services. Risk facing entities must be managed to an acceptable level so that objectives can be achieved and a decrease in shareholder value can be avoided [2].Internal audit which carry an activity of providing constant review and appraisal of the systems and procedures introduced by management with the intention to enable the management to control and utilize their resources properly and effectively plays an important role of risk assessment in an organization.

Kokobe & Gemerhu conducted a research on Risk management techniques and financial performance of insurance companies to find out how risk control and risk financing as a risk management techniques impact on financial performance of firms. Their finding reveals a positive relationship between Risk management techniques(risk control and risk financing) and financial performance of firms, suggesting that companies should adopt enterprise risk assessment that is currently the best practice standard and also apply risk management techniques effectively so as to improve on their return on equity and reducing loss ratios. It is against this framework, that this study iscarried out to examine and analyze the role of internal control system on risk assessment of public sector in Nigeria, by providing independent and objective assurance of the effectiveness of risk control and risk financing techniques of risk assessment. Public institutions must change the traditional role of the audit from evaluating internal control to the process of risk assessment and corporate governance. It used to be that internal auditing in the public sector served as a simple administrative procedure comprised mainly of checkingaccuracy of transactions, pre-payment verification and control, counting assets and reporting on past events to various types of management, but in recent times, government in moving towards high levels of transparency must demonstrate accountability in the use of public money and efficiency in the delivery of services, thus, the need for greater competency and professionalism from internal system to minimize and manage risk. Public Sector entities are often characterized with different categories of risk, arising as a result of both internal and external factors such as failure of contractors or Government agencies to provide services as required, project delays, cost overruns, inadequate quality standards, delay or failed introduction of new technology, loss or misappropriation of fund through corruption, disruption from industrial action, protest,communal clashes, inconsistent programmed objectives,inadequate contingency plans, failure to innovate,economic changes, environmental damages etc. All of these risk factors among others threaten the corporate existence and effective service delivery of public sector entities.

Consequently, this has brought the subject of risk assessment in both government and private institution on the front burner, which has resulted to the development of several government legislations and reforms, such as the Sarbanes Oxley Act in the USA,the Basel II capital and the revised combined code in the U.K. and the code of corporate Governance for public companies (part E) in Nigeria among others, to minimize the risk of future major corporate failure via tighter regulation of internal control system. The effectiveness and efficiency of risk control and risk financing (risk management) seems to pose enormous challenges in various industries, public sector not exempted. Thus, the problems facing public entities in risk assessment as identified in this study are: the problem of an effective risk control measures; the problem of choosing an efficient risk financing measures and the challenge of an independent, objective and professional internal audit assurance regarding the effectiveness and efficiency of risk control and risk assessment.A conclusion that can be drawn from the State Audit Office's audit and research experience is that even though internal controls system are usually developed for risk assessment in organizations belonging to the central and local government subsystems of public finances, risk assessmenttechniques are not fully integrated and thus, not effective within the organizational operations. In this research study, six (6) hypotheses, served as a guide and provided focus to this survey which was tested for acceptance or rejection. Thus, the research study was based on the following null hypothetical statements:

Ho1: Internal control independence has no impact onrisk assessment in public entities.

Ho2: Internal control objectivity has no impact on riskassessment in public entities.

Ho3: Internal control competence has no impact on riskassessment in public entities.

Ho4: Internal control independence has no effect in riskfinancing in public entities.

Ho5: Internal control objectivity has no effect in riskfinancing in public entities.

Ho6: Internal control competence has no effect in riskfinancing in public entities.

LITERATURE REVIEW

Theoretical Framework

Agency Theory

In its primitive form, agency theory relates to situations in which one individual (called the agent) is engaged by another individual (called the principal) to act on his/her behalf based upon a designated fee schedule. In the broad sense, whenever one party (principal) depends on the action of another party (agent), agency relationship arises. Jensen & Meckling define an agency relationship as a contract by which one or more persons (the principal) hire another person (the agent) to perform some service on their behalf, giving the agent some of their decision making power. Agency theory in this context provides the basis to explain the services and responsibilities assigned to the internal audit function. An agency operates under the condition of risk and uncertainty. In effect, the basic agency theory usually assumes thatboth individuals are risk averse. Under these circumstances, the amount and content of the produced accounting information and other information sources would become a significant issue in risk sharing (risk management) and controlling the agent's actions. Agency theory in this area of study provides the basis toexplaining the independent, objective and professional competence required for the role and responsibilities assigned to the internal audit function of risk management. The agency theory postulated that the internal auditor as an agent to his principal is expected to possess those skills and abilities such as professional competence, independence, and objectivity in the performance of the risk management task.

Institutional Theory

Institutional theory in organizational research is mainly concern with understanding the nature and characteristics of an organization from an open system perspective, focusing on how the organization is affected by its environmental interactions Philip S. in his study on old institutional theory refers organizations to as organisms that adapts to environmental threats. Philip asserted that the internal structure of the organization is constantly under tension with the external environment, with which the organization interacts with to sustain its legitimacy and survival. In this study therefore, the institutional theory provides the theoretical framework on the different applications of risk management processes, approaches and techniques in different field and organizations (private and public) because of the institutional characteristics of these organization. Ignacio C.S. explained the risk management applications in different field of study; that economics and finance study risk by examining the distribution of corporate returns on investment; banking analyze risk with respect to liquidity, credit and capital adequacy; while psychologyand sociology interpret risk in terms of behavioral component. Thus, the approach and assessment of risk management in Private Sector entities that is profit driven is different from that of the public sector that is non-profit driven because of the different range of stakeholder the organization is accountable to, and the extent to wish political and social dimension impact on decision making [19]. Thus, the institutional theory underpins the use of the two (2) risk management techniques: risk control and risk financing to evaluating the impact and effect of internal control activities in risk assessment in the selected public sector in Bauchi State Government.

Conceptual Framework

Internal Control

Cook and write define internal control as the system within an organization or company consisting of its plan of organization and the assignment of duties and responsibilities, the design of the accounts and reports and all measures and method to employ: Protect its assets; Promote and judge the operational efficiency of the organization activity and; To communicate managerial policy, encourage and measure compliance. Other authors define internal control as not only check in internal audit but whole system of control, financial and otherwise. Internal control is examined in the auditing guidelines as the whole system of control, financial and otherwise, established by the management in other to carry on the business of the enterprise in an orderly and efficient manner, ensure as far as possible the completeness and accuracy of the records

Internal Audit

According to the Institute of Internal Auditors internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization‘s operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and The IPPF Standards defined Objectivity is an unbiased mental attitude that allows internal auditors to perform engagements in such a manner that they believe in their work product and that no quality compromises are made. The Standards also asserted that Objectivity requires that internal auditors do not subordinate their judgment on audit matters to others. Threats to objectivity must be managed at the individual auditor, engagement, functional, and organizational levels.

Audit Competence

Competence of internal audit staff is also considered as one of the variables in measuring internal audit in this study. The IPPF attribute standard 1200 propounded that all internal audit work and engagement must be done with proficiency and due care. The internal audit staff must possess the requisite knowledge, skills; competence and professional proficiency needed in carrying out their responsibilities and duties, and must apply the care and skill expected of a reasonably prudent and competent internal audit staff. IPPF defines proficiency as a collective term that refers to the knowledge, skills, and other competencies required of internal auditors to effectively carry out their professional responsibilities. It encompasses consideration of current activities, trends, and emerging issues, to enable relevant advice and recommendations. Internal auditors are encouraged to demonstrate their proficiency by obtaining appropriate professional certifications and qualifications, such as the Certified Internal Auditor designation and other designations offered by The Institute of Internal Auditors and other appropriate professional organizations.

Risk Assessment

The concept of risk assessment evolved from the insurance industry where risk financing was the main risk management activity. The concept of risk assessment does not have a generally accepted definition. The Standards of Internal Audits define risk assessment as the process of identification, evaluation, and control of potential events or situations in order to give reasonable assurance in respect of the achievement of objectives. The Committee of Sponsoring Organizations of the Tread way Commission (COSO), ERM Integrated Framework Enterprise risk assessment is a process, effected by an entity‘s board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. George L. H. defined risk assessment as the process of planning, organizing, directing, and controlling resources to achieve given objectives when surprisingly good or bad events are possible.

Risk Control

According to IIA & RIMS in their work on Risk assessment and Internal Audit: forging a collaborative alliance, risk control was a major evolutional development strategy in risk assessment thatcombine a few risk functions into an integrated advanced risk management function, focusing primarily on managing insurable hazard losses through prevention and severity decline(reduction). They also added that risk control approach focuses on threat facing the organization. Vaughan defined risk control as a technique that is designed to minimize, at the least possible costs, those risks to which the organization is exposed to. Ignacio, asserted that risk control are those measures designed and adopted by the organization to minimize those risk which the organization are exposed to. Risk control are those measures put in place to stop losses from happening (by reducing the number of the accidental losses an organization suffers) or increases the predictability of accidental losses Risk control is basically concern with putting all organizational or operational risk on check, ensuring that they do not escalate to the point where the organization objectives and survival is threatened. Risk control therefore, is a key component in any organizational strategy. It‗s important to ensuring long- term organization sustainability and profitability. Vaughan explained that in the applicationof risk control within an organization, decision are oftenmade to prevent a risk from occurring, by refusing to accept an activity or business proposal because of the inherent risk, which he referred to as risk avoidance method.

George L. H. opined that when the magnitude of loss is greater than the reward from a risky venture, risk avoidance becomes an important decision to manage such risk. He however asserted that,while exposure avoidance can be a very powerful risk control tool, it can be used only very selectively. Thus, risk control through risk avoidance utilizes cost-benefit analysis. Pom & Associates Insurance Brokers in its publication on the fifth pillars of risk control explained that risk avoidance is the best means of loss control. This is because, as the name implies, you‗re avoiding the risk completely. If your efforts at avoiding the loss have been successful, then there is a 0% probability that you‗ll suffer a loss (from that particular risk factor, anyway). This is whyavoidance is generally the first of the risk control techniques that‗s considered. It‗s a means of completelyeliminating a threat. Also, risk control is measured by how much the organization is able to checkmate and reduce to the barest minimum risk within the system (inherent risk) that cannot be avoided. This risk control measures are referred to as risk reduction method. It is the procedures and policies designed by management to checkmate to negative exposure of an inherent risk within the organization. These procedures and policies are alsoreferred to as internal control measures put in place to prevent or reduce the occurrence of risk within the organization. Vaughan, explained that risk reduction measures are designed to reduce the likelihood of loss or the potential severity of the losses that do occur.

Risk Financing

Another variable for measuring risk management examined in this study is Risk financing, which is one of the component of risk managementtechniques or tools. It has been argued in several literatures that risk cannot be completely eradicated in an organization and that venturing into any activities of business calls for risk. Inherent in every organization is an unavoidable risk as long as the organization is in existence. Eugenia T. & Aurelia S asserted that risk is unavoidable and it is permanently inherent in all the activities of all entities. The challenge therefore is what to do with the risk that cannot be avoided. How can the unavoidable risk that is permanently present in an organization be managed? What is the insurable and contractual risk facing the entities? All risks that cannot be avoided or reduced must by definition be transferred or retained through risk financing techniques. The IIA & RIMS explained that the evolution of risk management function began originally with risk financing which primarily deal with risk transfer, whether through hedging, insurance or some other instruments and is characterized as traditional/defensive risk management. They also asserted that risk financing focuses on insurance, contractual and transaction risks. George L.H. explained that only exposure avoidance totally eliminates a given loss exposure. Each of the other risk control techniques leaves open the possibility no

matter how unlikely or how small of some accidental losses arising from each loss exposure. As long as these possibilities exist, effective risk management calls for arranging one or efforts at avoiding the loss have been successful, then there is a 0% probability that you'll suffer a loss (from that particular risk factor, anyway). This is why avoidance is generally the first of the risk control techniques that's considered. It's a means of completely eliminating a threat. Also, risk control is measured by how much the organization is able to checkmate and reduce to the barest minimum risk within the system (inherent risk) that cannot be avoided. This risk control measures are referred to as risk reduction method. It is the procedures and policies designed by management to checkmate to negative exposure of an inherent risk within the organization. These procedures and policies are also referred to as internal control measures put in place to prevent or reduce the occurrence of risk within the organization. Vaughan explained that risk reduction measures are designed to reduce the likelihood of loss or the potential severity of the losses that do occur.

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According to Vaughan risk financing consists of those measures or arrangements designed by management to guarantee the availability of funds to meet those losses that do occur as a result of risk that is inherent within the organization. Global Humanitarian Report defines risk financing a set of measures designed to shift the mobilization of funds away from ad hoc efforts in the wake of a crisis, and towards a risk-informed strategy to secure access to funds in advance of anticipated crisis events, effectively smoothing the financial impact of post-crisis response and recovery over time. And that, Risk financing mechanisms include savings and reserves, access to credit and market-mediated risk transfer products such as insurance and catastrophe bonds. Risk retention strategy which is an internal risk financing method is taken care of by different means within the organization, which among other means include, reserves, specific budgets or funds set aside to manage those retained risk within the organization or meet the deviation of expected losses.

Empirical Literature

Gherai *et al*. did a research on the role of internal control in risk management in the public sectored local entities Case Study Bihor County. Their studies show that the independent assurance of internal control activity on the process of risk assessment was 66.6%. The study also identified some shortcomings in their analysis, among which was the lack of specialist personnel, and the conclusion was that the problem of lack of professional personnel in the field of public internal control at the national level is reflected in

the local plan generated by the current economic situation of the country. Gherai & Balaciu in their work which focuses on the Role of Internal Control in Risk. Management in the public sector and local entities in Bihor County, Romania explained that based on responses from 49 entities from public sector, the result of the study show that the public internal auditors know they can play an important role in the risk management, but there are a number of other activities which must be conducted within the organization. So, they tend to understand the concept of risk assessment and risk management process, where it is carried out, and of the role they can play in improving and activity, however, issues of disposable incomes allocated to activity, and enough personnel specializing in the field, as well as a lack of interest of management to increase the efficiency and profit of the public internal control activity, are issues that impede performance and risk management. Elizabeth & Diane conducted a global assessment based on IIA‘s global internal control survey on the nine elements required for internal control effectiveness in the public sector and found out that almost all Chief Audit Executives respondents (92%) agreed or strongly agreed that independence was a key factor for the internal control activity to add value, and that In response to a question related to coercion, about a fifth of the internal control respondents (21%) indicated that they had been subject to coercion (extreme pressure) to change a rating or assessment orto withdraw a finding in an internal control report. The highest percentage was in Africa (31%), and the lowest was in the United States and Canada (13%).

A related study carried out in the Nigerian experience with the objective of enhancing good governance in the public sector through internal control function by Taiwo *et al*. showed that the effectiveness of Internal Control Function (ICF) in Nigerian public sector organizations was moderate since internal control system in the public organizations was not absolutely independent and professional competence was limited due to the challenge ofinsufficient funds to successfully carry out its duties. Moreover, the study revealed that ICF had significant and positive effect on the quality of service delivery and management of resources in the public organizations. Udeh & Eugene in their study on the evaluation of the effectiveness of internal control in the Nigeria public sector found and observed the implicit existence of effective internal control procedures to safeguard assets of organizations, but that there is the need for adequate internal control personnel and training, as this would increase their effectiveness. It is not sufficient in itself to have a system of risk assessment with risk management measures developed, but also to have these risk measures developed implemented and monitor through the risk management process, as this will guarantee public sector efficiency.

METHODOLOGY

The study adopted quasi-experimental design. The quasi-experimental research design was adopted in alignment with cross sectional survey. This is because all the entire population or variables are outside the control of the researcher and cannot be studied, so a survey was more appropriate. The research was descriptive in nature. According to Saunders *et al*. A descriptive cross sectional survey in nature, is a method of social affairs data that examines the people who are the object of the examination and having a place with an agent test, through an institutionalized the efficiency and profit of the public internal control activity, are issues that impede performance and risk management. Semi-structured questionnaire was used as instrument to collect data for the study. The research questionnaire was designed by the researcher and coined from the early work of Brink and Dennison based on the specific objectives, research questions, hypotheses and information in this study.

The researcher assembled all the returned copies of the questionnaire, sort out the ones that are properly filled and separate them from the ones notproperly filled. The questionnaire was coded for analysis using SPSS version 20. Descriptive statistics of percentage and inferential statistics were used to analyze the questionnaire instrument. Also, Spearman‘s Rank Order Correlation Co-efficient were used for data analysis.Two models are formulated for this study, which isspecified below:

$RC = \alpha + \beta1AI + \beta2AO + \beta3AC + \varepsilon iRF = \alpha + \beta1AI + \beta2AO + \beta3AC + \varepsilon i$

Where,

α, is the intercept of relationship or parameter estimatesin the model

β, is the regression coefficient or parameter estimatesfor the model

εi, is the error terms or residual value

AI is Audit Independence; AO is Audit Objectivity; ACis Audit Competence

RC is Risk Control; RF is Risk Financing.

RESULTS AND DISCUSSION

Test of Hypotheses

The statistical tool used to test the hypothesis was spearman's rank co-efficient of correlation. Thestudy adopted the 0.05 level of significance as a criterion for significant or non-significant effect for the acceptance or rejection of the hypotheses.

Hypothesis 1 (Ho1): Internal control independence has no impact on risk control in public entities.

The Correlation was significant at the 0.05 level (2- tailed). The correlation coefficient (r) was 0.865, which means it is positively correlated and strong relationship exist among the variables. The significant value of 0.040 ($p < 0.05$) shows a significant relationship. Thus, the null hypothesis was rejected and the alternate hypothesis accepted which states; Internal control Independence has an impact on risk control in public entities. This indicates that internal control independence has positive impact in Risk assessment in the Nigerian public sector.

Hypothesis 2 (Ho2): Internal control objectivity has no impact on risk control in public entities.

The Correlation was significant at the 0.05 level (2-tailed). Since the correlation coefficient (r) was 0.845, which means it is positively correlated, and strong relationship exist among the variables. The significant value of 0.044 ($p < 0.05$) shows a significant relationship. Thus, the null hypothesis was rejected and the alternate hypothesis accepted which states; Internal control objectivity has an impact on risk control in public entities. This indicates that internal control objectivity has positive impact in Risk assessment in the Nigerian public sector.

Hypothesis 3 (Ho3): Internal control competence has no impact on risk control in publicentities.

The Correlation was significant at the 0.05 level (2-tailed). Since the correlation coefficient (r) was 0.872, which means it is positively correlated, but strong relationship exists among the variables. The significant value of 0.044 ($p < 0.05$) shows a significant relationship. Thus, the null hypothesis was rejected and the alternate hypothesis accepted which states; internal control competence has an impact on risk control in public entities. This indicates that internal control competence has positive impact in Risk assessment inthe Nigerian public sector.

Hypothesis 4 (Ho4): Internal control independence has no effect in risk financing in public entities. The

Correlation was significant at the 0.05 level (2-tailed). Since the correlation coefficient (r) was 0.855, which means it is positively correlated, and strong relationship exist among the variables. The significant value of 0.041 ($p < 0.05$) shows a significant relationship. Thus, the null hypothesis was rejected and the

alternate hypothesis accepted which states; Internal control Independence has an impact on risk financing in public entities. This indicates that internal control independence has positive impact in Risk assessment in the Nigerian public sector.

Hypothesis 5 (Ho5): Internal control objectivity has no effect in risk financing in public entities.

The Correlation was significant at the 0.05 level (2-tailed). Since the correlation coefficient (r) was 0.852, which means it is positively correlated, and strong relationship exist among the variables. The significant value of 0.046 ($p < 0.05$) shows a significant relationship. Thus, the null hypothesis was rejected and the alternate hypothesis accepted which states; Internal control objectivity has an impact on risk financing in public entities. This indicates that internal control objectivity has positive impact in Risk assessment in the Nigerian public sector.

Hypothesis 6 (Ho6): Internal control competence has no effect in risk financing in public entities.

The Correlation was significant at the 0.05 level (2-tailed). Since the correlation coefficient (r) was 0.743, which means it is positively correlated, and strong relationship exist among the variables. The significant value of 0.032 ($p < 0.05$) shows a significant relationship. Thus, the null hypothesis was rejected and the alternate hypothesis accepted which states; Internal control competence has an impact on risk financing in public entities. This indicates that internal control competence has positive impact in Risk assessment in the Nigerian public sector.

The research findings reveals that a significant relationship exist between internal control and risk Assessment, and that internal control has a role to play in the risk control and risk financing of an Organization, which therefore, asserts that internal control activities has significant impact in risk assessment. From the research study, the respondents agreed vividly, that internal control independence enhances risk control and risk financing which were used as a measure of risk management; and the hypotheses (hypothesis 1 and 4) test findings shows that there is a strong and positive significant impact of internal control independence on risk control and risk financing. This indicates that internal audit independence has positive impact in Risk assessment in the Nigerian public sector. For an effective evaluation of risk control and risk financing in an organization, internal control that has a role to playin the risk control and risk financing of an organization must be independent. This finding is in line with earlier findings that the independence of internal control department and the level of authority to which the internal audit staff report are the important criteria influencing the objectivity of its work, and that internal control independence is more crucial to the effectiveness of the internal control system, as it protects the auditor from pressure or intimidation, and increases the reliability and credibility of the auditing work. Independence allows the internal control auditor to carry out his audit work and be perceived to carry out such conduct work without interference by theentity under audit.

The respondents in this research study agreed that internal control objectivity influences risk control and risk financing in an organization; and the hypotheses (hypothesis 2 and 5) test findings shows that there is a strong and positive significant impact of internal control objectivity on risk control and risk financing. This indicates that internal audit objectivity has positive impact in Risk assessment in the Nigerian Public sector. For an effective evaluation of risk controland risk financing in an organization, internal. Control auditor who has a role to play in the risk control and risk financing of an organization must be objective. This is in agreement with the assertion of the Institute of Internal Audit that the core role of internal. Control auditing with regard to enterprise risk assessment is to provide quality and objective assurance to the board on the effectiveness of risk management, and that the two most important ways that internal control add value to the organization is in providing objective assurance

that business risks are being managed appropriately, and that the risk management and internal control framework is operating effectively.

The respondents in this research study also vividly agreed that internal control competence influences risk control and risk financing in an organization; and the hypotheses (hypothesis 3 and 6) test findings shows that there is a strong and positive significant impact of internal control competence onrisk control and risk financing. This indicates that internal control competence has positive impact in Risk assessment in the Nigerian public sector. For an effective evaluation of risk control and risk financing in an organization, internal control auditor who has a role to play in the risk control and risk financing of an organization must be qualified, experienced and competent. This is in line with the assertion of IPPF attribute standard 1200 that all internal control audit work and engagement must be done with proficiency and due care, and that the internal control audit staff must possess the requisite knowledge, skills, competence and professional proficiency needed in carrying out their responsibilities and duties, and must apply the care and skill expected of a reasonably prudent and competent internal audit staff. IIA, also added in the area of skill and knowledge need of internal auditing by stating that any internal control auditor who cannot demonstrate the appropriate skills and knowledge should not undertake work in the area ofrisk assessment. Thus, internal control auditor and risk managers should share knowledge, skills and value, both for example in understanding corporate governance requirements; having project management, analytical and facilitation skills and value; having a healthy balance of risk rather than extreme risk takingor avoidance behavior.

CONCLUSION AND RECOMMENDATION

The empirical scope of the research is outlined to the impact of internal control activities in risk assessment of public entities in Nigeria with the exclusion of the private sector from the research study. And In evaluating and measuring the variables in this study, Internal control as an independent variable was limited to the use of independence, objectivity and competence as measuring alternatives, while risk assessment was evaluated and measured using risk control and risk financing. The study was limited to the use of validated primary data for analysis. The study revealed that the internal control hadan impact on risk assessment as far as respondents are concerned in Bauchi State Board of internal revenue. The independent variable in this study is internal control system. The alternatives are internal control independence, internal control objectivity and internal control competence. While the dependent variable for this study is Risk assessment. The measures of Risk assessment which includes: risk financing and risk control. This study also considered the relationship between the predictor variable and standard variable. The ex-post facto design was used in line with purposive sampling techniques. Findings reveal that there exist positive relationships between the predictor variable and criterion variable alternatives.

Risk assessment is a fundamental element of corporate governance. Management is responsible for establishing and operating the risk assessment framework on behalf of the board. Enterprise with risk assessment brings many benefits as a result of its structured, consistent and coordinated approach. Internal control core role in relation to risk assessment should be to provide an independent, objective and professional assurance to management and to the board on the effectiveness of risk assessment. When internal control auditing extends its activities beyond this core role, it should apply certain safeguards, including treating the engagements as consulting services and, therefore, applying all relevant Standards. In this way, internal control auditing will protect its independence and the objectivity of its assurance services. Withinthese constraints, internal control will be able to carry out its risk assessment function effectively. The effectiveness of a risk control system and the efficiency of a risk financing option require an independent, objective and competent internal control function, as the study shows that there is a positive correlation between internal control and risk assessment techniques.

Based on the results of findings, the following are recommendations for future implementation. It should be clear that management remains responsiblefor risk assessment. The nature of internal control

responsibilities should be documented in the internal control deed and approved by the audit committee. Management, government and other stakeholders should provide internal control with the necessary support and environment that guarantee their independence, objectivity and competence in the discharge of their core risk assessment role without undue influence and interference. Internal control system should not take any risk decision on behalf of management. Internal control should provide advice, challenge and support to management‘s decision making, as opposed to taking risk assessment decisions themselves. Internal control should maintain high level of objectivity and independence in carrying out their core function of evaluating and providing management with assurance on risk assessment, and should observe all safeguards to mitigate threats on audit objectivity and independence. This will guarantee integrity, reliability and credibility of assurance report on risk assessment provided. Furthermore, Government should ensure that Board of internal revenue imbibes a culture of risk assessment within the organization by ensuring an effective risk control system and an efficient risk financing options.

References

Abiola, J. O. (2015). Audit expectation gap: Auditors in unending role conflict. (thesis). Retrievedfrom https://www.ajol.info/index.php/ijdmr/article/download/120974/110403.

Acheson, K. J., Campbell, I. T., Edholm, O. G., Miller, D. S., & Stock, M. J. (1980). The measurement of food and energy intake in man— an evaluation of some techniques. *The American Journal of Clinical Nutrition*, *33*(5), 1147-1154.

Adeniji, A.A. (2011). Auditing and investigations. Ikeja, Nigeria: wyse associates limited..

Coetzee, G.P. (2012). Advance internal audit, (3rd ed.). South Africa: LexisNexis.

Deloitte. (2011). Internal audit in public sector: Thequiet revolution. Retrieved from http://www.deloitte.com.

Department of Administrative Reforms and Public Grievances (DAPRG). Internal control and risk management framework (II). Retrieved from https://darpg.gov.in/documents.

Domokos, L., Nyéki, M., Jakovác, K., Németh, E., & Hatvani, C. (2015). Kockázatelemzés és kockázatkezelés a közszférában és a közpénzügyi ellenőrzésben= Risk Analysis and Risk Management in the Public Sector and in Public Auditing. *Pénzügyi szemle/public finance quarterly*, *60*(1), 7-28.

Elizabeth, M., & Diane V. G. (2014). Nineelements required for internal audit effectiveness inthe public sector. An IIA research foundation research report, Florida, U.S.A.

Gerrit, S., Christian, D. V., & Diane V. G. (2010). Risk management and internal control in the public sector: An in-depth analysis of Belgian social security public Institutions. A paper presented at the 2nd European risk conference, Milan.

Ignacio C. S. (2013). Risk management theory: the integrated perspective and its application in the public sector. Estado, Gobierno, Gestión Públication, *21*(2013), 89-126.

Kokobe, S.A., & Gemechu, D. (2016). Risk Management Techniques and Financial Performance of Insurance Companies. InternationalJournal of Accounting Research.

L. & Hanson, W. E. (2003). Advanced mixed methods research design. Handbook on mixed methods in the behavioral and social sciences (pp. 209 240). Thousand Oaks, CA: Sage Publications.

Margareth Wood. (2001). A contingency theory perspective on the risk management control system within Birmingham City Council: a CRIS discussion paper series, University of Nottinham, England.

Meyer, J.W., & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony." The American Journal of Sociology, *83*(2): 340-363.

Mu‘azu, S. B., & Siti, Z. S. (2012). The Relationship between risk management and internal audit effectiveness at local government level. Journal of social and development sciences, Malaysia. Retrieved from: http://www.ifrnd.org/admin/jsds/27.pdf.

Namaz, M. (2012). Role of the agency theory in implementing management's control. Journal of Accounting and Taxation, *5*(2), 38-47. Retrieved from http://www.academicjournals.org/JAT.

NAO. (2011). Managing risk in government. Financial management and reporting, U.K. Retrieved from: www.nao.org.uk/ginancial-management.

Philip, S. (1948). Foundations of the Theory of Organization. American Sociological Review, *13*(1): 25 35.

Robert, Wolf. (2008). The evolution of enterprise risk management. The actuary magazine, issued by the society of actuaries, *5*(2). Retrieved from https://www.soa.org/library.

Sridhar, R. (2003). Internal auditing: history, evolution and prospect. IIA research foundation, Florida, U.S.A.

Stewart, J., & Subramanian, N. (2010). Internal audit independence and objectivity: Emerging research opportunities. Managerial auditing journal. Emerald Group Publishing, *25*(4),328-360.

Udeh, S. N., & Eugene O. N. (2016). Evaluation of the effectiveness of internal audit in the Nigeria public sector. European journal of business, economics and accountancy. *4*(3). Progressive academic publishing, UK. Retrieved from www.idpublications.org

Effect of Information Communication Technology (ICT) Investment on Financial Performance of Listed Insurance Firms in Nigeria

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Abstract

The study examined the effect of Information Communication Technology (ICT) investment on performance of quoted insurance firms in Nigeria. The study was based on an ex post facto research design because relevant data are in existence on the annual reports and accounts of the firms. The population size is 23 quoted insurance firms in Nigeria. The researcher adopted a purposive sampling technique to select a sample of 10 insurance firms for this study. The period is from 2012 to 2021 implying 10 years duration. The technique used was ordinary least square (OLS) regression, and the data was analyzed using Stata 12.The dependent variable financial performance was proxy by net premium income and the independent variables information technology expenses, computer equipment and Computer software investment. The results revealed that information technology expenses and computer equipment investment have significant influence while computer software does not significant influence on financial performance of Insurance firms in Nigeria, while Information technology expenses and computer software has positive effect on financial performance of insurance firms, computer equipment has a negative effect. The study concludes that information technology expenses has contributed greatly to the financial performance of Insurance Firms. The study therefore recommends improvement in the cost associated with Information communication technology expenses should be highly considered by insurance companies in Nigeria, this includes organization system strengthening and employee capacity building and training, Board of Directors and Management should emphasis the acquisition of state-of-the-art computer equipment to enhance performance of insurance computer. Limited focus should be made on computer software as this does not have a positive effect on performance

Keywords: Computer software, Information Technology Expenses, Net Premium Income, Planned Behaviour, Computer Equipment

INTRODUCTION

Information Communication Technology in the current global operations assumes a role that has positive effect on every aspect of a business, the emergence of big data and artificial Intelligence (AI) has greatly impacted on the performance of companies in Nigeria and the world at large, investment on information communication technology improves business processes to increase efficiency and effectiveness in the allocation and utilization of scarce resources. According to Stephen (2020) development in technology like skills, knowledge, computers, systems, and social media helps in customer's relations development. Isoraite (2009) posits that technology is one of the functional strategies of the company that collectively make up the business strategy. Business environments including Insurance companies are never the same with the ways it was in past decades. The rate of change is so fast due to constant change in customers' taste, information demand and increasing population in the world. There is need for innovations in the insurance and other sectors in developing and developed countries. Existence of Information communication technology is a major factor in achieving businessfinancial and non-financial objectives. The process method around the world is moving very fast away totally from conventional way to digital method due to large volume of information requirements from customers and regulatory agencies. The digital method has exposed the business sectors to digital risk necessitating the need for digital trust and therefore huge investment on information communication technology.

According to Hatra etal (2021) the steam engine's advent in the eighteenth century and the outbreak of the Industrial Revolution in England encouraged other countries to move toward industrialization. This revolution was called the most significant change in the world. The third revolution (information revolution) caused both industry and agriculture can no longer continue without information technology.

Information and Communication Technology (ICT) has significant effects in all areas of business activity in today's world. In the production chain, ICT accelerates the production cycle, improves product quality, labor productivity, reduces the production cost, monitors, and controls the production process efficiently and reduces production and distribution time. In the supply chain, ICT eliminates intermediaries in marketing, delivers goods and products to consumers rapidly, helps consumer choice, creates a platform for product comparison and improves customer services with higher quality and speed. At the same time, it provides the opportunity and platform for managers to analyze the production, supply, demand, and market conditions. Any manager who is unaware of this critical issue, his company will be seriously harmed in competition with other firms equipped with ICT tools. In other words, industries are integrated with ICT, and it has been able to solve the industry's problems. Naturally, the need for technology will increase to succeed in competitive markets. Insurance companies in Nigeria serves the purpose of granting security against losses and damages to people, assets, and properties, it is an agreement entered into by two parties in which one promises to protect others life, assets and properties from losses in return for premium paid by other party whose life, asset and property is being insured.

Chizoba et al (2018) postulates that Insurance as a capital-intensive industry generates long-term capital which is required to build infrastructural projects that have a long gestation period. Like every other business sector, the industry follows a business year calendar. At the end of every business year the performance of the industry is weighed. The performance of any firm not only plays the role to increase the market value of that specific firm but also leads towards the growth of the whole industry which ultimately leads towards the overall prosperity of the economy. Measuring the performance of insurers has gained importance in the corporate finance literature because as intermediaries, these companies are not only providing the mechanism of risk transfer but also helps to channelizing the funds in an appropriate way to support the business activities in the economy. Insurance companies have importance both for businesses and individuals as they indemnify the losses and put them in the same positions as they were before the occurrence of the loss. In addition, insurers provide economic and social benefits in the society i.e., prevention of losses, reduction in anxiousness, fear and increasing employment. Therefore, the current business world without insurance companies is unsustainable because risky businesses have a capacity to retain all types of risk in current extremely uncertain environment. Insurance industriesare saddled with the primarily responsibilities of managing transferred risk that is substantiated in the form of premiums paid by insured to the insurance companies. Based on the uncertainty in the period of manifestation of associated risks, it proves very risky for insurers not to be financially liquid to match the loss incurred at any given point in time by the insured. This sort of risk facing the insurance industry can be influenced by Information communication technologies. There exist a lot of studies on information communication technology in different sectors though limited in the insurance sector. The objective of the study is to establish the effect of information communication technology investment on performance of insurance companies in Nigeria. This study was motivated by the quest to understand why most industry operators do not solely underwrite large ticket transactions based on the lowUnited State dollar value capital base. digitalization and investment in information communication technology is critical in enhancing the performance of insurance companies and increasing their coverage in the country, this study assumes that information communication technology (ICT) investment will have positive effect on the performance of insurance companies in Nigeria. This study seeks to investigate the relation between investment in computer hardware, software and information communication expenses and net premium income in the insurance sector in Nigeria within the period of ten (10) years covering from 2012 to 2021.

LITERATURE REVIEW

Conceptual Framework

Financial performance

Financial performance is the gauge of the effective utilization of assets from an organization's primary source of business to create revenues over a specified period. According to Arumona and Nev (2021)

financial performance is used as a general measure of a firm's overall financial health over a given period, an empirical analysis of performance is an important requirement for further policy changes. The financial institutions in Nigeria have shown positive performance within the past decades irrespective of the challenges faced by businesses within those years of operation, the rising inflation in Nigeria and the global financial challenges. Measurement of firm's performance should start by evaluating whether it has been able to achieve the objectives set by stakeholders (Hofstrand, 2018). Kotler (2000) explains that performance is an accomplishment of an objective as a set standard. Richard et al (2009) opines that performance comprises actual output measured against intended output. intended output is measured by use of performance indicators like sustainability, profitability, increase in market share, productivity, and efficiency. Wahyuddin and Mauliyana (2021) posits that Profit income in a company is a matter of deep concern for financial observers, because the amount of profit earned in a certain period can represent the company's overall performance. This company's profit is the result of the formation of various elements, namely the amount of income, expenses, and expenses. The profit can also be classified into several types, namely gross profit, net profit, profit before tax, and net profit after tax. Profit for the company is essentially a reflection of the success of the company's goals itself. Profit planning is a very important financial planning process for companies (Harahap, 2012) , to achieve the profit target of an insurance company, the insurance company must be able to maintain premium income, underwriting results, investment returns and risk based capital in increasing company profits. The current phenomenon that occurs in insurance companies in Indonesia is that it is known that the life insurance industry premium income has decreased since the beginning of 2018 and continuestowards the end of 2019. In 2018, the Indonesian Life Insurance Association (AAJI) mentioned the growth in the performance of the life insurance industry in Indonesia experienced a slowdown of 19.4% compared to 2017. Life insurance premium income was recorded at Rp. 185.88 trillion, experiencing a slowdown of 5% compared to the fourth quarter of 2017 of Rp. 195.72 trillion. The decrease in total premiums was influenced by a decrease in premium income from the bancassurance distribution channel by 11.25%, and contributed 42.9% to the total premium income of the life insurance industry. The investment returns for the life insurance industry in the fourth quarter were recorded at Rp. 7.38 trillion, down 84.5% compared to the same period in 2017 of Rp. 50.45 trillion, the decline in the performance of life insurance investment returns was due to a decrease in market prices in stock and mutual fund.

Agusto and Co (2021) stated that in the last three years, the Nigerian Insurance Industry has evolved on the back of the on-going recapitalization exercise, expansion of distribution channels, COVID-19 pandemic, among others. In the near term, the impact of the #EndSARS protest, entry of new players and the financial inclusion campaign will change the structure of the industry. They also believe that the impact of the on-going recapitalization exercise on the ownership structure, number of operators and investment structure, will linger until the medium term. the Nigerian Insurance Industry's gross premium income (GPI) grew by 15% year-on-year to ₦592.3 billion in the financial year ended 31 December 2020. Technological innovation in product distribution induced by the pandemic, regulatory-backed opportunities including the digitization of marine insurance certificates and an increasing awareness of the benefits of insurance are some of the GPI growth drivers during the 2020 financial year. According to Rasaaq (2022) The 2021 Gross Premium Income (GPI) for the insurance industry has hit N630,362.35 billion indicating a 22.6% increase from 2020 GPI, noting that the total assets of the industry stood at N2,139,203 trillion, while the net claims paid in 2021 was N238,050 billion.

Information and Communications Technology

According to Hatra et al (2021), information and communication technology refers to all technologies for processing and storing information electronically. For this purpose, equipment such as computers, communication equipment, networks, fax machines and any controllable electronic package are used, Rasoulinezhad and Nouri (2010) states that ICT is a set of technologies for manufacturing, storing, exchanging, and using information in various business forms. This includes business information, voice conversations, still and motion pictures, multimedia and other forms that have not yet been created. As

this technology develops and expands in society, it affects micro and macroeconomic variables. The use of ICT and its applications has accelerated company processes and has led to increased growth through fundamental business changes, including the emergence of E-commerce and ICT-related activities. ICT reduces firm's production costs, increases business efficiency, conducts exchanges electronically and provides intelligent customer service and these changes increase enterprise's value-added and profit. Simultaneously, by creating manufacturing and service industries in the economy and producing new products, ICT has created new job opportunities. The rapid growth of ICT has dramatically affected human life today and seems to have the most significant impact on economic growth and development. Today, a large share of economic activities related to the production, transmission, storage and distribution of data and information among economic actors and therefore, the development of information technology significantly impacts their economic activities. This effect is such that most countries have replaced the knowledge-based economy approach to economic development based on resource-based economic development.

Jamali *et al* (2014) argue that there aresignificant relationships between firm's growth and ICT. On one side, information technology increases firm's profit, expected value and organizational learning. On the other side, by decreasing the minimum efficient scale, uncertainty and transaction costs can affect firm's growth. Therefore, ICT has a positive impact on firm's growth and those firms with higher information technology expenditure can have a higher growth rate. Moreover, Weill *et al* (2002) analyzed the IT infrastructure services and identified 70 different services in 10 IT infrastructure services clusters. The first six clusters that comprise the physical layer of IT infrastructure capability include channel-management services, security and risk management, communication services, data management services, application-infrastructure services, and IT-facilities-management services. In addition to the six service clusters, four clusters represent management-oriented IT capabilities. IT-management services, IT-architecture-and-standards services, IT-education services, and IT R&D services are these four clusters. These capabilities are classified into three areas: technology, management, and knowledge.

Technology capabilities: Investment in ICT has been shown to affect firm performance positively and significantly. ICT is an embedded technology and constitutes a component of products and services. Its usage helps to strengthen the survival of firms in several ways such as reducing firm's cost, improving information access, improving administrative and product management and enhancing productivity by improving management.

Management capability: ICT management skills can be expressed in four essential aspects of management skills including the ability of ICT managers to understand the company (business), the ability to work with other executive managers to develop operational plans, the ability to establish ICT support activities for firm performance and the ability to predict the future.

Knowledge capabilities: Tippins and Sohi (2003) focused knowledge specifically on technology systems.This is the part of knowledge that is usually classified as human assets. An organization or company is more than an information processing unit; it is a unit of information and knowledge creation. In general, the capacity of information from the mechanism of information and communication technology is not just information processing but also knowledge processing and transfer

ICT and enterprise performance: Hatra et al (2021) posits that ICT is one of the crucial factors in the performances of firms. Virtual networks, E-commerce, internet marketing and E-services show the extent of entrepreneurship in the information age. The effects of this change are evident in business, transportation, education, the workplace, home and in general, all aspects of life. The relationship between ICT and company performance can be examined at two levels: the first level includes the company's internal processes, and the second level comprises external processes. At the first level, ICT has a significant impact on the company's internal factors, including quality and diversity, innovation, relative price, optimal capacity, inventory turnover, production growthand commercial profitability. At this stage, it also leads to positive changes in profitability metrics such as net sales, final gross profit, final

operating profit, final net profit, fixed resource turnover, total resource turnover and inventory turnover. Furthermore, in intangible outputs such as introducing a new business process, the emergence of highly skilled employees and the emergence of an organizational transition, the cost of software development and database production is very influential. Concerning these effects, it can be said that ICT has a significant impact on the company's overall productivity, leading to quality growth of products, reducing the final cost and increasing the company's competitiveness with competitors. The second level which includes external processes, provides interaction with investors and shareholders, suppliers, customers, and after-sales service. ICT performance at this stage can be seen through the general usage of IT such as Email, E-commerce, Enterprise Resource Planning (ERP), Supply Chain Management (SCM) and Customer Relationship Management (CRM); there are other special applications of IT in the manufacturing which are useful for firms. Computer Integrated Manufacturing (CIM), Manufacturing Automation Protocol (MAP), Material Requirements Planning (MRP), Manufacturing Resource Planning (MRP II), Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM) and Flexible Manufacturing are some of the applications that are useful to firms.

Net Premium Income

According to Agustiranda et al (2019) is an amount of money paid by the insured party and received by the insurer as a substitute for a damage, loss or loss of the insured to the insurer.CFI (2020) referred to it as income earned by insurance companies less the expenses associated with the policy. Insurance companies generally buy reinsurance policies that help protect the insurers by paying claims against large and disastrous losses. It could also be said to be the present value of policy benefits less the present value of premiums payable in the future. Hence, net premium does not consider any expenses expected in the future for policy maintenance. It is calculated using the following formula**:**

Net Premium Income = PV (Benefits) – PV (Future Premiums or Expenses)

Where PV = Present Value

The net premium calculation is based on the net loss function. The company experiences losses if the present value of the benefits paid is more than the present value of the future premiums received by the company. On the other hand, it earns money if the present value of benefits is less than the present value of future premiums.

Computer Software and Hardware

This independent variable indicates the investment in computer software and hardware by insurance companies and indicates firms' total investment in acquiring computer software and hardware. Progressive organizations have made conscious effort to invest in computer software and hardware. Investment in computer software and hardware is not only in the insurance sector as most sectors have significantly invested in software and hardware to ensure a robust operation in their organization

Information Technology Expenses

This variable represents payments for national information technology development levy, communication, and telecommunications expenses. All companies with a turnover of over N100 million is subjected to a levy of 1% of profit before tax, this is sequel to the provision of section 12 subsection 2a of the National Information Technology Development Act 2007. This cost was deemed necessary as it is aimed at improving firm's production and their competitiveness in both local and international market. Other associated cost of communication and telecommunication constituted the total cost of information technology

Empirical Review

Several authors seem to suggest that information communication technology investment has a positive and significant effect on performance of industries. Hatra et al (2021) suggest that hardware and software

usage, communication technology has a positive and significant effect on income growth. Mohammed et al (2019) also posits that hardware component, software component and network have significant and positive impact on organizational productivity in the Nigeria banking industry. The study recommends that banks should acquire or make use of modernized and 21st century software, hardware, and network in order to increase organizational productivity and customer satisfaction which will eventually result to diversification of the organization. Hatra et al (2021) in a study on the Effect of Information and Communication Technology on Firms Performance in Iranstated that during the last decades, the technological revolution forces industries and enterprises to use technology-based processes and equipment to overgrow. Production chain management with the use of information and communication technology equips production tools with new technologies. The usage of information and communication technology in industries and manufacturing enterprises in developed countries and countries whose industries have grown significantly, since, the 1990s have caused significant changes in improving product quality, increasing productivity and reducing time in the manufacturing sector. At the same time, they could overcome their weaknesses with the benefits of ICT and stand in the right place in the economy. This study tries to study the impact of Information and Communication Technology (ICT) on the Iranian manufacturing sector. In this research, the effect of ICT on firm performance (manufacturing units with ten employees and more) has been investigated. By considering data of 22 sectors during 2008-2016 and employing the GMM method, the impact of ICT application's usage on the income growth has been assessed. The results showed that hardware and software usage, communication technology has a positive and significant effect on income growth. While fixed capital formation, employment, exchange rate and R&D have a positive and significant impact, the producer price index has a negative and significant effect on income growth

Mohammed et al (2019) carried out a study on the impact of information communication technology on organizational productivity in the Nigeria banking industry: empirical evidence, they posited that Information Communication Technology has been acknowledged as the building block for any organization in order to maximize profit, ensure customer satisfaction and minimize cost. This study was aimed to determine the impact of information communication technology on organizational productivity in the Nigeria banking industry. Questionnaire was employed as a method of data collection of the study, while multiple regression analysis was used to test the hypotheses under study. The result of the study indicates that hardware component, software component and network have significant and positive impact on organizational productivity in the Nigeria banking industry. The study recommends that banks should acquire or make use of modernized and 21st century software, hardware, and network to increase organizational productivity and customer satisfaction which will eventually resulted to diversification of the organization. Jane et al (2021) in a study on Effect of Information and Communication Technology (ICT) on Corporate Performance: A Study of Selected Quoted Banks. The study investigated the effect of Information and Communication Technology (ICT) on corporate performance using Zenith Bank Nigeria Plc. and United Bank for Africa Plc. as a study. Data were obtained from annual financial statement published by the bank from 2010 -2016.Corporate performance was proxied by Return on Equity, Return on Asset and Earnings per Share. The ordinary least square regression technique with the aid of the statistical package for social sciences (SPSS) version 21were employed in the analysis. Findings revealed that ICT has a very weak (low) effect on corporate performance measured with return on equity, almost no effect at all on corporate performance measured with return on assets, and positive effect on corporate performance measured with earnings per share. Therefore, the study recommends that; there is need for the bank management team to prioritize the ICT need of the bank to avoid unnecessary investment on ICT gadgets to reduce the cost associated to ICT operations of the bank. Also, staff training, and development are paramount to enable the effective and efficient utilization of the ICT resources. Furthermore, government should rise to her duty to provide enabling environment for the thriving of businesses.

Enomate and Audu (2021) in a study on Effect of Information and Communication Technology on Financial Performance of Listed Nonfinancial Firms in Nigeria, examined the effect of information and communication technology (ICT) on financial performance of listed non-financial service firms in

Nigeria. To achieve this, a review of the extant literature was made, research questions were raised, and hypotheses were formulated. The theoretical framework adopted in the study is the resource-based theory, which was postulated by Barney (1991). In order to generate the data for the study, a sample of twenty (20) non-financial service companies drawn from foods and beverages, pharmaceuticals, foot wears, chemicals and paints, listed in the Nigeria Stock Exchange for the period of 2016 – 2020, was considered for the study and the ex post facto research design was adopted. The data generated for this study were analyzed with both descriptive and inferential statistics using the arithmetic mean, standard deviation, minimum and maximum values, and the Ordinary Least Squares (OLS) regression technique. The findings show that investment in information and communication technology (ICT) infrastructure has a positive effect on the financial performance of listed non-financial firms in Nigeria whereas information and communication technology (ICT) personnel has a positive but insignificant effect on financial performance of listed non-financial service firms in Nigeria. Based on the findings of this study, the following recommendations were made: regular training should be given to the ICT Personnel from time to time to keep them abreast of the current innovations in the use of ICT. This will enhance their efficiency and quality of service delivery that will ensure customers retention and productivity, which will translate to the firm profitability, therefore, listed nonfinancial service firms should give emphasis on efficient utilization of the ICT equipment such as credit and electronic cards to pay at retail outlets, points of sales (POS), phone banking, among others. Akinboade (2020) carried out a study to investigate the usage of ICT and its impact on financial performance of manufacturing companies in Lagos State, Nigeria. The study focused on quoted manufacturing companies in Lagos State, Nigeria. Survey design was adopted in conducting this study. To achieve the objective of this research, primary and secondary data were used. Primary data was collected via interview and questionnaire, while secondary data for 10 years was retrieved from the published annual reports of the companies. In all, 44 companies were sampled in this study. Although 44 companies were sampled, questionnaires from only 31 of the companies were returned. It was found that quoted companies sampled in this study have deployed ICT to different departments in these organizations; the level of usage however differs; investment in ICT had positive relationship with financial performance. More so, it has been empirically established that the use of ICT has brought about a significant difference in the sales turnover, profit before tax, profit after tax and net asset/shareholder's fund. However, the use of ICT has not brought about any significant difference in the earnings per share of these companies. It is recommended that future studies can be conducted using other financial variables and more financial data to determine the effect of ICT use on pre-ICT adoption and post ICT adoption of quoted manufacturing companies in Nigeria.

Adekunle and Rafiu (2014) in their study investigated the impact of Information and Communication Technology Cost Efficiency (ICTCE) on the performance of banks as well. The study assessed the impact of ICT on the performance of South African banking industry using annual data over the period 1990-2012 published by Bank scope – World banking information source. Data analysis is carried out in a dynamic panel environment using the orthogonal transformation approach. The robustness of the results was affirmed by residual cointegration regression analysis using both Pedroni and Kao methods. The findings of the study indicated that the use of ICT increases return on capital employed as well as return on assets of the South African banking industry. The study discovers that more of the contribution to performance comes from information and communication technology cost efficiency compared to investment in information and communication technology. The study recommends that banks emphasize policies that will enhance proper utilization of existing ICT equipment rather than additional investments.
Sadeghimanesh and Samadi (2013) examined the effect of information technology on the financial performance of the banks listed on Tehran Stock Exchange. For this purpose, 183 of the staff experts of information technology and finance departments of the banks listed on Tehran Stock Exchange have been selected as research sample by using simple random sampling method and responded to the questionnaire. In the end, the obtained data from these questionnaires were analyzed by using two-variable linear regression test and the results indicated that information technology dimensions including IT knowledge, IT operations and IT infrastructures have significant effect ($p<0.01$) on financial performance of the

banks listed on Tehran Stock Exchange. The results from Friedman's test also indicated that infrastructures of information technology (with average rating = 2.24) has the first rank, information technology knowledge (with average rating = 2.04) has the second rank and information technology operations (with average rating= 1.72) has the third rank. It is recommended that banks should establish an official department of Management Information Systems and using computer systems for analyzing customer and market information.

Theoretical Framework

Theory of Planned Behavior (TPB)

The theory proposes that a person's intention to perform certain behavior is the central determinant of that behavior because it reflects the level of motivation a person is willing to exert to perform the said behavior (Teece *et al.*, 1997). A fundamental principle of socio-technical systems thinking is that a technology on its own has little meaning for purposes of organizational performance analysis. It can only be understandable in terms of the context in which it was embedded and the organizational goals or transformations that it serves or enables (Rothwell, 1992). Socio-technical systems theory argues that a network of social relationships surrounds all working practices (cooperation among workers over the course of a task or activity, supervisory relationships, and general social interaction). Productive application of any technology relies heavily on the ability and willingness of users to employ it for worthwhile tasks.

Resource Based View Theory (RBV)

The theory is an approach to achieving competitive advantage that emerged in 1980s and 1990s, after the major works published by Wernerfelt, B. ("The Resource-Based View of the Firm"), Prahalad and Hamel ("The Core Competence of The Corporation"), Barney, J. ("Firm resources and sustained competitive advantage") and others. The supporters of this view argue that organizations should look inside the company to find the sources of competitive advantage instead of looking at competitive environment for it. They posited that it is much more feasible to exploit external opportunities using existing resources in a new way rather than trying to acquire new skills for each different opportunity. In RBV model, resources are given the major role in helping companies to achieve higher organizational performance. There are two types of resources: tangible and intangible. Tangible assets are physical things. Land, buildings, machinery, equipment and capital – all these assets are tangible. Physical resources can easily be bought in the market so they confer little advantage to the companies in the long run because rivals can soon acquire the identical assets. Intangible assets are everything else that has no physical presence but can still be owned by the company. Brand reputation, trademarks, intellectual property are all intangible assets. Unlike physical resources, brand reputation is built over a long time and is something that other companies cannot buy from the market. Intangible resources usually stay within a company and are the main source of sustainable competitive advantage. The two critical assumptions of RBV are that resources must also be heterogeneous and immobile.

The first assumption is that skills, capabilities, and other resources that organizations possess differ from one company to another. If organizations would have the same amount and mix of resources, they could not employ different strategies to outcompete each other. What one company would do, the other could simply follow and no competitive advantage could be achieved. This is the scenario of perfect competition, yet real world markets are far from perfectly competitive and some companies, which are exposed to the same external and competitive forces (same external conditions), are able to implement different strategies and outperform each other. Therefore, RBV assumes that companies achieve competitive advantage by using their different bundles of resources. The second assumption of RBV is that resources are not mobile and do not move from company to company, at least in short run. Due to this immobility, companies cannot replicate rivals' resources and implement the same strategies. Intangible resources, such as brand equity, processes, knowledge, or intellectual property are usually immobile.

Resource Dependent Theory (RDT)

This study is premised on resource dependence theory which was first introduced in the 1970s by Jeffrey Pfeffer and Gerald R. Salancik, This the study of the impact of resource acquisition on the behavior of an organization. They argue that resources are key to organizational success. However, an organization does not always have control over theresources it needs and must devise strategies that sustain access.The theory notes that those who control critical resources have power, and power influences behavior. Similarly, the behavior of an organization with a dependence on these critical resources is also influenced. Resource dependencies can relate to raw materials, labor, and capital and it is based on three core assumptions; Organizations contain internal and external actors that influence and control resources and by extension, behavior. For example, how abundant are the resources? How much competition is there? How easy are the resources to acquire? Is there a more cost-effective acquisition method? Secondly, the environment contains valued resources essential to the continued operation of the organization - uncertainty develops around resource acquisition for those who do not control access. Thirdly, Organizations work toward two core objectives, as they must seek to minimize dependence on critical resources from other organizations. They must also increasethe dependence that *other* organizations have on them for resources. Achieving either of these two objectives has benefits for the power level of the organization.

METHODOLOGY

The study examined the effect of Information Communication Technology investment on performance of quoted insurance firms in Nigeria. The study was based on an ex post facto research design because relevant data are in existence on the annual reports and accounts of the firms. The population size is 23 quoted insurance firms in Nigeria. The researcher adopted a purposive sampling technique to select a sample of 10 insurance for this study. The period is from 2012 to 2021 indicating about 10 years duration. The technique used was ordinary least square (OLS) regression, fixed and random effect test and the data was analyzed using Stata 12.0. In a bid to examine the relationship between Information Communication Technology Investment proxy by Information Technology, Computer Equipment and Computer Software expenses/investments, and Performance proxy by Net Premium Income

$NPI = ß_0 + ß_{1IFE} + ß_2CE + ß_3CS + \mathcal{E}$

Where:

NPI = Net Premium Income
IFE = Information Technology Expenses
CE = Computer Equipment
CS = Computer Software
$ß_0$= Constant/Intersect
$\mathcal{E}$ = Error Term

Table 1: Summary of Variable Measurement

1	Performance	Measured as Net Premium Income that is the difference between Gross Premium Income and Re-Insurance Expenses	NPI
2	Information Technology Expenses	Measured as the total expenses incurred on information levy and operational expenses	IFE
3	Computer Equipment	Measured as the carrying value of computer equipment at year end	CE
4	Computer Software	Measured as the carrying value of intangible asset (computersoftware) at year end	CS

RESULT AND DISCUSSION

Descriptive statistics provide simple summaries about the sample and observations that have been made. The summary of the descriptive statistics is presented below.

Table 2: Descriptive Statistics

```
.
. summarize NPI IFE CE CS, detail

                       Net Premium Income
-------------------------------------------------------------
      Percentiles      Smallest
 1%            0              0
 5%      1328060         927747
10%      1571190         990112       Obs                  99
25%      2095941        1101808       Sum of Wgt.          99

50%      3852522                      Mean            4240606
                        Largest       Std. Dev.       2589700
75%      5428543        9791982
90%      8205987       1.01e+07       Variance       6.71e+12
95%      9680275       1.04e+07       Skewness        .920953
99%     1.27e+07       1.27e+07       Kurtosis       3.322775

                 Information Technology Expenses
-------------------------------------------------------------
      Percentiles      Smallest
 1%            0              0
 5%            0              0
10%            0              0       Obs                 100
25%        285.5              0       Sum of Wgt.         100

50%         7577                      Mean           31324.76
                        Largest       Std. Dev.      69565.83
75%      27310.5         286153
90%      51357.5         290990       Variance       4.84e+09
95%       221722         314955       Skewness       3.393889
99%     343071.5         371188       Kurtosis       13.97375

                       Computer Equipment
-------------------------------------------------------------
      Percentiles      Smallest
 1%            0              0
 5%            0              0
10%            0              0       Obs                  99
25%            0              0       Sum of Wgt.          99

50%         5141                      Mean           34267.17
                        Largest       Std. Dev.      67430.34
75%        48038         200032
90%       110841         208331       Variance       4.55e+09
95%       138616         365936       Skewness       3.351874
99%       403618         403618       Kurtosis       16.42334

                        Computer Software
-------------------------------------------------------------
      Percentiles      Smallest
 1%            0              0
 5%          922              0
10%       4398.5              0       Obs                 100
25%      13804.5              0       Sum of Wgt.         100

50%      33641.5                      Mean           97626.65
                        Largest       Std. Dev.      213892.1
75%        80437         476144
90%       224052         486088       Variance       4.57e+10
95%       415094        1349516       Skewness       4.886334
99%      1408347        1467178       Kurtosis       29.48785

. save "C:\Users\muge\Desktop\BINGHAM\Descriptive Statistics.dta"
```

Source: Compiled by the Researcher (2022) using Stata 12.

The table 2 above show the mean, standard deviation, variance as skewness and kurtosis measures of our variables of interest are given. The mean value indicates that on the average of Net Premium Income (NPI), Information Technology Expenses (IFE), Computer Equipment (CE), Computer Software (CS) is 424060, 31324.76, 34267.17 and 97626.65 billion naira respectively. The highest value of NPI, IFE, CE and CS are 127000000, 371188, 403618 and 1467178 billion naira respectively during the period of study. However, the lowest value for NPI, IFE, CE and CS is zero naira, implying that there no expenses across the variables. Measures of Skewness in the distribution of tables shows that NPI, IFE, CE and CS are 0.92095, 3.39388, 3.35187 and 4.88633 respectively.

Table 3: Regression Analysis

Dependent Variable: NPI
Method: Panel least Squares
Date:18/8/2022 Time: 22:56
Sample: 2021 – 2021
Included observations: 99

```
. regress NPI NPI_LAG IFE CE CS

      Source |       SS       df       MS              Number of obs =      89
-------------+------------------------------           F(  4,    84) =   93.27
       Model |  4.9099e+14     4  1.2275e+14           Prob > F      =  0.0000
    Residual |  1.1055e+14    84  1.3160e+12           R-squared     =  0.8162
-------------+------------------------------           Adj R-squared =  0.8075
       Total |  6.0154e+14    88  6.8357e+12           Root MSE      =  1.1e+06

------------------------------------------------------------------------------
         NPI |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     NPI_LAG |   .8253705    .062719    13.16   0.000     .7006469    .9500941
         IFE |   9.312334    3.12223     2.98   0.004     3.103437    15.52123
          CE |  -8.203236   2.813108    -2.92   0.005    -13.79741   -2.609063
          CS |   .7738517    .560331     1.38   0.171     -.340428    1.888131
       _cons |   782469.5   256138.3     3.05   0.003     273110.4     1291829
------------------------------------------------------------------------------
```

Source: Compiled by the Researcher (2022) using Stata 12.

H$_{01}$: Information Technology Expenses has no significant effect on Net Premium Income of an insurance firm in Nigeria.

From table 2 above, the results of the variable have a positive significant impact on NPI. It was observed that Information Technology Expenses (IFE) on Net Premium Income (NPI) contributes positive increase on the performance of insurance companies. The coefficient of determination (R^2) is 81.62%, which implies positive relationship between the explanatory variables which is Information Technology Expenses and the dependent variable (NPI). This means that the impact of IFE on NPI account of 81.62% influence movement on the Net Premium Income of Insurance firms while 18.38% account could be explained by other variables or factors not included in the model. The adjusted R^2 of 80.75 implies that the model is fit for making generalization. Furthermore, the value of F-Statistics = 93.27 indicates the model's goodness of fit to the data. Finally, looking at the p-value of Information Technology Expenses (IFE) is (0.004) which is less than 0.05 degree of freedom. Therefore, the study concludes that there is positive significant relationship between Information Technology Expenses (IFE) and Net Premium Income of Insurance firms in Nigeria.

Decision Rule: Since the p-value is 0.004 which is less than the 0.05-degree level the Null hypothesis stand rejected which say that Information Technology Expenses (IFE) does not have significant effect on Net Premium Income of Insurance firms in Nigeria, while the alternate hypothesis is accepted which say there is significant effect of Information Technology Expenses (IFE) on Net Premium Income.

H$_{02}$: Computer Equipment investment has no significant effect on Net Premium Income of an insurance firm in Nigeria.

From table 2 above, the results of the variable have a strong negative significant effect on NPI. It was observed that Computer Equipment (CE) on Net Premium Income (NPI) contributes negative increase on the performance of insurance companies. The coefficient of -8.2032 show that CE has negative significant effecton Net Premium Income (NPI). Furthermore, the value of F-statistic = 93.27 indicates the model's goodness of fit to the data. Finally, looking at the p-value of Computer Equipment is (0.005) which is lower than 0.05 degree of freedom. Therefore, the study concludes that there is strong negative significant relationship between Computer Equipment and Net Premium Income

Decision Rule: Since the p-value is 0.005 which is less than the 0.05-degree level the Null hypothesis stand rejected which say that Computer Equipment (CE) does not have significant effect on Net Premium Income of Insurance firms in Nigeria, while the alternate hypothesis is accepted which say there is significant effect of Computer Equipment (CE) on Net Premium Income.

H$_{03}$: Computer Softwarehas no significant effect on Net Premium Income of an insurance firm in Nigeria.
From table 2 above, the results of the variable have a strong positive significant effect on NPI. It was observed that Computer Software (CS) on Net Premium Income (NPI) contributes positive increase on

the performance of insurance companies. The coefficient of 0.7739 show that CS has positive significant effect on Net Premium Income (NPI). Furthermore, the value of F-statistic = 93.27 indicates the model's goodness of fit to the data. Finally, looking at the p-value of Computer Equipment is (0.171) which is higher than 0.05 degree of freedom. Therefore, the study concludes that there is no significant relationship between Computer Equipment and Net Premium Income

Decision Rule: Since the p-value is 0.171 which is higher than 0.05-degree level the Null hypothesis is accepted that Computer Equipment (CE) does not have significant effect on Net Premium Income of Insurance firms in Nigeria, while the alternate hypothesis is rejected which say there is significant effect of Computer Equipment (CE) on Net Premium Income.

Discussion of Findings

The study finding showed in table 2 confirms that information technology expenses and Computer Software have a strong positive significant effect on Net Premium Income of Insurance firms in nigeria while Computer equipment have a strong negative significant effect on Net Premium Income. The P-value of IFE and CE is 0.004 and 0.005 respectively which is less than 0.05 level of significant which implies positive effect on Net Premium Income, while CS is 0.171 which is greater than 0.05 level of significant which implies negative effect on Net Premium Income. The calculated coefficient of determination (R^2) is 81.62%, which indicate a positive relationship between Net Premium Income.Empirical evidence revealed that Information Technology Expenses and Computer Software have positive effect while Computer Equipment has a negative and significant effect on Net Premium Income. Similarly, the result is consistent with empirical findings of Mohammed et al (2019), Hatra et al (2021) and Enomate & Audu (2021) as well as the study of Janet et al (2021).

CONCLUSION AND RECOMMENDATION

The study reveals that information communication technology expense and Computer Equipment investment are important variables that can influence Net Premium Income in insurance companies while computer software investment has a positive but no significant effect on Net Premium income. Therefor insurance companies should invest more in computer equipment and information communication technology expenses Existing studies show that information communication technology and computer equipment investment impacted Net Premium Income of Insurance Companies in nigeria. Therefore, the study has contributed to the research effort at empirical measure of the effect of Information Communication Technology (ICT) Investment on Performance of Insurance Firms in Nigeria. Data analysis revealed that a relationship exists between Information Communication Technology (ICT) Investment and Performance of Insurance firms. The study concludes that information Communication Technology (ICT) Investment has contributed greatly to the performance of insurance firms in Nigeria.
In a bid for information communication technology (ICT) investment to be a basic component of performance of Insurance firms in Nigeria, the following recommendations should be considered;

i. Improvement in the cost associated with Information communication technology expenses should be highly considered by insurance companies in Nigeria, this includes organization system strengthening and employee capacity building and training.
ii. Board of Directors and Management should emphasis the acquisition of state-of-the-art computer equipment to enhance performance of insurance computer.
iii. Limited focus should be made on computer software as this does not have a positive effect on performance.

References

Adekunle O. B. &Rafiu A. A. (2014). The impact of information and communication technology (ICT) on commercial bank performance: evidence from South Africa. Problems and Perspectives in Management, 12(3), 59-68.

Afolabi E. and Gabriel F. (2022). Insurance comparative guide. https://www.mondaq.com/nigeria/insurance/1085694/insurance-comparative-guide. Accessed August 9, 2022

Agusto & Co. (2021). 2021 Insurance Industry Report. https://www.agustoresearch.com/report/2021 insurance-industry-report/: accessed 15 August 2022

Akinboade, A. A. (2020), Impact of ICT usage on financial performance of quoted manufacturing companies in Lagos State, Nigeria, Management, 13(2), 28 – 42.

Chizoba et al (2018) Effect of Inflation Rate on Insurance Penetration of Nigerian Insurance Industry. International Research Journal of Finance and Economics. 170: 66 – 76. Accessed August 15, 2022

Corporate Finance Institute (2020) Net Premium. https://corporatefinanceinstitute.com/resources/knowledge/other/net-premium/: accessed 15, August 2022

Enomate & Audu (2021). Effect of Information and Communication Technology on Financial Performance of Listed Non-Financial Firms in Nigeria. Bingham International Journal of Accounting and Finance (BIJAF) 2(2): 182 – 194

Hatra etal (2021). Effect of Information and Communication Technology on Firms Performance in Iran, Asian Journal of Information Technology. 20 (4): 103-111. Accessed August 15, 2022

Ifeanyi Onuba (2022). NAICOM Revokes Licenses Of Niger Insurance, Standard Alliance Insurancehttps://thewhistler.ng/just-in-naicom-revokes-licenses-of-niger-insurance-standard alliance-insurance/; accessed August 13, 2022

Insurance ACT 2015. http://lawsofnigeria.placng.org/laws/I17.pdf ; accessed August 16, 2022

Jane et al (2021) Effect of Information and Communication Technology (ICT) on Corporate Performance: A Study of Selected Quoted Banks. International Journal of Social Science and Human Research. 4(1): 3880-3892

Mohammed et al (2019) Impact of Information communication Technology on organizational Productivity in the nigeria Banking Industry: Empirical Evidence. Noble International Journal of Business and Management Research. 3(1): 01-09

Okafor Endurance (2022). Insurers' profit to drop on higher claims, inflation. https://businessday.ng/insurance/article/insurers-profit-to-drop-on-higher-claims-inflation/: accessed August 11, 2022

Ovidijus J (2021), Resource-Based View. https://strategicmanagementinsight.com/tools/resource-based view: Accessed August 16, 2022

Rasaaq O. (2022). 2021 premium income for insurance industry hits N630bn — NAICOM https://www.vanguardngr.com/2022/02/2021-premium-income-for-insurance-industry-hits n630bn-naicom/: accessed August 15, 2022

Sadeghimanesh, M. & Samadi, A. (2013). The effect of information technology on financial performance of the banks listed in Tehran stock exchange. Journal of Natural and Social Sciences: Special Issue on Accounting and Management, 2 (3), 2911-2919.

Wahyuddin and Mauliyana (2021), The Effect of Premium Revenue, Underwriting Results, Investment Results, and Risk Based Capital on Income in Insurance Company (Study on Corporate Insurance - The Listed on the Indonesia Stock Exchange). *Quantitative Economics and Management Studies (QEMS), 2(6): 387–399*

Effect of Capital Market Development on Economic Growth in Nigeria

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Abstract

The capital market development is important since it connects the financial sector with other non-financial sectors of the economy. The study examines the effects of capital market development on economic growth in Nigeria The main objectives are to assess the effect of economic growth (depended variable) on the (independent variables) market capitalization, value of stock traded and all-share index within the period of twenty-one (21) years (2001 – 2021). The data were sourced from the Central Bank of Nigeria statistical bulletin, and annual reports and accounts of the Nigerian Exchange Group. The research design employed for the purpose of this research is ex-post facto and time series research design. Autoregressive Distributed Lag analysis was used with the help of E-view 10 package to examine the extent of relation between the dependent and independent variables used. Empirical evidences from the hypotheses tested indicated that All-share index (AIS) has a negative and insignificant effect on economic growth while market capitalization and value of stock traded (VST) has positive and significant effect on economic growth in Nigeria within the period of study. It is therefore concluded that the market capitalization and value of stock traded have significant effect on economic growth of the Nigerian economy. The study recommended that Government should remove impediments to stock market development in the form of tax, legal and regulatory barriers because they act as disincentives to investment in the capital market development which has negative effects on most companies' market capitalization.

Keywords: Capital Market Development, Market Capitalization, Total Volume of Stock Traded, Value of Stock Traded and All share Index

INTRODUCTION

The capital market is essentially a market for long term securities such as stock, debentures and bonds lasting for usually longer than three years. It is the cornerstone of every financial system which provides the funds needed for financing not only business and other economic institutions, but also the programme of government as a whole. According to Ewah et al (2009), capital market provides the opportunity for the purchase and sale of existing securities among investors thereby encouraging the populace to invest in securities fostering economic growth. It offers access to variety of financial instruments that enables economic agents to pool, price and exchange. The capital market institution is critical to the economic growth of any nation. It is a network of specialized financial institutions, series of mechanisms, process and infrastructure that, in various ways, facilitate the bringing together of suppliers and users of medium to long-term capital for investment in socio-economic developmental projects (Al-Faki, 2006). It is a market for dealing (that is lending and borrowing) in long term loanable funds (Kolapo & Adaramola, 2012). The capital market is subdivided into the primary and secondary market. The primary market or the new issues market provides the avenue through which government and cooperate bodies raise fresh funds through the issuance of securities which is subscribed to by the public or a selected group of investors. The secondary market provides an avenue for sale and purchase of existing securities. Sule and Momoh (2009) found that the secondary market activities have impacted more on Nigeria per capital income by tending to grow stock market earnings through wealth than the primary market.

According to Edame and Okoro (2013), the Nigerian capital market has witnessed obvious transformationover the years, evident by the increased level of participation of the private and public investors at the floor ofthe stock exchange and in various public offers of quoted companies. The emerging market has also attractedand embraced the attention and the interest of international investors, thus increasing capital inflow.Market capitalization refers to total value of all a company's shares of stock. It is calculated by multiplying the price of stock by its total number of outstanding shares. Market

capitalization is a way of evaluating the value of company. On the other hand, value of stock traded is the total number of shares traded, both domestic and foreign, multiplied by their respective matching prices. All shares index is a series of numbers which shows the changing average value of the share prices of all companies on a stock exchange, and which is used as a measure of how well a market is performing.
Economic growth is the rise in the total output of a country over a specified period of time. The growth of an economy over time is widely measured with Gross Domestic Product (GDP). The GDP may be nominal GDP or real GDP, the nominal GDP does not take account the devastating effect of inflation, but the latter is adjusted to capture the likely impact of inflation (Adeusi et al, 2013). Economic growth are determined by various macroeconomic indices which include but no limited to exchange rate, inflation, government expenditure, capital mobilization visa viz: well-functioning of the financial sector, human capital development and index of industrial production among others. There is no gain saying the fact that, the rate of development at the Nigerian capital market has not been able to effectively mobilize capital for the development of other vital sectors of the Nigerian economy. The major reason adduced for this seeming neglect is due to the predominant role the oil sector is playing as the major foreign exchange earner in the country (Ubesie et al 2020). The year 2016 witnessed a plunge in oil prices and that of stock market, which remained indelible in the minds of investors on the Nigerian Stock Exchange (NSE), just as it was in the 2008 global financial meltdown, which stemmed from the fact that, the nation's stock market for the period under review experienced a major setback to the tune of over N1trillion drop in market capitalization (Ubesie et al 2020). The fall in oil prices also led to the withdrawal of lots of investors and listed firms on the stock market. The share index ratios were not spared either. This was due majorly to the endogenous factors characteristic of the Nigerian financial system. A lot of investments ended up sustaining substantial losses. These helped to dampen the investor's confidence and eventually led to a decline in growth of the capital market as well as the rate of economic growth in Nigeria.

At this juncture, there are some are pertinent questions that need be asked: - following the plunge of the Nigerian capital market in 2016, what efforts are the government and concerned individuals making to bring back the lost glory of the capital market? What efforts are being made to attract foreign investors into Nigeria and thus, sustain their confidence in the long run given their previous experiences with the stock market? What is the government doing to raise the level of growth in the capital market to complement other sectors of the economy to achieving economic growth? Is the market being supplied with enough securities for trading as depicted by the All-share index, market capitalization and the number of participants in the Nigerian capital market? Lastly, ignorance on the part of the investing public is not helping matters. Most of the investors are conservative. They still are still aligned to the practice of buy and hold stock. They seem to be contented with the dividends they will receive therein, but the truth remains that, that is not the main essence of trading in stocks or participating in stocks trading at the stock market. Shares need to be traded upon regularly for the market to advance and to function effectively and efficiently. These and many more are the problems that this study intends to proffer solutions to. In the light of the above background, the question that would come to mind is whether or not capital market has influenced the economy of Nigeria significantly, given the enabling environment provided by the supportive democratic system. The strength of an economy is partly dependent on how competently the capital market is performing its allocative function of capital. Thus, it is very important to assess the effect of capital market on economic growth in Nigeria. However, in a bid to ascertain the effect of capital market development on economic growth in Nigeria, the study must strive to examine the effect of market capitalization, value of stocktraded, and all shares index on real gross domestic product in Nigeria. The underlisted hypotheses are those fundamental to this study;
Ho_1: Market capitalization has no significant effect on real gross domestic product in Nigeria.
Ho_2: Value of stock traded has no significant effect on real gross domestic product in Nigeria.
Ho_3: All-shares index has no significant effect on real gross domestic product in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Capital Market Development

According to Edame and Okoro (2013), the capital market is a network of specialized financial institutions, series of mechanisms, processes and infrastructure that, in various ways, facilitate the bringing together of suppliers and users of medium to long term capital for investment in socio-economic developmental projects". The capital market is divided into the primary and the secondary market. The primary market or the new issues market provides the avenue through which government and corporate bodies raise fresh funds through the issuance of securities which is subscribed to by the general public or a selected group of investors. According to Soyede (2005) Primary market is a market for new securities. It is a platform where the company or government can raise money for investment or where already quoted companies can raise fresh funds for expansion. Both the Securities and Exchange Commission (SEC) and the Nigerian Stock Exchange (NSE) are involved in primary market activities. The secondary market provides an avenue for sale and purchase of existing securities. According to Pandey (2006), it is a type of market where existing securities of a market are traded on daily and continuous basis. It is the market for existing securities. This consists of exchanges and over-the counter markets where securities are bought and sold after their issuance in the primary market.

The capital market is a network of financial institutions and infrastructure that interact to mobilize and allocate long-term funds in the economy. The market affords business firms and governments the opportunity to sell stocks and bonds, to raise long-term finds from the savings of other economic agents. The capital market is a highly specialized and organized financial market and indeed an essential agent of economic growth because of its ability to facilitate and mobilize saving and investment. The sourcing of long-term finance through the capital market is essential for self-sustained economic growth, which is consistent with external adjustment and rapid economic growth (Adeusi et al, 2013). The capital market consists of institution and mechanisms through which economic units desirous to invest their surplus fund, interact directly or through financial intermediaries with those who wish to procure funds for their businesses. The Securities and Exchange Commission (SEC) is a major regulator in charge of the Nigerian stock market while the Nigerian Exchange Group (NXG) supervises the operations of the formal quoted market (as a self- regulatory organization). However, the Nigerian financial markets are encountering difficulties such as poor infrastructural facilities, low level of public awareness as to the benefits derivable from the operation of the capital market, inadequacy of supply of securities, stringent stock exchange listing requirements limiting mostly the smaller companies, illiquid market and unfavorable government policies (Taiwo, 2016).

Value of Stock Traded

A value stock refers to shares of a company that appears to trade at a lower price relative to its fundamentals, such as dividends, earnings, or sales, making it appealing to value investors. A value stock is trading at levels that are perceived to be below its fundamentals. Common characteristics of value stocks include high dividend yield, low P/B ratio, and a low P/E ratio. A value stock typically has a bargain-price as investors see the company as unfavorable in the marketplace. A value stock is a security trading at a lower price than what the company's performance may otherwise indicate. Investors in value stocks attempt to capitalize on inefficiencies in the market, since the price of the underlying equity may not match the company's performance (Zainab, 2015). Common characteristics of value stocks include high dividend yield, low price-to-book ratio (P/B ratio), and a low price-to-earnings ratio (P/E ratio). Investors can find value stocks using the "Dogs of the Dow" investing strategy by purchasing the 10 highest dividend-yielding stocks on the Dow Jones at the beginning of each year and adjusting the portfolio every year thereafter. In contrast to value stocks, growth stocks are equities of companies with strong anticipated growth potential. A balanced, diversified portfolio will hold both value stock and growth stocks. Investment managers refer to these as a blend fund (Oke, 2013).

A value stock will have a bargain-price as investors see the company as unfavorable in the marketplace. Typically, a value stock has an equity price lower than the stock prices of companies in the same industry. Value stocks may also sit within a sector that trades at a discount to the broader market. Negative publicity relating to unsatisfactory earnings reports or legal problems are indicators of a value stock as the market will negatively view the company's long-term prospects. A value stock will most likely come from a mature company with a stable dividend issuance that is temporarily experiencing adverse events. However, companies that have recently issued equities have high-value potential as many investors may be unaware of the entity. For all their potential upsides, value stocks are considered riskier than growth stocks because of the skeptical attitude the market have toward them. For a value stock to turn profitable, the market must alter its perception of the company, which is considered riskier than a growth entity developing. For this reason, a value stock is typically more likely to have a higher long-term return than a growth stock because of the underlying risk. A value stock may need some time to emerge from its undervalued position. The risk of investing in a value stock is that this emergence may never materialize (Taiwo et al, 2016).

All Shares Index

All shares index is a series of numbers which shows the changing average value of the share prices of all companies on a stock exchange, and which is used as a measure of how well a market is performing (Kwode, 2015). A market index is a quick measure to judge the overall direction of the market and the scope of its movements. Even in the most bullish or bearish markets, you are likely to see stocks that their prices do not move in the same direction with the overall market trend. On a typical trading day, prices of various stocks will move in different directions, some gaining and others losing. Given that scenario, it would be difficult ordinarily to readily make a judgement as to overall market direction without complex on-the-spot calculations. That's where a ready market price index comes handy. A market index is a statistical parameter to reflect the composite value of a market characteristic (Olarewaju et al, 2015). When it is the price, we have a price index, which is an attempt to represent the overall price performance of the market with one statistic - the index value. In effect, the index is calculated in a way that makes it generally representative of the market. In all cases, effort is made to use a basis that best achieves the intended purpose. Usually, that entails some weighting of the individual components. If, for instance, we sum up the prices of all stocks, that will produce a statistic. However, that will not reflect the strength of each company. A weightig with market capitalisation would produce a capitalization -weighted index that reflects company capitalisation. On the basis, there are price-weighted, capitalisation-weighted and even share-weighted indices. An index can be representative of the entire market - like the NSE all-share index - or just for a section - like tech stocks or top 100 most capitalised stocks or whatever, only that the basis should be known. The NSE All-share Index is a total market (broad-base) index, reflecting a total picture of the behavious of the common shares quoted on the Nigerian Stock Exchange. It is calculated on a daily basis, showing how the prices have moved. It started in January 1984, the base year, with a value of 100 and has now risen beyond the 6,000 mark at the end of 2021.

Economic Growth

Economic growth means an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Economic growth is a process by which a nation wealth increases over time (Victor et al, 2013). The most widely used measures of economic growth is the rate of growth in a country's total output of goods and services gauged by the gross domestic product (GDP). Economic growth can also be refers to as the increase of per capita gross domestic product (GDP) or other measures of aggregate income, typically reported as the annual rate of change in the real GDP. Economic growth is primarily driven by improvement in productivity, which involves producing more goods and services with the same inputs of labour, capital, energy and materials (Duke & Nkamare, 2015). Economic growth is an indication of society's welfare. It reflects the changes in its ability to attain any socially agreed upon set of goals, whether consumption, capital formation and improvement in general

well-beingof individuals in the society (Adeusi et al, 2013). In other words, growth can be defined as sustained increase in macroeconomic aggregates particularly real gross domestic product.

Empirical Review

Ubesie et al (2020) studied impact of capital market on economic growth in Nigeria. The study aimed to access the impact and determinant of capital market on the economic growth in Nigeria within the period of study. It further employed the ordinary least square method (OLS) in analyzing the time series variables obtained for the study. The result of the findings shows that all the variables of interest were significant in explaining the behavior of capital market on the growth of Nigeria economy except labour force. More so, the result show that the model employed for the analysis is adequate and best in fitting the variables obtained. The study recommended that in order to increase the ease with which investors can purchase and sell shares, thus guaranteeing liquidity on the stock market, the Nigerian Security and Exchange Commission should improve on the trading system. Given that the stock market operates in a macroeconomic environment, it is therefore necessary that the environment must be an enabling one that will promote and encourage investment opportunities for local and international investors. Duke and Nkamare (2019) investigated the assessment of capital market on the Nigerian economy spanning the period of 1985 to 2017. Real GDP is expressed as a function of Market Capitalization (MCAP), Total Transaction on the Stock Exchange (TNSE) and Gross Fixed Capital Formation (GFCF) using regression model. The ADF statistics was used to test the stationary property of the time series data used, all the variables were stationary at first difference. Co-integration test confirmed the existence of long-run relationship between the explanatory variables and the dependent variable, Vector Autoregressive (VAR) and Vector Error Correction Model (VECM) were estimated; the findings confirmed that there is positive relationship between market capitalization and economic growth and also direct relationship exist between gross fixed capital formation and economic growth while inverse relationship exists between gross domestic product and total transaction of the Nigerian Stock Exchange Market. The study concludes that capital market has shown substantial growth in new issues volume in recent years; it is reasonably well-supervised by the SEC and as a well-organized management structure thereby contributing to the growth of the Nigerian economy though the total transaction of the Nigerian stock exchange needs to be enhanced through trade liberalization in the capital market. The study therefore recommends that it is imperative for the country to attract foreign portfolio investment from other country in order to increase total transaction of the stock exchange through foreign funds; such fund would enhance the financing of developmental projects and businesses in the country.

Taiwo et al (2016) evaluated the contribution of capital market to the growth of Nigeria’s economy. To achieve this objective, an error correction model was estimated for economic growth in Nigeria, using Vector Error Correction techniques on an annual time series data spanning from 1981 to 2014. The data were subjected to Phillip Perron Unit Root Test at level and first difference. The result shows that, at one percent significance level, all the variables were stationary at first differencing. The result of the normalized cointegrated series further reveals that market capitalization rate, total value of listed securities, labor force participation rate, accumulated savings and capital formation are significant macroeconomic determinants factors of economic growth in Nigeria. It was then recommended that, for the capital market to realizes its full potentials, its environment must be enabled to promote and encourage investment opportunities for both local and international investors, since the stock market operates in a macroeconomic environment. Consequently, an improvement in the Nigerian trading system with the aim of increasing the ease with which investors can purchase and sell shares, could guarantee the stock market liquidity. Aduda et al (2014) examined the effect of Capital Market Deepening on economic growth in Kenya. Controversy exists among researchers on the role of deep capital markets in growth. The finance growth nexus forms the basis of the research with the capital markets assumed to have a supply leading effect on economic growth. This study aimed at addressing the issue by incorporating a measure of bond market turnover. The research objective was to determine the effect of capital market deepening on economic growth in Kenya. The study used data from the Nairobi Securities Exchange from

1992-2011 and GDP data from The Kenya National Bureau of Statistics. The study therefore concludes that Capital Market Deepening has a positive effect on GDP growth in Kenya and therefore lends support to the finance growth nexus. The Capital market plays an important role in economic growth and therefore the study recommends the government should take policy initiatives to foster growth of the capital market and especially so the bond market which is instrumental in providing finance for development of the Vision 2030 socio economic blue print.

Chigbu (2014) examined the impact of capital market on economic growth in Nigeria. The study adopts a time-series research design relying extensively on secondary data covering 1985 -2012. The study utilizes regression analysis as data analysis method incorporating multivariate co-integration and error correction to examine characteristics of time series data adopting disaggregate the capital market indices approach. Observation across studies on this subject is the heterogeneity in empirical findings over what may be termed a considerably uniform theoretical framework at least with regards to causality. Our finding suggests that two exhibit positive while two exhibit inverse and statistically significant relationship with economic growth. This could stimulate dialogue on the implication for policy simulation. Recommendation is that relevant regulatory agencies should focus on enhancing efficiency and transparency of market to improve investor's confidence. Therefore, the need for effective and favourable macroeconomic environment to facilitate economic growth and ensure that channels of capital market induced growth are built around effective systems; and that policy institutions are active in making systemic checks and appropriate policy innovations to ensure capital market led economic growth. Echekoba, et al (2013) examined the impact of capital market on the growth of the Nigerian economy under a democratic rule. Despite the popular belief that democracy promotes investments friendly environment, the Nigerian capital market seems not to have lived up to expectation in terms of its contribution to economic growth. The study relies on time series data, multivariate regression method was used to analyze the data. The result shows that while total market capitalization and all share indexes exert positive influence on the gross domestic product growth rate, the total value of stock has a negative effect on the gross domestic product growth rate, and none is significant. The study therefore recommends that government should depict concerted effort and sincerity of purpose in the capital market development.

Ime (2013) explored the extent of relationship between stock market capitalization and performance on the Nigerian economy. Problems identified include the difficulty experienced in raising needed capital to finance key sectors of the Nigerian economy; the stock market is shallow in addition to low activities etc. The objectives included primarily to determine the extent of relationship between stock market capitalization and performance on the Nigerian economy, to access the effect of stock market capitalization and make policy recommendations. Hypothesis tested was that, there is no significant relationship between stock market capitalization and the performance of the Nigerian economy (1988-2008). Data was collected from secondary sources and was analyzed using multiple regression statistics. From the findings, results showed that there is a strong relationship between stock market capitalization and performance on the Nigerian economy. The study concluded that, when the stock market is reasonably traded by public and private sectors with protected legal frameworks, the Nigerian economy will be more expanded for high growth. It was recommended among others, that the Federal Government of Nigeria should set up a stimulus account to boost the stock market and to enforce Degree No. 45 of 1999 for the establishment of the Commodity Exchange Market. Udo et al (2003) examines the effect of capital market development on the economic growth of Nigeria using data on Real Gross Domestic Product as a proxy for economic growth while capital market variables constitute the independent variables. This includes Market Capitalization, All Share Index, Number of Listed Securities and the number of listed companies. The study adopted an expost-facto research design which utilized secondary data for the period 1983 -2016. While an Augmented Dickey-Fuller unit root test was used for preliminary analysis; an Autoregressive Distributed Lag (ARDL) was used for the model estimation. A combination of ARDL bounds test for co-integration, ARDL short and long run error correction models

were used for estimation. All the tests helped to confirm the integrity of our models. Findings of the study indicate that, the Number of listed Securities and All Share Index maintained a significant relationship with economic growth in Nigeria both in the short and long runs. Based on the findings of study it was recommended that government should help to remove all impediments to stock market development in the form of tax, legal and regulatory barriers as they act as disincentives to investments in the capital market. Again, government should help to maintain policy consistency in the pursuit of growth in the Nigerian capital market.

Theoretical Framework

Modern Portfolio Theory

A speculation set out by Harry Markowitz in his study is the hypothesis of Modern Portfolio Theory (MPT). The Journal of Finance circulated the theory in 1952. The theory of the venture relied on the likelihood that risks disclaim by company finance specialists could construct portfolios to expand anticipated stock returns depending on the level of market risks in a speculation, recognizing that risks are an inborn and tremendous piece of higher venture reward. In the field of funds and ventures, the theory came to be among the most critical and prominent financial speculations. In addition, the theory is referred to as a portfolio theory and indicates that it is possible for financial experts to create a qualified bleeding edge of ideal portfolios that produces the most severe and imaginable anticipated returns for a specific risk level. It promotes and advises that it is not necessary for speculators to rely exclusively on the usual risks and market return of one individual stock. In the event of growth, a financial expert will win by placing money into multiple stocks by decreasing the risks in the given portfolio. Consequently, this theory aims to quantify the effects of change.

The risk component for most investors is that any return on an investment could be smaller than the average returns or, in other words, deviations from the expected returns from the stock. Each stock has its own divergence from the stock median, according to the theory. This standard deviation from the mean is called harm, cited in the work of Charles (2016) (Markowitz, 1952); The theory also clarifies the pricing model for capital assets pricing model (CAPM). As per CAPM, the stock portfolio, used or deleveraged with positions in the risk-free resource, should be positioned by a single sane financial expert. Despite this, capital market also thought of beta, which refers to the natural return of an advantage. In this way, the portfolio theory offers a clear environment for interpreting the relations arising from orderly risks and rewards. The way monetary institutional portfolios are monitored and persuaded to use dishonorable and aloof speculation strategies in consumer goods firms has been extensively shaped. The interpretation of the fund theory and CAPM is used as part of control processes for money-related risks. Consumers goods sectors are committed to exploring all venture exercises in relation to this theory by maximizing their usual returns.

Efficient Market Hypothesis (EMH)

EMH is popularly known as the random walk theory developed by Fama (1965) as an academic concept which provides a framework for examining the efficiency of the capital market; it is one of the theoretical exploits of capital market-economic growth relationship. An efficient market is the term used to describe a market where investors cannot outperform their rivals by generating abnormal risk-adjusted returns in a consistent manner. With the intention to maximize their wealth, investors utilize information that is accessible to them as tools in trading available assets in the capital market. The EMH predicts that market prices should incorporate all available information at any point in time, and explains that current stock prices fully reflect available information about the value of the firm, and there is no way to earn excess profits (more than the market overall), by using this information which has very important implications for investors as well as for financial managers. The relevant test of efficiency is whether prices incorporate all information that is available at the time.

The study adopts this theory as the underpinning theory because it states that assets prices fully reflect all available information. There are three variants of the hypothesis: They are the "weak", "semi-strong", and "strong" form. The weak form of the efficient market hypothesis claims that trading information of traded assets is already incorporated in prices. If weak form efficiently holds then technical analysis cannot be used to generate superior returns. The semi-strong form of the efficient market hypothesis is of the opinion that prices incorporate all publicly available information. The strong form of the efficient market hypothesis claims that prices incorporate all public and non-public (insider) information, and therefore even insiders cannot expect to earn superior returns when they trade assets of which they have inside information.

METHODOLOGY

The research design employed in this study is ex-post factor research design.This study was carried out to examine the extent of relationship between capital market and economic growth in Nigeria. The dependent variable is the economic growth (RGDP) while the independent variables are market capitalization, volume of stock traded and All-share index. The data used for this study are basically time series data covering a period of twenty-one years 2001 to 2021. The data were sourced from the Central Bank of Nigeria statistical bulletin. Autoregressive Distributed analysis was used with the help of E-view 10 package to examine the extent of relation between the two variables used. The variables of interest with respect to capital market development and economic growth are presented in an equation as follows. The study adopted the model approach of (Taiwo, et al, 2020) with a little modification.

$RGDP = \beta_0 + \beta_1 MCap + \beta_2 VST + \beta_3 ASI + e$………………………………………………(i)

Where;

RGDP = Real gross domestic product
MCap = Market Capitalization
VST = Value of stock traded
ASI = All-share index
β_0 = constant term (other characteristic variable(s))
$\beta_1 \ldots\ldots \beta_3$ = regression coefficients
e = Error term

The linear model as the leading equation used was based on the performance of the coefficients of multiple determinations and the number of significant variables. The justification for the use of regression equation for the study lies in the fact that it is a prediction method which assumes a cause effect between variables. In other words, regression analysis identifies the relationship between variables in the form of an equation in which one can predict one variable (dependent) on the basis of another (independent) variable(s).

Table 3.1: Measurement of Variables

S/N	PROXY	TYPE	MEASUREMENT	SOURCE
	Variable of Interest			
1.	Real Gross Domestic Product (RGDP)	Dependent	Nominal gross domestic product divided by deflator	Ibi et al (2015)
	Explanatory Variables			
2.	Market Capitalization (MCap)	Independent	It is calculated by multiplying the price of stock by its total number of outstanding shares.	Taiwo et al (2016)

3.	Value of stock traded (VST)	Independent	Value of stock traded is the total number of shares traded, both domestic and foreign, multiplied by their respective matching prices.	Lawal & Okuola (2012)
4.	All-Shares Index (ASI)	Independent	Sum of all the prices of stocks which are part of index divided by number of stocks in the index	Lawal & Okuola (2012)

Source: Author's compilation (2022)

RESULT AND DISCUSSION

Descriptive Analysis

In order to have glimpse of the data used in the study, a first pass at the data in form of descriptive statistics was carried out. This gives us a good idea of the patterns in the data used for the analysis. The summary statistics is presented in Table 4.1.

Table 4.1 Descriptive Statistics Result

	RGDP	MCAP	VST	ASI
Mean	70944.47	31758.77	305.3333	346009.7
Median	63713.36	13181.69	304.0000	329823.2
Maximum	162268.1	412589.6	385.0000	605096.4
Minimum	8234.500	662.5000	258.0000	122220.9
Std. Dev.	49516.32	87782.19	33.44299	126342.3
Skewness	0.430672	4.166174	0.591603	0.291629
Kurtosis	1.950142	18.60325	3.085053	2.790625
Jarque-Bera	1.613602	273.7782	1.231308	0.336025
Probability	0.446284	0.000000	0.540287	0.845343
Sum	1489834.	666934.1	6412.000	7266204.
Sum Sq. Dev.	4.90E+10	1.54E+11	22368.67	3.19E+11
Observations	21	21	21	21

Source: E-view 10, (2022)

From table 4.1, it is observable that the mean of each respective distribution is not exactly situated at the middle (median) of the distribution. This indicates that majority of the individual firms have observations for each respective variable, close to the average observation. This is true as regards to every variable. Looking at the standard deviation on the basis of the assertion that 60% of a normally distributed data set falls within the range of ±1, it is evident that all the variable have standard deviation values out of this range. On the basis of standard deviation therefore, it can be concluded that RGDP, MCap, VST and ASI are not normally distributed. The skewness indices for all the other data sets seem to be positive, indicating more observations to the left of the normal curve. As it is, data outlier is normally associated with negative skewness.

With regards to kurtosis, all the variables have extreme peaks that are above normal peak, as their kurtosis figures are above the normal kurtosis of 0 or near 0. On the basis of kurtosis, none of the data sets can be qualified as normally distributed. In addition to the above, a theory-driven test for normality was also explained using Jarque-Bera. The outcome of the Jarque-Bera test reported probability is the probability that a Jarque-Bera statistic exceeds (in absolute value) the observed value under the null hypothesis - a small probability value leads to the rejection of the null hypothesis of a normal distribution. Thus, if the P- value is significant, the null should be rejected and the data be regarded as not normally distributed. From table, it can be evident that all the variables except MCap are not significant; the data sets are hereby statistically qualified as normally distributed.

Correlation

Table 4.2 presents correlation values between dependent and independent variables and the correlation among the independent variables themselves. These values are generated from Pearson Correlation output. The Table contains correlation matrix showing the Pearson correlation coefficients between the dependent and independent variables and among the independent variables of the study.

Table 4.2: Correlation Analysis Result

Covariance Analysis: Ordinary
Date: 06/07/22 Time: 10:06
Sample: 2001 2021
Included observations: 21

Correlation Probability	RGDP	MCAP	VST	ASI
RGDP	1.000000 -----			
MCAP	0.513913 0.0172	1.000000 -----		
VST	0.711237 0.0000	0.617660 0.0028	1.000000 -----	
ASI	0.394497 0.0768	0.276877 0.2243	0.542401 0.0111	1.000000 -----

Source: E-view 10, (2022)

Table 4.2 shows the correlation between the dependent variable, RGDP and the independent variables of MCAP, VST and ASI on one hand, and among the independent variables themselves on the other hand. Generally, a high correlation is expected between dependent and independent variables while a low correlation is expected among independent variables. According to Gujarati (2004), a correlation coefficient between two independent variables of 0.80 is considered excessive, and thus certain measures are required to correct that anomaly in the data. From the table, it can be seen that all the correlation coefficients among the independent variables are below 0.80. This point to the absence of possible multicollinearity among the independent variables andthe correlation between the dependent variables shows that all the variables are positively correlation among the dependent and independent variables. Positive and strong correlation exist between real gross domestic product (RGDP), market capitalization and value of stock traded and this relationship are highly significant at 5%. Thus, market capitalization and value of stock traded can influenced economic growth in a positive matter. On the other hand, looking at the independent variables among themselves market capitalization has positive and strong association with value of stock traded and value of stock traded also exert positive and significant relationship with all-shares index.

4.2.3 Augmented Dickey-Fuller (ADF) Unit Root Stationarity Test

Table 4.3 Summary of Unit Root Test

Unit Root Tests Result				
Variables	**ADF Statistics**	**Critical Value @5%**	**Probability**	**Remarks**
RGDP	-3.515898	-3.040391	0.0010	I (1)
MCap	-3.872932	-3.040391	0.0482	I (1)
VST	-3.820441	-3.686166	0.0198	I (1)

ASI	-4.341011	-3.052169	0.0041	I (1)

Source: Author's computation, 2022

The result of the unit root test can be interpreted thus: when the probability of a variable is greater than 5%, that variable is not stationary at levels, the researcher then proceeds to test the second form of that variable for stationarity at first difference. If the probability of the second form of that variable is less than 5%, then that variable is stationary at first difference I(1). A variable is stationary at levels I(0) if the probability of the first form of that variable is less than 5%. The second form of a variable is identified by the presence of a "D" in front of the variable. The result of the unit root test as seen in the table above shows that there is a uniformity of stationarity. It can be seen that real gross domestic product (RGDP), Market capitalization (MCap), volume of stock traded (VST)and All shares index (ASI), are all stationary at first difference I(1) at 5% levels of significance. This shows that all the variables are stationary, hence, further analysis can be done.

Diagnosis Test

Table 4.4 Johansen Co-integration Test

Date: 06/07/22 Time: 09:47
Sample (adjusted): 2003 2021
Included observations: 19 after adjustments
Trend assumption: Linear deterministic trend
Series: RGDP MCAP VST ASI
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 *	0.807266	61.68904	47.85613	0.0015
At most 1 *	0.570411	30.40664	29.79707	0.0425
At most 2	0.409065	14.35304	15.49471	0.0737
At most 3 *	0.204969	4.358100	3.841466	0.0368

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.807266	31.28240	27.58434	0.0160
At most 1	0.570411	16.05360	21.13162	0.2217
At most 2	0.409065	9.994940	14.26460	0.2123
At most 3 *	0.204969	4.358100	3.841466	0.0368

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: E-view 10, (2022)

The result from the co integration test conducted on the variables shows that the variables are co integrated. Since four of the trace statistics is greater than its 0.05 critical value. Hence the Error correction model (ECM) would be used to this capture this long-term relationship between the variables.

Hypotheses Testing

Table 4.5: Result of the ARDL Regression

Dependent Variable: RGDP
Method: ARDL
Date: 06/07/22 Time: 10:24
Sample (adjusted): 2002 2021
Included observations: 20 after adjustments
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (0 lag, automatic): MCAP VST ASI
Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
RGDP(-1)	1.010267	0.030484	33.14124	0.0000
MCAP	0.023087	0.008435	2.737235	0.0153
VST	112.9140	49.99722	2.258407	0.0392
ASI	-0.004869	0.005927	-0.821450	0.4243
C	-25203.89	12709.96	-1.983004	0.0660

R-squared	0.997809	Mean dependent var	74079.97
Adjusted R-squared	0.997224	S.D. dependent var	48616.74
S.E. of regression	2561.322	Akaike info criterion	18.74675
Sum squared resid	98405530	Schwarz criterion	18.99569
Log likelihood	-182.4675	Hannan-Quinn criter.	18.79535
F-statistic	1707.593	Durbin-Watson stat	2.472581
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Source E-view 10

The dependent variable is real gross domestic product. From the table 4.5, for the Autoregressive Distributed Lag (ARDL) result, the coefficient of the intercept is negative. This indicates that at any given point in time where these explanatory variables are held constant, the economic growth (RGDP) of the capital market are at jeopardy- i.e. it assumes negative value. This shows that without these variables, the capital market will not be financially sustainable. However, this result is significant as the likelihood ratio of such happening (as indicated by p-value of 0.00000) is infinitesimally high. In terms of residual test, the model is free from serial correlation. As revealed in table 4.5, the Durbin-Watson statistic of 2.4 is within the acceptable range of 1.7 to 2.7 for a sample of at least 50 observations. As revealed from this table, the sign of most of the parameters of the model are in line with a priori expectation. While market capitalization and volume of stock traded are positive as expected, total value of stock traded is negative but insignificant. This implies that improvement in these two positive variables can give rise to improvement in capital market development. Furthermore, the coefficient of determination (R^2) of 99% shows that about 99% variation in economic growth rate are explained by change in MCap, VST and ASI, while about 1% are accounted for by variables outside our model. Therefore, the model is good fit for the relationship and for economic policy formulation.

Discussion of Findings

Empirical evidences from the hypothesis tested indicated that market capitalization (MCap) has a positive and significant effect on economic growth while Value of Stock Traded (VST) has positive and significant effects and All Share Index has negative, but not insignificant effect within the period of study. Consequently, the study rejected the null hypotheses one and two and accepted the alternate, which suggests that Market Capitalization (MC) has significant effect on the economic growth. Its an indication that the provision of an investment friendly environment aimed at encouraging substantial market capitalisation inflows, coupled with a more rigorous Federally collected revenue drive, will ultimately give a combined effect that is both positive and significant on the market capitalization profile of the Nigeria, with its attendant multiplier positive effect on the Nigerian Economic Growth. This study is in tandem with the study of Duke, and Nkamare (2019) who in their study conclude that capital market development has shown substantial growth in new issues volume in recent years; it is reasonably well-supervised by the SEC and has a well-organized management structure thereby contributing to the growth of the Nigerian economy though the total transaction of the Nigerian Exchange Group needs to be enhanced through trade liberalization in the capital market. On the contrary, the study of Ime (2013) contradicts the outcome of the present study who found that there is no significant relationship between stock market capitalization and the performance of the Nigerian economy.

On the basis of the second hypothesis, the result revealed that value of stock traded has positive and significant effect on economic growth in Nigeria. Thus, the study has enough reason to reject the null hypothesis and accept the alternative which disclosed that value of stock traded has significant effect on economic growth in Nigeria. However, this study corroborates with the findings of (Taiwo et al, 2020) who found that value of stock traded have a way of influencing the economic growth. Finally, the third hypothesis on all-share index, the result indicated negative and insignificant effect. Thus, the study inferred that all shares index has no significant effect on Nigeria economic growth. This means that all-shares index cannot be used as a veritable instrument to increase the rate of economic growth of a country like Nigeria. This finding is attributed to two main factors in the Nigerian economy. Firstly, the Nigerian investing populace is gradually turning to investment opportunities in the economy as a result of the rising confidence in the financial market; hence, they are more open to risk, rather being risk aversive to take advantage of activities in the stock market to make good of their investments. Secondly, the greater the activity in the stock market arising from the large volume of stock changing hands, the greater the buy/sell transactions and more positive performance of the economy in the long run.

CONCLUSION AND RECOMMENDATIONS

This study utilized an Auto Regressive Distributed Lag Model (ARDL) to investigate the Effect of capital on economic growth of Nigeria: 2001-2021. The study revealed thatmarket capitalization and value of stock traded are the influencing variables that lead to economic growth of Nigeria at 5% level of significance the adjusted R-squared of 99.3 % shows a good fit of the model. It is therefore concluded that the market capitalization and value of stock traded have significant effect on economic growth of the Nigerian economy. Although some of the results obtained were anticipated from *a prori* expectations and some not conforming to our expectations as a result of observed negative relationships with the dependent variable; there is need to proffer some policy recommendationswhich when implemented will lead to mitigation of such occurrences. Based on the outcome of study, the following are recommendations are hereby made;

i. Government should remove impediments to stock market development in the form of tax, legal and regulatory barriers because they act as disincentives to investment in the capital market development which has negative effects on most companies' market capitalization.
ii. There is need to increase the number of listed companies in the Nigerian capital market. Government should find ways and means of boosting the confidence of investors to retain their portfolio investment. This can be done by putting in place regulatory laws that protect the

investor and this will no doubt encourage him/her to keep investing in areas that yield maximum returns without fear of losing investible funds. If this is sustained, the number of listed securities and All share index of the capital market will without a doubt increase and invariably bring about a positive index in economic growth of Nigeria.

iii. Lastly, there is also the need for policy consistency in the pursuit of growth of the Nigerian capital market development. By being objective in this regard, counter developmental policies would not be allowed in to crowd out the gains of capital market development activities on economic growth in the long run.

References

Abu, A. (2009). Does stock market development raise economic growth? Evidence from Nigeria. *Journal of Banking and Finance* 1(1),15-26.

Adeusi, S. O., Sulaiman, L. A. & Azeez, B. A. (2013). Impact of Capital Market Development on the Nigerian Economy: A Post-SAP Analysis. *Journal of Economics and Behavioral Studies.* 5(1), 1-7.

Al-FakI M.(2006). The Nigerian Capital Market and Socioeconomic Development. *Paper presented at the 4th Distinguished Faculty of Social Science Public Lecture*, University of Benin, 9-16.

Barna, S and Varna, R. (1993) Speculative dynamics: The case of master shares. Advances in Financial planning and forecasting. 5. Greenwich: Jai press

Barna, S., Jayanth, R and Varma, B. (1994) Research on the Indian capital market. A review. Ahmelabad: *Indian Institute of Management journal* 19(1), 15-31

Carter, R, Dark R. and Singh A. (1997) Underwriting reputation, initial returns and the long run performance of IPO stocks. *Journal of Finance* 53, 289-311

Dalvi, M.R. & Baghi, E. (2014). Evaluate the Relationship between Company Performance and Stock Market Liquidity. *International Journal of Academic* 12 *Research in Accounting, Finance and Management Sciences*, 4(4). 13

Duke, S.B. & Nkamare, E.S. (2015). Impact 'of 'Capital Market on the Development of' the Nigerian Economy. *Archive of Business Review*, 3(4), 125-151.

Echekoba, F. N., Ezu, G. K. and Egbunike, C. F. (2013) The impact of capital market on the growth of the Nigerian economy under democratic rule, *Arabian Journal ofBusiness and Management Review,* 3(2), 19-27

Edame, G. E. and Okoro, U. (2013). The Impact of Capital Market and Economic Growth in Nigeria, *Public Policy and Administration Research*, 3(9), 13-21

Ewah, S.O. Esang, A.E. & Bassey, J.U. (2009). Appraisal of Capital Market Efficiency on Economic Growth in Nigeria. *International Journal of Business and Management* 81(121), 219-225.

Fama, E. F (1998) Market efficiency, long run returns and behavioural finance. *Journal of Financial Economics*, 23(12), 303-324

Florence, O. A., Ogechi, I. A., Kingsley, O. O., Idika, J. E. & Odili, O. (2017) Impact of Stock Market Liquidity and Efficiency on Performance of the Manufacturing Sector 26 in Nigeria (1985 2014), *International Journal of Economics and Financial Management,* 2(1), 28- 32

Ibi, E. E., Joshua, N. J., Eja, B. R., Olatunbosun, H. U. (2015) Capital market and industrial sector development in Nigeria- an empirical investigation, *European Journal of Accounting Auditing and Finance Research,* 3(6), 63-79. 31

Israel, E. K. (2015) Capital Market and the Performance of the Manufacturing Industries in Nigeria 1970-2012, *European Journal of Business and Management,* 7(13). 33

Kolapo, F. T. & Adaramola, A. O. (2012). The impact of the Nigerian capital market on economic growth (1990 – 2010). *International Journal of Developing Societies,* 1(1),11 – 19.

Kwode, E. I. (2015). Capital Market and the Performance of the Manufacturing Industries in Nigeria 1970-2012. *European Journal of Business and Management,* 7(13), 35-44

Lawal, N. A. & Okunola, O. E. (2012). Stock Prices, Stock Market Operations and Nigerian Economic Growth: A Granger Causality Modelling. *Global Advanced Research Journal of Management and Business Studies*, 1(10),375-383.

Oke, M. A. (2013). Appraisal of Change in Investors' Behavior During and After the Speculative Bubbles and Crashes of the Nigerian Capital Market, *Journal of Business and Organizational Development,* 5(1), 1-25.

Olanrewaju, A. A., Kolawole, S. A. & Samson, A. (2015) Globalization, capital market and economic development in Nigeria, *Journal of Governance and Regulation,* 4(1), 43-52

Omran, M. (2005) Underpricing and IR performance of share issue privitasation in Egyptian stock market. *Journal of Financial research*. 2, (2) 215-234

Poshakwale, S and Theobald M. (2000) Market capitalisation, cross correlations, the lead-lag structure and microstructure effects in the Indian stock market. Social Science electronic publishing.

Sagrika, M. & Narayan, P. (2010). Do market capitalisation and stocks traded converge? ew global Nigerian Economy. *Archive of Business Review*, 3(4), 125-151.

Shawky, H, Dai, Wand Cumming, D (2010) Diversification in the hedge fund industry. ED! research news.

Soyede, A. (2005). The Role of Capital Market in Economic Developments. *Security Market Journal*, 6(3): 6-14.

Sule, O., Momoh, J. (2009). Capital Market and the Nigeria industrial growth, financial system and Economicgrowth. *A CBN publication*. 8-10.

Taiwo, J. N., Adedayo A. & Evawere, A. (2016). Capital Market and Economic Growth in Nigeria. *Account and Financial Management Journal,* 1(8), 498-524

Victor, O. O., Kenechukwu, N. J. & Richard, E.O. (2013). Capital Market and Industrial 46 Sector Development in Nigeria: A Theoretical Analysis. *Journal of Emerging Trends in Economics and Management Sciences*, 4(1), 20-30.

Werigbelegha, A. P. & Ogiriki, T. (2015). Determinants of Stock Market Performance and Manufacturing Sector Growth in Nigeria (1987-2013). *Research Journal of Finance and Accounting,* l6(6), 31-39

Ubesie, M. C., Nwanekpe, C. E. & Ejilibe, C. (2020). Impact of capital market on economic growth in Nigeria. *Business and Management Research*, 9(2), 34-51

Yosuke, T and Woolridge, p (2008) Evolution of trading activity in Asian foreign exchange markets. BIS working paper. No 259

Zainab, D. (2015). Impact of Nigerian Capital Market Capitalization on the Growth of theNigerian Economy, *Journal of Emerging Issues in Economics, Finance and Banking,* 5 4(2).

Management Accounting Information System and Financial Performance of Listed Services Firms in Nigeria

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Abstract

Since the industrial revolution era, management accounting has become a recognized field of accounting practice. However, many organizations (services firms inclusive) do not completely appreciate the need for the institution of a full-fledged management accounting system to support managerial decision making. This could be basically attributed to the lack of knowledge of what constitutes management accounting information and the fact that financial reporting mentality still dominates the accounting activities and procedures of many services firms. The study examined the management accounting information system and the financial performance of listed services firms in Nigeria. The longitudinal panel research design was used for this study and this research effort employed return on capital employed (ROCE) to proxy the dependent variables, while profit after tax and operating expenses were used to proxy the independent variables and firm size as control variable. Fifteen (15) services firms were randomly selected using the purposive sampling technique from the twenty-four (24) quoted services firms in Nigeria. The period for this study was ten (10) years from 2012 – 2021. Secondary data was collected from the annual financial reports of various firms under study. The model estimation executed using panel least squares technique with the aid of E-view 10 statistical package. The study found that profit after tax has positive but insignificant effect of return on capital employed while operating expenses has negative and significant effect on return on capital employed. The study recommended that management of services firms in Nigeria should make use of automated Accounting Information System (AIS) known as 'Contract Plus – Financial & Project Accounting' package in their Finance Department.

Keywords: Management Accounting Information System, Return on Capital Employed and Financial Performance

INTRODUCTION

Accounting is the language for business communication as observed by Onodi (2019), while Omar and Ali (2018) posited that accounting is the science and art of collecting, classifying, summarizing and communicating data of financial nature required to make economic decisions. Management accounting information system in collaboration with Information and Technology (IT), were designed to help in the management and control of activities related to firms' economic and financial transactions. Accounting information is a part of company's information system that facilitates decision making within the firm and should be fitted to firms' environment, requirements of task, and structure (Onodi&Akujor 2021). Accountants, consultants, business analysts, managers, chief financial officers (CFOs), auditors and regulatory agencies consider an accounting information as a structure that a firm uses to collect, store, manage, process, retrieve and report its financial data. In developed economies management accounting information system provides suitable framework for financial managerial decisions of firms that is not lacking in quality. Society will be better off if researches can improve decision making through improved information, since the world has become a global village as a result of rapid worldwide technological and socio-political changes. It is important to note that every industry and sectors' success, and in some cases survival, depend on the ability of organizations to compete globally. In recent time, organizations of all types, including business, government, education, health care, military, and research and development, have changed their operations and management approaches. These organizations have all felt the pressure to operate more effectively because of the prevailing circumstances, such as cutbacks in funding, escalating costs, competition for limited resources, and a demand for higher-quality outcomes. Business managers in the 21st century must react to the competitive threats not only from local source but also from regional, national and international source. They must seek to explore all opportunities that are

available in the immediate, national and global environments because deregulation has increased competitive pressure for organizations to survive, grow and prosper.

Managers must employ a lot of the resources at their disposal as efficiently as possible so as to accomplish the objectives and goals of the enterprise in a competitive environment. Information in form of reports prepared by managers and many business professionals are made possible by Management Information System (MIS). For instance, sales managers may use their network computer and web browser to get instantaneous display about the sales results of their daily sales analysis report to evaluate sales made by each sales personnel. Management Information System is a formalized procedure to provide management at all levels and in all functions with appropriate information to enable them to make timely and effective decisions for planning, directing, evaluating, and controlling the activities for which they are responsible. Management Information System (MIS) has a great influence on the market share portion, revenue generation, sales volume achieved, recruitment of best qualified candidates, the goodwill of the enterprise and the customers' perception about the organization and its output. It supplies decision makers with facts, supports and enhances the overall decision making process (Onodi&Akujor 2021). The effective delivery of an enterprise's products and services are supported by the management information system. Management information systems should be comprehensive, accessible, flexible and useable at the appropriate levels of the organization's activities. Traditional accounting information aimed at the calculation of profit has been of limited value for control in recent time. In this era of knowledge economy, Managers need all kinds of non-accounting information about the external environment such as social, economic, political, and technical development. A major task also facing management in almost every field of endeavour is to plan carefully so that the quantity and quality of information obtained will be adequate to meet its needs. Information Technology (IT) and Financial accounting system are important functional elements or parts of the total management information system structure. The prevailing economic conditions and competition create pressures about costs of information and most firms continue to increase spending on information system and their budgets continue to rise. Generally, information system is developed using information technology to aid an individual in performing his job and firms focus on developing information system in order to support decision system, communication, and knowledge management. Accounting information system provides a base to a firm, to deal with its vendors, customers and employees, but uncertainties surround the prediction of how growing need for accounting information system will change the productivity and performance of the firm. Since most firms have not incorporated the use of better accounting information systems in their day to day transactions, the researchers wish to examine the effect of management accounting information system on the performance of listed services firms in Nigeria. The major hypotheses underlining this study are stated thus:

$H0_1$: Profit after tax has no significant effect of return on capital employed of listed services firms in Nigeria
$H0_2$: Operating expenses has no significant effect of return on capital employedof listed services firms in Nigeria

LITERATURE REVIEW

Conceptual Framework

Management Information System

Management Information System (MIS) is the development and uses of information system that help businesses achieve their goals and objective (Onodi&Akujor 2021). Management accounting information system provides communication needed to carry out the managerial functions and for linking the organizations with its external environment. The focus in Management Information System coupled with improved processing has led to the reduction in bottlenecks attached to management process. A system is a group of components that interact to achieve some purpose. Ikhatua (2017) posited that an Information

System (IS) is a group of components (computer hardware, software, data, procedures and people), that interact to produce information. These five components are present in every information system, for instance, when you use a computer to write a report, you are using hardware (the computer, storage disk, keyboard, and monitor), software (word, or other word-processing program), data (the words, sentences, and paragraphs), procedures (the methods you use to start the program to enter, save and back up), and people (you).It is important to note that Information is knowledge derived from data, whereas data is defined as recorded fact or figures. Accounting information as part of the management information System involves the effective combination of resources within the firm in order to provide actionable information for firm's performance. Quality accounting information that will enhance the performance of organizations has been one of great concern as lack of concentration on this key management technique has caused a lot of havoc to so many organizations. Inadequate accounting information has drastically reduced the confidence of the public in the financial statements of many companies. There is a need to ensure that reliability is placed on the accounting information provided by management in order to increase public confidence and organizations are expected to put effective management accounting information system in place. In terms of effectiveness, accounting information makes use of accounting techniques and controls within the information technology framework to track all financial transactions of a firm so as to make available internal and external report on the activities of the business (Chikere&Nwoka, 2015). Therefore, accounting information should satisfy user's requirement, that is, it should provide users with relevant information on firm's performance. In other to understand management information system further, the following accounting information's were discussed;

Profit after Tax

Profit after-tax is the earnings of a business after all income taxes have been deducted. This amount is the final, residual amount of profit generated by an organization. The profit after-tax figure is considered the best measure of the ability of an entity to generate a return, since it incorporates both operating income and income from other sources, such as interest income (Hunton, 2014).The profit after-tax margin is closely watched by investors to see if the income-generating ability of a firm is changing over time. If so, this could be considered a valuation indicator that may result in a change in the stock price.If a company is publicly-held, it also reports profit after-tax on a per share basis. This information appears on the face of the financial position.

Operating Expenses

An operating expense is an expense a business incurs through its normal business operations. One of the typical responsibilities that management must contend with is determining how to reduce operating expenses without significantly affecting a firm's ability to compete with its competitors. Operating expenses are necessary and unavoidable for most businesses. Some firms successfully reduce operating expenses to gain a competitive advantage and increase earnings. However, reducing operating expenses can also compromise the integrity and quality of operations. Finding the right balance can be difficult but can yield significant rewards.

Financial Performance

Financial performance refers to a firm's ability to achieve planned financial results as measured against its intended outputs (Mutende, et al, 2017). Financial performance is a measure of how efficient a firm uses its assets to generate revenue from its operating activities. It can be said to be a term that is used to measure the financial health and growth of a firm over a period of time (Dsunday&Ejabu, 2020). It can also be used to compare different firms in the same industry. There are different measures of financial performance and since there are many stakeholders in a company, each group has its own interest in tracking the financial performance of that company. The trade creditors will be interested in the liquidity of the company, the bond holders will be interested in the solvency of the company, the shareholders will be interested knowing how well their investment will yield return and the management will be interested

in knowing how well the firm perform in the market (Aamir&Sajid 2012). Financial performance is usually measured using financial ratios, such as return on equity (ROE), return on assets (ROA), return on capital employed (ROCE), return on sales (ROS) and operating margin (Dogan, 2013). Financial performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues (Van Horne, 2005). A firm's financial performance is of importance to investors, stakeholders and the economy at large. For the purpose of this study return on capital employed (ROCE) was considered.

Return on Capital Employed

Return on capital employed indicates the efficiency and profitability of a company's capital investment. It is one of the most important operating ratios that can be used to assess corporate profitability. It is expressed as a percentage and can be very revealing about the industry in which a company operates in, the skills of management and occasionally the general business climate. As a general rule, a firm with a high return on capital employed will probably be a very profitable business. ROCE is calculated as follows:

ROCE = PBIT (Net Income)/Capital Employed

Where: Capital Employed = Total Assets – Current Liabilities = Equity + Non-Current Liabilities.

Empirical Review

Onodi and Akujor (2021) examined the effect of management accounting information system on the performance of listed consumer goods firms in Nigeria. The objectives of the study were to ascertain the effect of sales management system, management accounting reporting system and budgetary management system on the profitability of listed consumer goods firms in Nigeria. A survey research design was adopted and appropriately used for this study and 100 copies of questionnaire were administered to employees from the selected consumer goods companies. Data collected were analyzed with the aid of percentages and tables while statistical tools used for testing the hypotheses were simple regression analysis and ANOVA. The findings of this study revealed that; sales management system, management accounting system and budgetary management system affect profitability of listed consumer goods firms in Nigeria positively. The study concludes that accounting information system is critical to the production of quality accounting, sales and budget reports (information) on a timely basis and the communication of that information to the decision makers. The study recommend that organizations should strengthen their sales force for effective revenue generation, ensure that management accounting reporting is timely and accurate for effective decision making, and budgetary control should be put in place for monitoring of activities of the business.

Ogundayo and Nyikyaa (2021) investigated the effect of management accounting practices on the performance of manufacturing companies in Nigeria. This study adopted a survey research design. The target population for this study was 20 manufacturing companies in Nigeria. Primary data obtained through the administration of structured questionnaires to selected respondents was used. The study targeted four hundred and ninety-nine (499) employees of the account, production, marketing and administrative departments from the 20 selected manufacturing companies adopting purposive sampling technique. Four hundred and twenty-five (425) correctly filled questionnaires were retrieved and used for the analysis, while regression analysis with the aid of SPSS 21.0 was utilized in testing the hypothesis. The result of the Cronbach Alpha test for reliability of the instrument was in the range of 0.702 and 0.869, which implies the instrument is reliable. The results of the regression analysis conducted revealed that total quality management and budgeting have significant positive effect on market share, while cost analysis and performance evaluation have no significant effect on market share. It was obtained that management accounting practice had significant effect on market share of manufacturing companies in Nigeria. The study concluded that a significant relationship exists between management accounting practice and market share of manufacturing companies in Nigeria. The study recommended that

manufacturing companies should consider adopting effective costing technique, proper budgeting system as well as consistent performance evaluation process so as to increase level of performance. Olaofe, et al (2020) examined the impact of accounting information system on performance of corporate organizations in Nigeria. The role of professionals in accounting, information technology and academics were explored. To attain the aim of the study, 30 questionnaires were administered and 25 retrieved which was analysed and the single factor ANOVA technique was used to test the hypothesis. Findings from the research depicted accounting information systems have a positive impact on corporate organizations performance in Nigeria because the observed F of 251.43 obtained was greater than F critical value of 2.74. The study recommended that, corporate organizations should massively invest in accounting information system, adopt merit-based recruitment and ensure periodic training of accounting information systems personnel.

Akanbi and Aruwaii (2018) examined the impact of accounting information systems (AIS) adoption by manufacturing industries on their general accounting activities and also to estimate the relationship that exist between AIS devices and accounting activities. Regression and correlation analyses were used to analyse and interpret the objectives. The regression model results that F-value ($0.000 < 0.050$) and Adj R2 = 0.6970 showed that AIS devices has 68.70% impact on the efficiency of accounting activities in the manufacturing industries if properly implemented. The result of Kendall's correlation matrix showed the statistical coefficient of 62% indicating that there is a strong correlation between dependent and independent variables, the coefficient of determination (R2) = 0.418 revealed that there is a significant relationship in using accounting information system to fast track accounting activities. The tested hypotheses of this study was measured at level of 95% confidence interval. The study concluded that accounting information systems devices are spontaneously and simultaneously appropriate for manufacturing industries engaging in accounting activities, also revealed that there is a significant relationship between accounting activities and Accounting information systems. The study also concludes that accounting information systems adoption in manufacturing firms has the following benefits: facilitation of financial statements preparation, enhancement of inventory valuations, enhancement of budgetary management, and favoring General Accepted Accounting Principles adoption. Therefore, manufacturing firms should embrace more and well-structured accounting information systems to enhance accounting activities. Eke, (2018) examined the relationship between management accounting information and corporate performance of manufacturing companies in Rivers State, Nigeria. To achieve the primary objective of the study, the cross-sectional survey design was adopted. The population of the study was made up of the thirty-two (32) manufacturing companies in Rivers State registered with the Rivers/Bayelsa State branch of the Manufacturers Association of Nigeria (MAN). All the population elements make up the sample of this study; hence, a census of the population was done. Purposive sampling technique was adopted in selecting ninety-six (96) respondents for the purpose of data collection. Data collection was done primarily using structured questionnaire. Analysis of data was carried out using descriptive statistics while linear regression and correlation analysis were used in testing the hypotheses. The investigation revealed that a positive linear relationship exists between management accounting information and corporate performance of manufacturing companies in Rivers State and that management accounting information accounts for less than 10% of change in corporate performance (measured using net profit). The study concluded that the performance of a manufacturing company does not substantially depend on management accounting information since the correlation between the two variables is very weak. One of the recommendations made was that management of manufacturing companies should continue to demand management accounting information so as to sustain the positive relationship that has been identified to exist between management accounting information and corporate performance. Biwott (2015) carried out a study on management accounting information and public sector organization. The study adopted cross sectional survey research design and targeted a population of 18 ministries under the national government. Data were collected using primary source and a questionnaire based on five-point Likert scale, oral interviews were also utilized. Qualitative data obtained were examined using both content analysis and SPSS for quantitative data. The research finding revealed that management accounting information supports decision making in an organization. The study

recommended that management accounting information in the public organistion should be critically investigates to promote performance.

Theoretical Framework

Systems theory

System theory was coined in 1940s by Ldwig Von Bertalanffy. The system theory offers solutions to handle complex situations of the input and output flows. It uses theory of communication which helps to evolve a system design capable of handling data inputs, process, and outputs with the least possible noise or distortion in transmitting the information from a source to destination. System theory treats an organization as a system and a system can be either closed or open but most researches treat an organization as open system. Systems theory is a blend of principles, theories and practices of management, information and system giving rise to a single product called Management Information System. Chikere and Nwoka (2015) posited that an open system interacts with its environment by way of input, throughput and output. An organization receives resources such as equipment, natural resources, and the work of employees, referred to inputs. The inputs are transformed, called throughput and then yield products or services called output. Feedback loops provide information to the organization by connecting outputs to the inputs. A negative feedback loop indicates a problem that should be corrected - for instance, the failure of product design indicated by the need to recall the product. A positive feedback loop can identify outputs that have worked well. For example, successful marketing campaign that yields high sales. Thus, feedback loops are a means of confirming success or signalling that correction to the system need to be made.

Contingency Theory

The contingency theory was first proposed by Fiedler in 1964 as managerial leadership theory. According to Fiedler (1964) the contingency theory suggests that there is no one best way of leading and that a leadership style that is effective in one situation may not be successful in others. Gordon and Miller (1976) however laid out the basic framework for considering accounting information systems from a contingency perspective where the accounting information systems also need to be adaptive to the specific decisions being considered within a framework. Contingency theory suggests that an accounting information system need to be adapting to desired specific decisions while considering the environment and organizational structure confronting an organization (Dandago and Rufai, 2014). Applying this to the subject, contingency theory suggests that in order to improve performance, managers of firms must devote particular attention to their use of accounting information system, taking care to adopt the systems best tailored to their special circumstances. There are some criticisms of the Fiedler's contingency theory. However, one of the biggest criticisms of the contingency theory that best relates to the study under review is lack of flexibility (Mitchell, Biglan, Oncken, and Fiedler, 2017). Fiedler (1964) believed that because natural leadership style is fixed, the most effective way to handle situations is to change the leader. The theory does not allow for flexibility in leaders (Mind Tools, 2018). Relating this to the study indicates that managers will incur more cost to change accounting information system that does not tender to their required decision needs rather than carryout modifications.

Agency Theory

The agency theory was championed by Jensen and Meckling in 1976. The agency theory describes theowners' (principals') delegated authority to manager (the agent) to run the firm on his or her behalf with the owners' welfare depending on the manager accordingly (Jensen and Meckling, 1976). The agency theory seeks to address the potential conflict of interests between owners and managers, because the interests of managers may opportunistically utilize firm resources to satisfy their personal interests (Brammer and Millington, 2008). Basically, firms aim to maximize the wealth of shareholders, and it might be different with personal interest of managers. The agent (managers) might have more relevant information compared with shareholders, the information asymmetry occurs, and this would raise the possibilities that agent can behave in ways to pursue their own interests. This review examines the effect

of accounting information system on financial performance of public sectors in Nigeria. The primary purpose of an organisation is to maximize the wealth of shareholders (principals). This solely rests on the shoulders of managers (agents). Therefore, the adoption of accounting information system by managers for enhance performance is fulfilling the agency obligation managers possess for their respective owners.

METHODOLOGY

This study employed the longitudinal research design since the research work assesses the effect of the explanatory variables on the dependent variable. The population of the study comprises of all the twenty-four (24) services firmslisted on the Nigerian Exchange Group before 1st January, 2012 and had been trading till 31st December, 2021. The period covered by the study is ten years from 2012-2021. The study employed census sampling approach, sample of fifteen (15) services firms listed on the Nigerian Exchange Group as at the beginning of 2012 and had traded till 31st December, 2021and whose annual reports were available during the period under study was adopted as the statistical sample for the study.The study used secondary source of data and the data required on the independent, dependent and control variables for the study was obtained from the annual reports of the studied services firms respectively. This study used descriptive and panel regression technique in analyzing the data obtained for the research with the help of E-view-10 package. The proxies that have been used by the study for the output of accounting information system are profit after tax (PTA) and operating expenses (OPE) while financial performance was proxied by the return on capital employed (ROCE). The model is specified based on empirical framework of Ikhatua (2017).

$ROCE_{it} = \beta_0 + \beta_1 PTA + \beta_2 OPE + \beta_3 FZS + e_{it}$……………………………………………..(i)

Where;

ROCE = Return on Capital Employed
PAT = Profit after Tax
OPE = Operating Expenses
FSZ = Firm Size (control variable)

RESULTS AND DISCUSSION

Descriptive Statistics

In order to have glimpse of the data used in the study, a first pass at the data in form of descriptive statistics was carried out. This gives us a good idea of the patterns in the data used for the analysis. The summary statistics is presented in Table 4.1.

Table 4.1: Descriptive Statistics Results

	ROCE	PAT	OPE	FSZ
Mean	0.703131	2.128988	1.610941	0.982567
Median	0.718600	0.167000	1.090500	0.988000
Maximum	1.350000	1.00000	4.500000	1.889000
Minimum	-0.569000	0.000000	0.071000	0.187000
Std. Dev.	0.335418	3.390748	1.437399	0.472628
Skewness	-0.525660	1.530905	0.482285	-0.048457
Kurtosis	3.195311	4.359501	1.809919	1.989508
Jarque-Bera	11.43421	112.2292	23.46689	10.30486
Probability	0.003289	0.000000	0.000008	0.005785
Sum	168.7514	510.9570	386.6258	235.8160
Sum Sq. Dev.	26.88880	2747.824	493.8016	53.38717
Observations	150	150	150	150

Source: E-View 10 Output (2022)

Table 4.1 presents the descriptive statistics onthe management accounting information system andfinancial performance of listed services firms in Nigeriaduring the period of 2012 to 2021. The table shows that return on capital employed (ROCE) has a mean of 0.703131, with a standard deviation of 0.335418 as well as a minimum value of -0.569000and maximum values of 1.350000respectively. Given that the range between the minimum and maximum is not so wide, it implies a stable performance as the standard deviation indicated that there is no wide dispersion of the data from the mean value. For the other measure management accounting information system, profit after tax (PAT), from the table 4.1 shows a mean of value of 2.128988 with standard deviation of 3.390748and a minimum and maximum value of 0.000000and 1.0000respectively. This implies that the management accounting information system in terms of profit after tax witnessed a marginal increase during the study period, as the standard deviation is not so large compared to the mean, together with the low range between the minimum and maximum values. Similarly, the table shows that the operating expenses (OPE) during the period has an average value of 1.61941with standard deviation of 1.437399 and the minimum and maximum values of 0.071000 and 4.500000 respectively. This implies a tremendous increase in the operating expenses value during the study period. Also the mean value for firm size is 0.982567, while the standard deviation also indicates 0.472628. The minimum and maximum value for firm size is 0.187000 and 1.889000 respectively.

The standard deviation values shown on table 4.1 indicate the dispersion or spread in the data series. The higher the value of the standard deviation, the wider the deviation of the series from its mean. Similarly, the smaller the value of the standard deviation, the lower the deviation of the series from its mean. The variable with the highest degree of dispersion from the mean is the firm size with a standard deviation of 0.472628. Skewness which measures the shape of the distribution and equally shows the measure of the symmetry of the data set, indicated that PAT and OPE are all positively skewed and have values greater than zero which suggests that the distribution tails to the right-hand side of the mean, while ROCE and FSZ are negatively skewed, and have values less than zero. Hence, the distribution of two of the variables (PAT and OPE) are positively skewed, considering that their values are greater than zero, in addition to the fact that their mean are greater than their median, while the reverse is the case for ROCE and FSZ. Kurtosis value measures the peakness and flatness of the distribution of the series. If Kurtosis value is less than 3, it means the distribution of the variable is normal, but when it is more than 3, the distribution of the variable is said to be abnormal. Variables with value of kurtosis less than three are called platykurtic (fat or short-tailed) OPE and FSZ, with kurtosis values of 1.809919 and 1.989508 respectively, qualified for this during the study period. On the other hand, variables whose kurtosis values are greater than three are called leptokurtic (slim or long tailed) and the variables; ROCE and PAT qualified for this during the study period with a kurtosis value of 3.195311 and 4.359501.The Jarque-Bera statistic is for testing normality of a variable. If the variable is normally distributed, the histogram will be bell-shaped and as such the Jarque-Bera test of normality is an asymptotic, or large-sample test. Jarque-Bera also measures the difference between the skewness and kurtosis of each of the variables. PAT has the highest Jarque-Bera value of 112.2292, while FSZ has the lowest Jarque-Bera value of 10.30486. With respect to the descriptive statistics, which is based on the raw data and at 5% level of significance, all the variables under study, showed that individually, their P-values are less than 5%, Therefore, the Null Hypotheses (set at 5% level of significance) is hereby rejected and it can be concluded that based on the exhibition of individual characteristics, all the variablesare all statistically significant.

Correlation Analysis

Table 4.2: Correlation Analysis Result

Covariance Analysis: Ordinary
Date: 08/17/22 Time: 15:08
Sample: 2012 2021
Included observations: 150

Correlation Probability	ROCE	PAT	OPE	FSZ
ROCE	1.000000			

PAT	-0.174202	1.000000		
	0.0330	-----		
OPE	0.004719	-0.114308	1.000000	
	0.9543	0.1637	-----	
FSZ	-0.196016	0.360894	-0.372767	1.000000
	0.0162	0.0000	0.0000	-----

Source: E-View 10 Output (2022)

Table 4.2 shows the correlation between the dependent variable, ROCE and the independent variables of PAT, OPE and FSZ and among the independent variables themselves on the other hand. Generally, a high correlation is expected between dependent and independent variables while a low correlation is expected among independent variables. According to Gujarati (2004), a correlation coefficient between two independent variables of 0.80 is considered excessive, and thus certain measures are required to correct that anomaly in the data. From the table, it can be seen that all the correlation coefficients among the independent variables are below 0.80. This point to the absence of possible multicollinearity among the independent variables and the correlation between the variables shows that there is a mix of both positive and negative correlation among the dependent and independent variables.

Diagnostic Test

In order to validate the robustness of the estimates, the Heteroskedasticity test was conducted as a diagnostic check. Heteroskedasticity happens when the standard errors of a variable, monitored over a specific amount of time, are non-constant. Heteroskedasticity is a violation of the assumptions for linear regression modeling, and so it can impact the validity of the result from any analysis while heteroskedasticity does not cause bias in the coefficient estimates, it does make them less precise; lower precision increases the likelihood that the coefficient estimates are further from the correct population value.
*Decision Rule: At 5% level of Significance
Hypothesis:
H_0: No conditional Heteroskedasticity (Residuals are homoskedastic)
H_1: There is conditional Heteroskedasticity

Table 4.3 Heteroskedasticity Test

Panel Cross-section Heteroskedasticity LR Test
Null hypothesis: Residuals are homoscedastic
Equation: UNTITLED
Specification: ROCE C PAT OPE FSZ

	Value	Df	Probability
Likelihood ratio	85.60263	15	0.08171

LR test summary:

	Value	df
Restricted LogL	-1.696899	146
Unrestricted LogL	41.10442	146

Source: E-View 10 Output (2022)

Table 4.3 shows the results of the panel cross-section Heteroskedasticity regression test. The decision rule for the panel cross-section Heteroskedasticity test is stated thus: The null hypothesis of the test states that there is no Heteroskedasticity, while the alternate hypothesis states that there is Heteroskedasticity. The null hypothesis is to be accepted if the P value is greater than 5% level of significance. From the result in table 4.3 above with a ratio value of 85.60263 and a corresponding probability value of 0.08171 which is greater than 5%, the study therefore posits that, there is no reason to reject the null hypothesis, while the alternative hypothesis that states there is conditionalHeteroskedasticity problem is rejected. Consequently, based on the diagnostic probability 0.08171 the null hypothesis is accepted, thus there is no conditional heteroskedasticity, indicating that residuals are homoskedastic and as such the samples give a true reflection of the population.

Fixed Effect Likelihood Ratio Test

The Fixed Effect Likelihood Ratio test is a test for model specification in panel data analysis and this test is employed to choose between pooled effect model and the fixed effects model. Due to the panel nature of the data set, both pooled effect and fixed effect regressions were run (as shown in appendix 4 and 5 as attached). Fixed effect likelihood ratiospecification test was then conducted to choose the preferred model between the pooled effect and the fixed effect regression models. The test basically checked if the error terms were correlated with the regressors. Thus, the decision rule for the fixed effect likelihood ratiospecification is stated thus; at 5% Level of significance:

H_0: Pooled effect is most appropriate for the Panel Regression analysis
H_1: Fixed effect is not appropriate for the Panel Regression analysis

As encapsulated above, if the p-value is greater than 0.05 the decision rule is to reject the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis (meaning that the preferred model is fixed effects). Similarly, if the p-value is less than 0.05 the decision rule is to accept the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis (meaning that the fixed effect model is to be rejected).

Table 4.4: Fixed Effect Likelihood Ratio Result

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	9.759997	(14,132)	0.0000
Cross-section Chi-square	106.585517	14	0.0000

Source: E-View 10 Output (2022)

The result of fixed effect likelihood ratio test shows that chi-square statistics value is 106.585517while the probability values of is 0.0000. This implies that there is enough evidence to reject the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis. It thus stands that error component model (pooled effect) estimator is not appropriate because the pooled effects are probably correlated with one or more regressors. Thus, the most consistent and efficient estimation for the study, given the options of a pooled effect analysis and a fixed effect analysis, is the fixed effect model of regression analysis. Consequently, the result suggests that the fixed effect regression model is most appropriate for the sampled data (given the two options as encapsulated above), because the likelihood ratio test statistics as represented by corresponding probability value is greater than 5%. It is most logical

therefore to proceed to another test which is thelangranger multiplier test, which will show the appropriateness of otherwise of using the pooled effect or random effect model.

Langranger Multiplier Test (Test between Random and Pooled)

Table 4.5 Breusch-Pagan Langranger Multiplier Test

Residual Cross-Section Dependence Test
Null hypothesis: No cross-section dependence (correlation) in residuals
Equation: Untitled
Periods included: 10
Cross-sections included: 15
Total panel observations: 150
Cross-section effects were removed during estimation

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	149.5349	105	0.0028
Pesaran scaled LM	3.073197		0.0021
Bias-corrected scaled LM	2.239863		0.0251
Pesaran CD	-0.894699		0.3709

Source: E-View 10 Output (2022)

Based on the probability value of the Breusch-Pagan Langranger Multiplier Test at 0.0028, the null hypothesis is rejected, thus random effect is most appropriate when compared to pooled effect.

Hausman Specification Test

Table 4.6: HausmanSpecification Test
Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.477457	3	0.0906

Source: E-View 10 Output (2022)

The result of Hausman test shows that chi-square statistics value is 6.477457while the probability values of is 0.0906. This implies that there is enough reason to reject the null hypothesis which states that random effect is most appropriate for the Panel Regression analysis. It thus stands that error component model (random effect) estimator is the most appropriate because the random effects are well correlated with the regressors. Thus, the most consistent and efficient estimation for the study is the random effect cross-sectional model. Consequently, the result suggests that the random effect regression model is most appropriate for the sampled data because the Hausman test statistics as represented by corresponding probability value is greater than 5%.

Test of Research Hypothesis

Table 4.7: Panel Random Effect Regression Result
Dependent Variable: ROCE

Method: Panel EGLS (Cross-section random effects)
Date: 08/17/22 Time: 15:36
Sample: 2012 2021
Periods included: 10
Cross-sections included: 15
Total panel (balanced) observations: 150
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.435236	0.333160	4.307944	0.0000
PAT	3.22E-11	7.97E-10	0.040416	0.9678
OPE	-4.55E-09	1.51E-09	-3.001909	0.0032
FSZ	-0.085441	0.042018	-2.033448	0.0438

Effects Specification		
	S.D.	Rho
Cross-section random	0.182945	0.5002
Idiosyncratic random	0.182867	0.4998

Weighted Statistics			
R-squared	0.572799	Mean dependent var	0.219830
Adjusted R-squared	0.553746	S.D. dependent var	0.190215
S.E. of regression	0.185032	Sum squared resid	4.998596
F-statistic	3.821028	Durbin-Watson stat	1.821711
Prob(F-statistic)	0.011339		

Source: E-View 10 Output (2022)

From the Table 4.7 above, for the random effect result, the coefficient of the intercept is positive. This indicates that at any given point of time where these explanatory variables are held constant, the return on capital employed (financial performance) of the services firms improves by 1.435236. The result presented in the above table revealed that among the explanatory and control variables of the study, operating expenses was found to be negatively significant. In terms of residual test, the model is free from serial correlation, as revealed in table by the Durbin-Watson statistic of 1.82 which is within the acceptable range of 1.7 to 2.7 for a sample of at least 50 observations and the significant Prob(F-statistic) of 0.011339. The individual variable posited that profit after tax has positive and insignificant effect of return on capital employed as indicated by the P-value of 0.9678 indicated that the model null hypothesis is acceptable and the study therefore accept that profit after tax has insignificant effect on the Return on capital employed (ROCE) while the second hypothesis revealed that operating expenses has negative but significant effect on return on capital employed of listed service firms in Nigeria.

Discussion of Findings

The findings of this study contribute to a better understanding on the mix of management accounting information system variable so as to improve the financial performance of listed services firms in Nigeria.Return on capital employed (ROCE) and two other independent variables which represent profit after tax and operating expenses with one control variables which include firm size. All these factors were put to test in order to identify the possible management accounting information systemthat can improve the performance of listed services firms in Nigeria. Coefficient of profit after tax of 3.22 indicates a positive correlation between profit after tax and performance indicator. Also, the p-value of 0.9678

indicates that relationship is not significant at 5% significance level. Thus study implies that profit after tax as a measure of accounting management information doesn't have significant effect on financial performance. This study is in tandem with the study of the Ali et al. (2016) who also found a positive link among the AIS and performance management of the organization. Moreover, the results of the present study also concord with the results of the Ahmad and Al-Shbiel (2019) who also examined the positive association among the performance management and AIS of the organization. The second variable of this study revealed that operating expenses has negative relationship on financial performance of services firms in Nigeria and is statistically significant at 5%. The study congruent the result of Napitupulu (2018) who also found that the effective organizational culture is necessary for better performance management in the presence of management accounting information in the organization. Furthermore, these results are also same as the results of Ameen, et al (2018) who also found that organizational culture plays a supportive role in the attaining the high-performance management with the help of AIS and other accounting information system variables.

CONCLUSION AND RECOMMENDATIONS

The following conclusions are drawn from the findings of the study; this study concluded that profit after tax as a measure of management accounting information system has no significant effect on financial performance while the operating expenses has negative but significant effect on financial performance in Nigeria. This study recommended that the organizations should follow the AIS that enhance the performance management along with the focus on the organizational culture that should be effective and supportive to improve the management of accounting information system in the organization and enhance the firm performance. This study recommended to the management of services firms in Nigeria that they should provide their focus on the accounting information system implementation for the better performance of the organization. This research recommends that management of services firms in Nigeria should make use of automated Accounting Information System (AIS) known as 'Contract Plus – Financial & Project Accounting' package in their Finance Department. This software will generate financial data to be analysed by the accountants and subsequently used by top level of management for strategic decision making, thus, these managers could identify future opportunities and limitations face by the company and industry. In addition, management of the companies should engage those that are computer literate and highly experienced, they should also be trained with latest information technology ascertained competitive effectiveness of the organization.

References

Abdul-kadar, K. & Luther, M. (2016). Management Accounting Practices in the Food and Drink Industries in the UK.*International Journal of Accounting Information Systems*, 4 (11), 12-19

Ali, B., Omar, W. A. W., &Bakar, R. (2016). Accounting Information System (AIS) and organizational performance: Moderating effect of organizational culture. *International Journal of Economics, Commerce and Management*, 4(4), 13-21

Anand, P., Edward, J., & Robert, T. (2014).The association between the use of sophisticated capital accounting and budgeting practices and corporate performance.*The Engineering Economist,* 46, (4), 300311.

Armstrong, M.(2009). Handbook of Performance Management: An Evidence-based Guide, London; Institute of Personnel and Development [6]

Beaver, W. H., &Demski,J. (2011). The nature of financial accounting objectives: A summary and synthesis. *Journal of Accounting Research* 3(3), 170–182.

Bernard, V. (2014). The feltham-ohlson framework: Implications for empiricists. *Contemporary Accounting Research* 4(3), 733-747.

Biwott, M.D. (2015). Management Accounting Information: Its impact on company's growth. *Journal of Information systems*, 1(2),8-9

Chikere, C. C. &Nwoka, J. (2015). The systems theory of management in modern day Organizations: A study of Aldgate Congress Resosrt Ltd. Port-Harcourt.*International Journal of Sceintific and Research Publications* 5 (9), 23-18

Grande, E.U., Estebanez,R.P. &Colomina,C.M. (2012). The impact of accounting information systems (AIS) on performance measures: Empirical evidence in Spanish SMEs. *The International Journal of Digital Accounting Research,* 11(3),25 - 43

Hunton, J. E. (2014). Blending information and communication technology with accounting research, Accounting Horizons,16 (1), 55-67.

Ikhatua, O.J. (2017). Internal Controls: The case of Nyanya Bus Service Corporation, A Masters project submitted to Department of Accountancy, University of Nigeria.

Khurram, E. &Aisha, M.(2014). Budgetary participation and managerial performance: The impact of information and environmental volatility. *Account Review*; 67 (5), 11–26.

Omar, A. & Ali, H. (2018).The role of accounting data in performance evaluation.Empirical research in accounting supplement.*Journal of Accounting Research*, 10, 156–182.

Onaolapo, M and Odetayo H, (2016). Assessing the impact of human resource accounting information on managerial decisions: *A field experiment. Personnel Review*, 17 (3), 29 – 35

Onodi, B. E. (2019). Modern Business and Financial Accounting: Principles & Practice for beginners and undergraduates. Ibadan: Jumak Digital and Publishing.

Robinson L. A., Davis, J. R. & Alderman C. W. (2012). Accounting information systems: A cycle approach (2nd edition). New York: Harper and Row, publishers.

Taiwo, J. N. (2016). Effect of ICT on accounting information system and organisational performance: The application of Information and Communication Technology on Accounting Information System. *European Journal of Business and Social Sciences*, 5(2),154-177

Urquía, G., Pérez, E., & Muñoz, C. (2011). The Impact of Accounting Information Systems (AIS) on performance measures: Empirical evidence in Spanish SMEs. The *International Journal of Digital Accounting Research*, 1(1) 21-26

Impact of ICT Tax Infrastructure on Nigeria's Economic Growth

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Abstract

This study considers the impact of deploying ICT Tax infrastructure in the collection indirect Taxes on economic growth in Nigeria. The Federal Inland Revenue Service in 2015 commenced the adoption of ICT infrastructure in the assessment, collection and accounting of taxes. The Adoption of VATrac and ISDLS has seen an improvement in the collection of VAT and Stamp duty over the years.The objective of the study was to determine whether the deployment of ICT Tax infrastructure had any significant impact in economic growth before and after the deployment. Data for VAT and Stamp duties collection were regressed pre and post adoption using the ordinary least square. Only VAT collection seemed to have a significant impact on gross domestic product (a proxy for economic growth) post implementation. The findings were consistent with several studies that the adoption of technology in tax administration is impactful in economic growth. The fact that Stamp duty did not show any significant impact on economic growth suggests that other variables may also affect growth. Tax administrators are therefore encouraged to invest in the deployment of technology. They are however encouraged to consider other factors like governance, Value for money and return on investment and competency in adopting technology.

Keywords: ICT, Tax Infrastucture, Economic Growth, Nigeria

INTRODUCTION

There is an ever-increasing need by the Nigerian Government to collect much revenue by way of taxes to face the increasing financial expenditures budgeted by the country in the face of dwindling oil revenue. The adoption of technology is key to improving the efficiency and effectiveness of revenue mobilisation. No doubt, the traditional kinds of paper forms always will be an essential part of the tax administration system (UNCTAD, 2012). The Finance Act 2020 finally enables the Federal Inland Revenue Service to deploy proprietary software that would permit it to perform its core functions of collection, accessing and accounting the taxes due to the Federal Government and other relevant agencies of the government. In essence, the FIRS has been enabled by law to automate and integrate automation as part of its administration and collection processes. Section 25 (4) provides that "the service may deploy proprietary technology to automate the tax administration process including tax assessment and information gathering provided it gives 30 days notice to the taxpayer" This provisor, introduced into the principal tax act by the finance Act 2020 is a landmark achievement for the Federal Inland Revenue Service and indeed tax administration in Nigeria. However, this process of automating tax collection started in 2019 with the issuance of a circular to the fact that automation of stamp duties collection would commence. It is a general notion that to eliminate human intervention in any business process, it is best to automate it. Indeed in 2019, the FIRS made its first attempt to integrate automation into the collection Stamp Duties and Value Added Tax (Both Indirect taxes). Initial statistics have shown that automating the Stamp duties and VAT collection has significantly improved its collection. However, has the improvement of VAT collection improved the economic growth in Nigeria?

Economic growth is a function of several factors. John Fleming (1970), identified factors likely to affect economic growth as Human resources, Natural Resources, Capital Formation, Technological Development, and Social and Political Factors. Tax is generally opined to be a contribution to Economic growth. This study, therefore, seeks to establish the impact of indirect taxes automation on economic growth in Nigeria in the short period that Stamp Duties and VAT automation has been introduced to assist collection. The study would also attempt to connect the level of significance of this impact post implementation by considering the relationship between identified variables.

LITERATURE REVIEW

Conceptual Framework

Tax Automation in Nigeria

The adoption of ICT is defined as a collective term for a wide range of software, hardware, telecommunications and information management techniques, applications and devices, that are used to create, produce, analyse, process, package, distribute, receive, retrieve, store, and transform information (Brady et al.,2002). Automation involves the use of control systems and information technologies to lessen the necessity for human work in the production of goods and services Likewise, tax automation bridges the gap between tax officials and taxpayers by minimising the scope for negotiation in tax registration, filing and payments, Thus, a vital strategy for realising efficiency in tax administration. Irefe-Esema&Akinmade, (2020). ICT is used to enhance performance in revenue administrations by reducing human error and processing times, providing readily accessible data for tax officers and promoting voluntary compliance thereby minimising tax evasion and facilitating better decision-making by tax authorities (Efunboade, 2014). E-taxation emerged in the 1980s, within the wider concept of tax automation, to facilitate tax refunds and was first adopted by the Internal Revenue Service (IRS) in the United States of America (USA) - (Irefe-Esema & Akinmade, 2020). The FIRS first introduced electronic taxation in 2015 through E-payment solutions and in alliance with the Nigerian Inter-Bank Settlement System (Irefe-Esema & Akinmade, 2020). The FIRS has over the years, automated some of its other tax processes which include electronic processes and tailored made projects to address specified areas of the tax system.

Taxpayer Identification Number

Taxpayer Identification Number (TIN) Project is an electronic system of tax identification, involving the assignment of a computer-generated unique identifier called “TIN Number” to every taxable person in Nigeria. This project helps in the development of the National Tax Database linking all revenue authorities and major stakeholders in the country. It is presently being overseen by the Joint Tax Board and funded by the Federal Government of Nigeria and States in the country. TIN project is a legitimate and technological way of dragging every taxable Nigerian into the tax net. The TIN registration captures the properties, assets, biodata and biometric details (fingerprints) of the taxpayers to ensure highest accuracy of identity uniqueness. TIN will reduce to the barest minimum the incidence of tax evasion. (Efunboade, 2014)

TaxPro-Max Solution

TaxPro-Max was instituted by the Federal Inland Revenue Service (FIRS), as part of its efforts to modernise tax administration, tax management solutions and facilitate tax compliance in Nigeria. Taxpromax is an inhouse tax administration portal that enables the assessment, collection and accounting of tax collected by the FIRS. (FIRS, 2022) TaxPro-Max becomes the channel for filing tax returns in Naira with effect from June 7, 2021 (Fabian & David, 2021)

VATrac

In a public notice, the FIRS introduced the automated VAT collection system. This they said was to ensure an efficient and seamless collection of the remittance of VAT on all vatable transactions in the wholesale/retail sector and enable direct/reconciliation of all VAT transactions. The automated VAT collection system applies to the following businesses: Branded shops; Superstores; General supermarkets; and Standard restaurants. The effective date of operation of the Automated VAT Platform ("VATrac")

was Wednesday, 1st April 2020. The VATrac thus, become the approved channel for VAT returns filing and payment processing. Businesses in the above categories are therefore mandated to ensure compliance and prompt connectivity with the VATrac. Accordingly, the affected businesses are to liaise with. The FIRS, in their circular, noted that the introduction of the VATrac was to aid the ease of doing business in Nigeria and would not disrupt the daily operations and existing systems of affected businesses, given that the VATrac was initiated to operate side-by-side with any standard Point of Sales(POS)/ fiscal machine (FIRS, 2022). The Service went into partnership with six vendors in its attempt to automate the collection of VAT in Nigeria. They are; Softrust Technologies Limited; Westmetro Limited; Royal Diadem Consults Limited; Infinity Systems Enterprise Limited; E-transact and; Cable and Satellite (FIRS, 2022). The introduction of VATrac demonstrates the FIRS' commitment to leverage technology to improve tax administration in Nigeria. It is anticipated that the use of technology to enforce VAT compliance would ultimately result in increased tax revenue by minimizing leakages, widening the tax net and reducing the cost of administration. (KPMG, 2020)

Integrated Stampduty Portal (ISDLS)

The FIRS introduced the Integrated Stamp duty Portal in 2017 but effective collection of stamp duty became effective after the signing of the Finance Act 2019. The ISDL integrates all stakeholders; Individual and Companies, including ministries, departments and agenciesISDLS provides a profile for designated FIRS technical representatives to manage Integrated Stamp Duty Services processes, which include user account management (creation, account reset, deactivation etc) based on access roles, MDA Profile creation, Stamp Duty Instrument Management (including creation, updates/amendments, deactivation), view details of corporate and individual tax payers information as provided on the system and generate reports for reconciliation (FIRS, 2022). This study is focused on the impact of the VATrac infrastructure and ISDLS on economic growth.

2Value Added Tax

Value Added Tax was first introduced in 1993 to replace the sales taxes operating in some parts of the country especially the western states in Nigeria. The objective of introducing Value Added Tax thereto asides from replacing the sales Tax was to harmonise the collection of indirect Taxes across the entire country. VAT is a consumption tax paid when goods are purchased and services rendered. It is a multi-stage tax borne by the final consumer. All goods and services (produced within or imported into the country) are taxable except those specifically exempted by the VAT Act. It is charged at a rate of 7.5%. Some goods and services such as non-oil exports are zero rated. All taxable persons are required to file VAT monthly returns not later than 21st day following the month of transaction (FIRS, 2022). It was noted by Ogunrinde, (2013), that the deficit inherent in Sales Tax administered by States, Federal Government in 1991 necessitated the setup of a study group to review the entire tax system in Nigeria. This is to make room for efficiency in tax administration and increased revenue to the two lower tiers of government. The value added tax was introduced to make a remarkable shift from direct to indirect taxation The Federal Government takes only 15% of revenue collected and shares the remaining to the states (Ogunrinde, 2013). A general economic idea is that if sales taxes are high enough, people start engaging in widespread tax evading activity (like buying over the Internet, buying at wholesale, buying products through an employer etc.). On the other hand, total VAT rates can rise above 5% without widespread evasion because of the novel collection mechanism (Abdulrazaq, 2012)

Stamp Duties

Ekpenyong et al., (2021) defined stamp duty is a government levy (indirect tax) that is charged on written or electronic transaction documents. Stamp duty is levied on written or electronic transaction documents. The tax is governed by the Stamp Duties Act (SDA) of 1939 and charged as a flat rate or percentage of

the transaction/instrument value, taking the nature of the instrument into cognizance (CITN, 2022). The FIRS assesses and collects duties on documents executed between a company and an individual, group or body of individuals while the FCT and States Internal Revenue Service (IRS) assess and collect duties on documents executed between persons or individuals (FIRS, 2022). Fixed Duties are duties that do not vary with consideration, e.g. duties on payment receipt, proxy forms, guarantor forms, etc. Ad-valorem are Duties that vary with consideration, e.g. duties on Share Capital, Deed of Assignment, Debenture, Bills of Exchange, etc.Duties are paid before documents are executed (FIRS, 2022)

Section 52 of the Finance Act, 2019 amended Section 2 of the Stamp Duty Act, 2004 to extend the meaning of "stamp" to include "an electronic stamp or electronic acknowledgment" for denoting any duty or fee. The provision extended the meaning of "stamped" to include "instruments and materially tagged with electronic stamp or national stamp on an electronic receipt". The meaning of "instruments" is extended to "electronic documents (Ekpenyong et al., 2021). Similarly, Section 54 of the Finance Act, 2019 amended Section 89 (1) of the Stamp Duty Act, 2004 to include "electronic inscription whereby any money" is paid within the meaning of "receipt" for the purpose of stamp duty payment. Section 89 (2) is introduced to provide for "digital tag with electronic stamp or any acknowledgement of duty charged on an electronic transaction" (Ekpenyong et al., 2021). The amendments to the SDA via the Finance Acts 2019 and 2020 still include some grey areas with respect to the practicability of enforcing compliance. It is expected that such issues including the inability to make bulk remittance of stamp duties via the portal will be addressed by the tax administrators (Ekpenyong et al., 2021)

Economic Growth

Economic growth in a country is the measure of its Gross Domestic Product. It is simply an increase in the number of goods and services produced in a country measured over time adjusted for inflation.Van Meerhaeghe defined economic growth as a sustained increase in the net real national product (or income) per inhabitant (vanMeerhaeghe, 2013). According to him, as a general practice, economic growth is not measured against production capacity, as it is very difficult to estimate. Rather, it is measured against national production. He also defined economic growth as 'a sustained increase in the net real national product (or income) per inhabitant.' Nobel Prize winner Paul Romer (n.d) defined Economic growth as an 'increase in the capacity of an economic system to produce services and goods, measured from one period of time to another. In his definition, he emphasised that It may be measured in either nominal or real terms. If measured in real terms, it has to be adjusted for inflation. According to the Professor, Traditionally, aggregate economic growth is measured in gross national Product (GNP) or gross domestic product (GDP), although alternative metrics are sometimes used. This paper would prefer the latter.

John Fleming (1970), in his Report of a Conference at Ditchley Park, discussed 10th - July 13 1970. In his paper, factors likely to affect economic growth are; Human resources, Natural Resources, Capital Formation, Technological Development, and Social and Political Factors In a series of research papers, Associate Professor Diego A. Comin and colleagues investigated the relationship between technology adoption and per capita income. They found that the rate at which nations adopted new tools hundreds of years ago strongly affects whether those nations are rich or poor today (Nobel, 2012) Economic growth is typically measured using Gross Domestic Product (GDP). GDP is the total value of everything produced in the country, including goods and services, (Yashim, 2022, 2)

Empirical Reviews

The adoption of ICT in meeting the many challenges of Tax Administration has been formally researched into and discussed at various foras both in Nigeria and the World at large (Efunboade, 2014). Rogers (1993) explained adoption as a decision to make full use of an innovation as the best course of action. Irefe-Esema&Akinmade, (2020) examined the impact of tax automation on tax compliance in

Nigeria using the tax compliance metrics (registration, filling, reporting and payments) of the Organisation of Economic Community Development. Their paper describes the Nigerian e-tax system as semi-automated, considering that numerous manual processes are involved in the registration, filing, reporting and payment of taxes. Adopting a structured in-depth interview, administered to tax professionals, comprising tax consultants and staff of the Nigerian Federal Inland Revenue Service (FIRS), they found out that automation significantly increased tax registration and payment compliance. However, filing and reporting compliance showed no positive response. Their findings in the paper emphasise the prospect of attaining optimum compliance level in the Nigerian tax system, and a prompt to policymakers and tax authorities (FIRS) to consider implementing full tax automation. Fabian & David, (2021), in a study to determine the relationship between TaxPro-Max and FIRS tax remittance, proxiedTaxPro-Max using online taxes and online returns filing. The study adopted a Survey Design and data were collected using questionnaire survey administered to the staff of Federal Inland Revenue Service (FIRS). Using Friedman's ANOVA, the findings of the study indicate a positive and significant relationship between TaxPro-Max for online taxes, TaxPro-Max for online returns filing and tax remittance by FIRS at 1% and 5% significant level respectively, Thus, concluding that the adoption of TaxProMax enhances internally generated revenue and tax remittance by FIRS.

Allahverd, Alagoz and Ortakapoz (2017) examined the effect of the electronic tax system on tax revenue and costs in Turkey. The study used secondary data from the Turkish tax authority which was examined in two groups, the pre-electronic tax period of 1993-2004 and after the electronic taxation of 2005-2016. The Mann-Whitney U test was used to analyse the data. The research also provided information on the electronic conversion of the tax system and the Turkish tax system. According to the empirical results of the study, the transition to the electronic tax system has had a positive effect on tax revenues and reduced the cost per tax Lai (2008), in an enhanced study, examined the effect of e-filling on revenue generation in Malaysia. The study showed how tax revenue generation contributed to the revenue and gross domestic product of the economy and how tax evasion and avoidance affected revenue generation in Malaysia. Both primary and secondary data sources were used in the study. Using a survey research design, both descriptive and regression analysis of the data were performed. The results of the study showed that taxation makes a significant contribution to gross domestic product (GDP), and tax evasion and avoidance has a significant impact on revenue generation in Malaysia. Ayodeji, (2014) examined the impact of electronic tax systems on tax administration in Nigeria. The aim of this study was to assess the impact of electronic taxation on tax administration in Nigeria. The researcher argued that declining global wealth has drawn the attention of the government and key players in the country to locally generated revenue due to the fall in the price of crude oil, the main source of wealth for Nigeria. But the daunting task of increasing internally generated revenue requires the adoption of electronic tax system technology to advance tax administration in the country. It is a change agent for accelerated growth and poverty reduction in Nigeria and across the African continent as a whole.

Olurankinse and Oladeji, (2018) examined self-assessment, electronic tax payment systems, and revenue generation in Nigeria. The study population comprised 30 companies listed on the Nigerian Stock Exchange. The Pearson Product Moment Correlation Coefficient statistical tool and regression analysis were used to test the hypothesis. The results of the analysis showed a positive and significant relationship between self-assessment and e-tax payment systems and revenue generation. Ogechukwu, (2019) studied the Effect of Taxation on Economic Growth (2007-2017). The specific objectives were to; evaluate the effect of petroleum profit tax on the real gross domestic product of Nigeria, examine the impact of company income tax on the real gross domestic product of Nigeria and determine the impact of custom and excise duty on the real gross domestic product of Nigeria. The study adopted ex-post facto. The study made use of secondary data obtained from the Central Bank of Nigeria Statistical Bulletins for the relevant years. The hypotheses were tested using unit root test and regression analysis statistical tools. The study found that the variables identified all had a significant effect on the gross domestic product of Nigeria. Finally, Chijioke, Leonard, Bossco and Amaefule (2018) examined the impact of e-taxation on

Nigeria's revenue and economic growth utilizing statistical and economic reports on a quarterly basis from the second quarter of 2013 to the fourth quarter of 2016. The data has been divided into two areas: pre-e-tax period and post-e-tax period. The results of the study showed that the introduction of electronic taxation did not improve tax revenue, federal revenue, and the tax rate in Nigeria

Theoretical Framework

Resource Based View Theory (RBV)

The Resource Based View Theory (RBV) was propounded by Barney (1991). It states that the success of a company or government depends on the resources and skills that it controls and that can become a competitive advantage. It signifies an important strategic and organisational routine that is used by the government to change its resource base in order to generate new value-adding strategies. In this study, it is assumed that online tax administration solution (VATrec) is one of the government policies put in place by the Federal Inland Revenue Services (FIRS) in Nigeria to facilitate Value added Tax payment and also improve the revenue generation by the government. The theory stipulates that an organisation that introduces epayments would adequately improve revenue collection for the country.

Neoclassical Growth Theory

Neoclassical growth theory is an economic theory which helps to demostrate how a steady economic growth rate can result from a combination of three driving factors ie, labor, capital, and technology. Robert Solow and Trevor Swan have the credit of developing and introducing the model of long-run economic growth in 1956. The model first considered exogenous population increases to set the growth rate but, in 1957, Solow incorporated technology change into the mode. The theory stipulates that technological change has a major influence on an economy, and economic growth cannot continue without technological advances. The production function of neoclassical growth theory is used to measure the growth and equilibrium of an economy. That function is $Y = AF(K, L)$. This study is theoretically underpinned by the Neoclassical growth theory.

METHODOLOGY

This study is focused on the impact ICT Tax infrastructure has on economic Growth. The study applied secondary data obtained from the Federal Inland Revenue Service Tax data and GDP figures obtained from the National Bureau of Statistics for a period spanning from the first quarter of 2019 to the last quarter of 2021. In analysing the data gathered, Ordinary least square regression was deployed to determine the association between the dependent and independent variable. Each variable was grouped into two explanations; before the deployment of ICT Tax infrastructure (2018 and 2019 quarterly) and after the deployment of ICT Tax infrastructure (2020 and 2021 Quarterly). The following models are specified:

GDPi = C SDiVATi

Where:

GDPi = 8 quarters before the deployment of ICT Tax infrastructure

SDi = Stamp duty collection pre ICT adoption

VATi = VAT collections Pre ICT adoption

GDPii = C SDiiVATii

Where:

GDPii = 8 quarters After the deployment of ICT Tax infrastructure

SDii = Stamp duty collection post ICT adoption

VATii = VAT collections post ICT adoption

RESULT AND DISCUSSION

The variables utilised in this study as determined in the model details are ICT tax infrastructure ieVATrac and ISDLS proxied by VAT collections and Stamp Duty collections. E.views was used to run the regression analysis and the results are presented below.

4.1 Trend Data Analysis of Variables

Year/ Quarter	Stamp Duty	Value Added Tax	Gross Domestic Product
Pre ICT Tax Infrastructure adoption			
2018.1	4.25	269.79	28,682.95
2018.2	2.58	266.73	30,955.30
2018.3	3.63	273.50	33,781.03
2018.4	5.32	298.01	35,667.63
2019.1	3.39	293.04	32,086.12
2019.2	3.72	311.94	35,300.95
2019.3	3.67	275.12	38,222.33
2019.4	7.39	309.88	40,029.72
Post ICT Tax Infrastructure adoption			
2020.1	4.75	324.58	35,969.90
2020.2	62.58	327.20	34,336.89
2020.3	7.26	424.71	39,714.72
2020.4	45.57	454.61	44,230.79
2021.1	7.62	531.04	40,507.68
2021.2	10.11	512.25	39,614.83

2021.3	0.49	500.49	45,850.28
2021.4	21.35	563.72	50,102.69

Table 1 - Collection report Source: Federal Inland Revenue Service Tax quarterly collection Report 2018 – 2021, National Bureau of statistics GDP quarterly report 2018 - 2021

Descriptive Statistics
Table 2 - Descriptive Statistics Pre adoption of ICT Tax infrastructure

Date: 08/17/22
Time: 17:03
Sample: 2018Q1 2019Q4

	GDP	SD	VAT
Mean	34340.75	4.243750	287.2513
Median	34540.99	3.695000	284.0800
Maximum	40029.72	7.390000	311.9400
Minimum	28682.95	2.580000	266.7300
Std. Dev.	3760.362	1.489697	18.25665
Skewness	0.040999	1.228795	0.244046
Kurtosis	2.008998	3.575333	1.434335
Jarque-Bera	0.329603	2.123584	0.896514
Probability	0.848062	0.345836	0.638741
Sum	274726.0	33.95000	2298.010
Sum Sq. Dev.	98982253	15.53439	2333.136
Observations	8	8	8

4.2.2 Table 3 - Descriptive Statistics Post adoption of ICT Tax infrastructure

Date: 08/17/22
Time: 14:56
Sample: 2020Q1 2021Q4

	GDP	SD	VAT
Mean	41290.97	19.96625	454.8250
Median	40111.20	8.865000	477.5500
Maximum	50102.69	62.58000	563.7200
Minimum	34336.89	0.490000	324.5800
Std. Dev.	5205.174	22.34560	90.40277
Skewness	0.333884	1.072672	-0.474790
Kurtosis	2.155257	2.608559	1.817326
Jarque-Bera	0.386501	1.585243	0.766807

Probability	0.824275	0.452657	0.681538
Sum	330327.8	159.7300	3638.600
Sum Sq. Dev.	1.90E+08	3495.281	57208.63
Observations	8	8	8

The Tables 2 and 3 shows the mean, median, their maximum values, minimum values and standard deviation. The result provides insight into the nature of the effect Pre ICT Tax infrastructure.

4.2.3 Table 4 Correlation Matrix of Pre Adoption of ICT Tax infrastructure

Covariance Analysis: Ordinary
Date: 08/17/22 Time: 17:04
Sample: 2018Q1 2019Q4
Included observations: 8

Correlation t-Statistic Probability	GDP	SD	VAT
GDP	1.000000 ----- -----		
SD	0.623846 1.955228 0.0983	1.000000 ----- -----	
VAT	0.587935 1.780352 0.1253	0.600569 1.839840 0.1154	1.000000 ----- -----

Tables 4 and 5 helps to check the relationships between the dependent variables and the independent variables.

Regression Results – Test for Hypothesis
Table 6: OLS regression test result on Pre ICT Tax Adoption

Dependent Variable: GDP
Method: Least Squares
Date: 08/17/22 Time: 14:28
Sample: 2018Q1 2019Q4
Included observations: 8

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10066.71	21981.31	0.457967	0.6662
SD	1069.015	1037.176	1.030698	0.3499
VAT	68.71131	84.63100	0.811893	0.4538

R-squared	0.460330	Mean dependent var	34340.75
Adjusted R-squared	0.244462	S.D. dependent var	3760.362
S.E. of regression	3268.569	Akaike info criterion	19.30209
Sum squared resid	53417732	Schwarz criterion	19.33188

Log likelihood	-74.20836	Hannan-Quinn criter.	19.10116
F-statistic	2.132462	Durbin-Watson stat	1.445694
Prob(F-statistic)	0.213954		

Based on the coefficient value of 1069.015, a T Value of 1.030698 and more importantly a probability value of 0.3499 for stamp duty in table 6, it is safe to assume that there is no significant impact of stamp duty on gross domestic product pre adoption of ICT Tax infrastructure adoption. This is also true for Value added Tax. It is safe to assume that there is no significant impact of vat collection on Gross Domestic Product pre ICT Tax infrastructure with a coefficient of 68.71131, a T value of 0.811893 and a probability value of 0.4538.
This is at a significant level of 5%.

Table 7 OLS regression test result on Post ICT Tax Adoption

Dependent Variable: GDP
Method: Least Squares
Date: 08/17/22 Time: 14:53
Sample: 2020Q1 2021Q4
Included observations: 8

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18747.03	8153.656	2.299218	0.0698
SD	25.06397	66.34662	0.377773	0.7211
VAT	48.46591	16.39944	2.955339	0.0317

R-squared	0.651904	Mean dependent var	41290.97
Adjusted R-squared	0.512665	S.D. dependent var	5205.174
S.E. of regression	3633.700	Akaike info criterion	19.51389
Sum squared resid	66018877	Schwarz criterion	19.54368
Log likelihood	-75.05555	Hannan-Quinn criter.	19.31296
F-statistic	4.681917	Durbin-Watson stat	1.680321
Prob(F-statistic)	0.071491		

Based on the coefficient value of 25.06397, a T Value of 66.34662 and more importantly a probability value of 0.7211 for stamp duty in table 7, it is safe to assume that there is no significant impact of stamp duty on gross domestic product Post adoption of ICT Tax infrastructure adoption.
However for Value added Tax, With a coefficient of 48.46, a T value of 2.96 and more importantly, a Probability value of 0.0317, It is safe to assume that there is a significant impact of vat collection on Gross Domestic Product Post ICT Tax infrastructure This is at a significant level of 5%.

CONCLUSIONS AND RECOMMENDATTION

The findings from various scholars and observation from the writer affirms that the employment of VATrac was indeed robust, ie from the conceptualization to it'sactualization. There is no wonder that the results of the findings shows that there is significant impact on economic growth. The introduction of ICT Tax infrastructure in most tax jurisdiction has seen am improvement in tax collection and in their economic growth. It is thus not far-fetched that Nigeria would experience same.It is contended that ICT is fast substituting paper-based tax reporting systems, promising countless rewards over the old-style method of hard copy tax filing, these systems promise quicker processing, lower cost and amplified efficiency. This was the premise on which this examination was directed to assess the impact of ICT Infrastructure on economic growth in Nigeria. In view of the result of the examination completed, it was

inferred that there is indeed a significant impact that the deployment of VARrac is having on increased income and on economic growth post Implementation. Therefore, government through Federal Inland Revenue Services should work out modalities on the best way to improve its digital transformation strategies and deploy more ICT Taxinfrastructure in the tax value chain.

References

Abdulrazaq, M. T. (2012). *Introduction to VAT in Nigeria* (2nd ed.). Ababa Press Ltd.

Allahverd, Alagoz,,&Ortakapoz. (2017). Effect of e-taxation system on tax revenue and cost in Turkey. *European Journal of Social Sciences*, *9*, 100-150.

Ayodeji, O. E. (2014). Impact of ICT on Tax administration in nigeria. *Computer Engineering and Intelligence Systems*, *5*(8), 26-29.

Boyle, M. J. (n.d.). *Neoclassical Growth Theory Definition - Economics*. Investopedia. Retrieved August 16, 2022, from https://www.investopedia.com/terms/n/neoclassical-growth-theory.asp

Chijioke, N. O., Leonard, I. A., Bosco, E. O., &Amaefula, H. C. (2018). Impact of E-Taxation on Nigeria's revenue and economic growth: A Pre - Post Analysis. *International Journal of Finance and Accounting*, *7*(2), 19 -26.

CITN. (n.d.). *Administration of Stamp Duties in Nigeria Under the Finance Act*. The Chartered Institute of Taxation of Nigeria. Retrieved August 17, 2022, from https://portal.citn.org/administration-of-stamp-duties-in-nigeria-under-the-finance-act/blog/

Efunboade, A. O. (2014). Impact of ICT on Tax Administration in Nigeria. *Computer Engineering and Intelligent Systems*, *5*(8).

Ekpenyong, E., Sanni, S., &Otakpor, J. (2021, November 28). *New Legal Regime On Stamp Duty Charges In Nigeria Under The Finance Act, 2019 - Financial Services - Nigeria*. Mondaq. Retrieved August 17, 2022, from https://www.mondaq.com/nigeria/financial-services/1135682/new-legal-regime-on-stamp-duty-charges-in-nigeria-under-the-finance-act-2019

Fabian, O., & David, S. (2021, December). Effect of Adoption of Taxpro-Max on Firs Tax Remittance in Nigeria. *International Journal of Trend in Scientific Research and Development (IJTSRD)*, *6*(1).

FIRS. (2022). *VAT Automation Programme*. FIRS. Retrieved August 15, 2022, from http://firs.gov.ng/vat-automation-programme/

Irefe-Esema, J., &Akinmade, B. (2020). Automation and Tax Compliance: Empirical Evidence from Nigeria. *American Journal of Theoretical and Applied Business*.

KPMG. (2020, March 24). *KPMG NG | FIRS Automates Value Added Tax Filing and Collection | VAT*. KPMG International. Retrieved August 16, 2022, from https://home.kpmg/ng/en/home/insights/2020/03/firs-automates-value-added-tax-filing-and-collection-system.html

Lai, M. L. (2008). Effect of e-filing on revenue generation in Malaysia. *Journal of Accounting Research*, *46*(5), 1085-1142.

Nwamgbebu, O. E., Nkwede, E., &Chikaodiri, N. (n.d.). Electronic Tax System and Internally generated revenue in the Nigerian emerging economy: The study of Ebonyi state board of internal revenue. *International Journal of Academic Research in Accounting, finance and management Sciences*, *11*(2), 123-149.

Ogechukwu, N. M. (2019, April). The Effect Of Taxation On Economic Growth (2007-2017).

Ogunrinde, S. O. (2013, June 17). *Contentious issues in value added tax Act and administration in Nigeria* [being paper presented at the CITN MPTP at Ibadan]. Ibadan, Nigeria.

Olurankinse, F., &Oladeji, O. E. (2018). Self Assessment, Electronic Taxation Payment system and Revenue Generation in Nigeria. *Accounting and Taxation Review*, *2*(1), 39 - 55.

UNCTAD. (2012). *Entrepreneurship Policy Framework II and Implementation Guidance*. UNCTAD. Retrieved March 30, 2022, from https://unctad.org/system/files/official-document/diaeed2012d1_en.pdf

Van Meerhaeghe, M. A. (2013). Economic Theory: A Critic's Companion. *Springer Netherlands.* https://doi.org/10.1007/978-94-017-1365-8_7

Yashim, C. (2022). *ACC 826 - Advanced Economic Theory* [Lecture Notes on Economic Theory].

Fraud Prevention and Detection in the Digital Age: Prospect and Challenges

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Abstract

It is germane for businesses to keep up with the technological disruption. In this recent period, all businesses depend on computer technologies and the Internet to operate as technological advancementhave presented many practical methods for businesses. In the same vein, the technological advancement of businesses also presents new undue advantages for the criminals, which has led to new types of fraud. It is very essential for all businesses to take actions to detect and prevent fraud.The terms used when referring to economical and operational crimes are fraud, corporate crime or white collar crime. This is because of the nature in which this fraud is perpetrated, especially through illegal acts such as asset misappropriation, money laundering, cybercrime, business misconduct, tax fraud and accounting fraud. Traditional methods to avert and spot fraud seem to be unproductive for new types of fraud in the digital environment. Therefore, new methods should be used to prevent and detect fraud. This paper reviews fraud as a form of cybercrime in the digital era and aims to introduce modern methods that can be used to detect and prevent it.This paper examines the potentials that the new technology used in fraud detection and prevention. We also synchronize the new technology mechanism with the aspect of organizational culture that has proved to be important in fraud prevention. This paper provides an evaluation of modern methods for fraud detection and prevention. The previous research also addssupport and potential guidelines for both future research and business implications.

Keywords: Fraud, Technological Disruption, Organization and Culture, Computer

INTRODUCTION

The terms used when referring to economic crimes are fraud, cybercrime, corporate crime, white collar crime when fraudulent activities occurred. Economic crimes are fraudulent acts perpetrated and carried out by either an individual or a group ofindividuals to gain financial or specialized advantage (O'Brien, 2019). Illegal acts, such asasset misappropriation, business misconduct fraud, money laundering, cybercrime, tax fraudand accounting fraud are looked upon as a major concern, and where an increased threat hasbeenidentified (O'Brien, 2019; PWC, 2019). Fraud emerges when an individual or any association in position of responsibility and obligation intentionally harms another individual or corporate organization. It is a global trend that saves no establishment and economy. Bank fraud is the utilization of illegal means, to acquire cash or resources held or possessed by individual or corporate. All banks have an issue with deceitful borrowers. Although banks are recognized as one of the most regulated segments; it is still a target for charlatans. The increasing fraud rate in banks is a genuine danger to their security, if it is not appropriately checked. The frauds impose several costs to the banks and can be the cause of banking failure. The research area is complex and detail oriented, all focusing on different aspects andincluding different variables in their research scopes. To highlight some, Sima and Satyanarayan (2016) researched the auditors view of how internal fraud isconducted in the present, and Abassi, Albrecht, Vance and Hansen (2012) researched howmeta-learning frameworks would help to detect financial fraud.

Telecommunications companies have long been suffering from criminals. In addition to the financial losses caused by fraudulent activities, companies that are unable of blocking these fraudulent activities will lose their customers as well. However, by developing adaptive and automatic systems it is possible to hinder fraud. Telecommunication fraud is eventuating a tremendous financial loss for companies annually.The financial loss suffered in the telecommunication industry in 2015 is presented below.

<table>
<tr><th colspan="2">FRAUD TYPE</th><th colspan="3">FRAUD LOSS IN BILLION OF DOLLAR</th></tr>
<tr><th></th><th>INTERNATIONAL REVENUE FRAUD</th><th>GLOBALLY</th><th>WESTERN EUROPE</th><th>NORTH AMERICA</th></tr>
<tr><td rowspan="3">FRAUD TYPE</td><td>International Revenue Share Fraud (IRSF)</td><td>10.75</td><td>2.07</td><td>3.21</td></tr>
<tr><td>Interconnect Bypass Fraud</td><td>5.97</td><td>1.15</td><td>1.78</td></tr>
<tr><td>Premium Rate Service Fraud</td><td>3.74</td><td>0.72</td><td>1.12</td></tr>
<tr><td rowspan="7">FRAUD METHOD</td><td>Subscription Fraud</td><td>8.05</td><td>2.4</td><td>1.55</td></tr>
<tr><td>PBX Hacking IP PBX Hacking</td><td>7.47</td><td>2.22</td><td>1.44</td></tr>
<tr><td>Wangiri Fraud</td><td>1.77</td><td>0.53</td><td>0.34</td></tr>
<tr><td>Phishing</td><td>1.57</td><td>0.47</td><td>0.3</td></tr>
<tr><td>Abuse of Service Terms and Condition</td><td>1.17</td><td>0.53</td><td>0.34</td></tr>
<tr><td>SMS Faking or Spoofing</td><td>0.79</td><td>0.23</td><td>0.15</td></tr>
</table>

Source: Journal of Information Systems and Telecommunication, Vol. 7, No. 4, October-December 2019

LITERATURE REVIEW

Fraud

Fraud can be defined as any activity that relies on deception in order to achieve a gain. It is also a misrepresentation of truth or concealment of material facts in order to induce another person. Fraud is an intentional deception to secure unfair or unlawful gain, or to deprive a victim of a legal right. For detecting fraud, a lot of data must be analyzed and for the upcoming fraud, even more data must be evaluated to learn patterns to which firms and individualstend to act. Because of the size of big data, traditional methods for fraud detection can also be considered impractical (West & Bhattacharya; 2014). Developing fraud detection systems is not an easy process and can affect the organizations reputation when done wrong. In the Global Economic Crime and Fraud Survey by PWC from2018, about 34 percent of the respondents said that financial crime technologies produced toomany false positives (PWC 2018). The progress in fraud detection systems and technologiesare still evolving, and with time financial institutions will have more accurate and efficient mechanisms for attacking fraud andfinancialcrimes (SAS 2018). However, according to the PWC survey organizations today have access to a wealth ofinnovative and sophisticated technologies which they can use to defend themselves againstfraud. These technologies help with monitoring, analyzing, learning and predicting human behavior and include machine predictive analytics, machine learning and other artificial intelligence techniques (PWC 2018).

Internal fraud

From the organizations' perspective, internal fraud is fraud committed within the organizations or by the organizations. The risk of fraud internally could be explained by the triangle of fraud developed by Cressy (1953). The triangle of fraud explains the reasons behind the fraud which are divided into three: Incentive or pressure, opportunity and rationalizationare all components in fraudulent activities.

The triangle of fraud could be used for internal fraud risk assessment (Murphy and Free, 2016). Pressures or motivation to commit fraud: This is seen as the situational events in forms of personal satisfaction, fearof failures. For example, sudden overwhelming expenses like medical bill, deliberating addictions.

Opportunities. This is the opportunity to commit fraud as a result of the weak system in place. It is also the opening of situations where fraudulent activities are possible, forexample weaknesses in internal controls within organizations could be one such opportunityevent. Opportunity for fraud can occur why oversight is absent, unenforced, ineffective and unmonitored. Rationalization is the typical personal feature, which includes the willingness for intentional dishonesty and therefore the last component in the triangle of fraud that needs to be present for potentially fraudulent activities to occur (Waymond et al., 2015; Coleman andCressey,1980). It is a reason to justify the fraudulent activities. For an example, if an accountant sees the huge amount being spent to entertain the guest, he may justify that if he takes some money, it would be unnoticed. He can also say, we waste some money, why can I benefit as well. A common type of internal fraud is when management uses its own interpretation infinancial reports (PWC 2018). This to either mislead stakeholders regarding the company'sunderlying financial situation, meeting the capital market's estimates and expectations or incontract negotiations benefit by reporting a more lucrative financial result. This can also becalled earning management (Healy and Wahlen 1999).

Emerging Trend in Fraud Prevention and Detection

Organizations now adays invest more in technology to prevent fraud, since fraud can be abusiness problem which could affect growth and lead to the collapse of any business. Therefore, use of artificial intelligence and machine learning is now a world wide phenomenon and companies in developing territories are investing in these technologies more compared to companies in developed territories (PWC, 2018). The technology is still expensive to buy and to adopt across large organizations as well as for smaller organizations.

Empirical Review

Abbasi, Albrecht, Vance and Hansen (2012) conducted a research paper about how a meta-learning framework will help to detect financial fraud. To evaluate the proposed framework,thousandsof legitimateand fraudulent firmswere investigated (Abbasi et al., 2012). Prior studies suggest that data based on financial statements does not have a high frauddetection rate and because of that the use of ratios and financial statements are incapable ofaccurately identifying financial fraud or at least, that it has a limited capability (Kaminski2004).So, thequestion toask isif meta-learningdo increasethefraud detectionrate. Comparing meta-learning processes with traditional approaches for detecting risks andfraud, Abbasi et al., (2012) found that the Meta-Fraud framework was remarkably effective.The framework was found to improve the performance and the results, therefore using meta-learning methods were confirmed to be more effective compared to traditional approaches,suchas studying financial ratios (Abbasi et al., 2012).

METHODOLOGY

This study adopted the exploratory approach in a bid to assess the prospect and challenges of fraud prevention and detection in a digital age. The data are gathered from secondary sources which include internet/webites of relevant organization both within and outside Nigeria, articles, books and other relevant publications. In addition, the personal experience of the researcher as an experienced auditor and accountant with keen interest on ICT infrastructures relating to audit and also the discussion with colleagues as well as peer to peer discourse with course mates also brought to bear.

RESULT AND DISCUSSION

The paper find out that the Technology may be one of the greatest enablers of fraud, but also, paradoxically, one of the greatest defenses. There is a call for auditors to do more in relation to fraud as part of their audit procedures. Modern technology enables organizations to dig deeper into data to prevent and detect frauds. Analyzing the multitudes of data that an organization produces can be a daunting task. Efficient internal control system: the short and long run effect of instituting a good internal control system in an organization can not be over stressed. A good internal control system will adequately prevent all the three triangle of fraud which was discussed in this paper. Traditional methods for fraud detection have been proved to be ineffective and impractical in considering the volume of data to be analysed. This gives credence to the adoption of technology. The use of sampling method cannot detect fraud successfully.

The use of some technologies such as Artificial Intelligence (AI), Machine Learning, Machine Predictive Analytics, Robotic Process Automation etc can help to monitor, analyze, learn and predict humanbehavior. This is used to guide against fraud that would be committed later on. Fraud risk has been discussed as long as companies have existed and will probably exist as long as firms and people benefit through committing fraud. Since fraud is becoming more sophisticated, devastating and thorough, more advanced and moderntechniques are always needed to fight and predict fraudsters. Prior studies suggest that data based on financial statements does not have a high frauddetection rate and because of that the use of ratios and financial statements are incapable ofaccurately identifying financial fraud or at least, that it has a limited capability (Kaminski2004).So, thequestion toask isif meta-learningdo increasethefraud detectionrate.

CONCLUSION AND RECOMMENDATION

Based on the findings of the study, is concluded that technological advancement with organizational culture have impact in detecting and preventing fraud. The paper intends to connect the aspect of technological advancement with organizational culture in order to reduce internal fraud. The paper highlights that frauds are committed insituations where benefits can be gained. From the company's perspective, frauds are committed by organizations through, for example, asset misappropriation, to gain private benefits as well as keeping the firm competitive. The following are recommended based on the findings and conclusion from the study:

i. Future research should be conducted on the organizational culture and technological development to prevent and detect fraud.
ii. Organization should invest into modern technology in order to detect and prevent fraud which can affect the performance of the company and even lead to the collapse of the business.Artificial Intelligence (AI), Machine Learning, Machine Predictive Analytics, Robotic Process Automation etc can help to monitor, analyze, learn and predict human behavior.
iii. Traditional methods for fraud detection have been proved to be ineffective and impractical in considering the volume of data to be analysed. This gives credence to the adoption of technology. The use of sampling method cannot detect fraud successfully.

References

Abbasi,Albrecht,Vance and Hansen (2012). Meta fraud: A meta-learning framework for detecting financial fraud. *MISQuarterly,*36(4),1293-1327.

American Institute of Certified Public Accountants (AICPA) (2002,October). SAS No.99: Considerations of Fraud in a Financial Statement Audit, AICPA, New York, NY.

Coleman,J.W.,&Cressey,D.R.(1980). *Socialproblems*.NewYork: Prentice Hall.

Cressy, D. R. (1953). *Other people's money: The social psychology of embezzlement*. New York:

DataScience (2017). *Supervised vs.Unsupervised Machine Learning.* Available: https://www.datascience.com/blog/supervised-and-unsupervised-machine-learning-algorithms.Retrieved:08.03.2019.

Dain, C. Donelson, Matthew S. Ege, and John M. McInnis (2017) Internal Control Weaknesses and Financial Reporting Fraud. *A Journal of Practice & Theory*, 36,(3),45-69.

Douglas,P.C.,Davidson,A.,andSchwartz,N.(2001).TheEffectOf OrganizationalCultureandEthicalOrientation on Accountants' EthicalJudgements.*JournalofBusinessEthics*, 34(2),101-121.

Healy&Wahlen(1999).AReviewofTheEarningsManagementLiteratureandItsImplicationsforStandardSetting. *WorkingPaper*.

Kathleen,Sterling&Guan(2004).Canfinancialratiosdetectfraudulentfinancialreporting?.*ManagerialAuditingJournal*, Vol.19(1),15-28.

Kaspar,Jan;Fornasiero,Paolo;Hickey,Neal(2003)."AutomotiveCatalyticConverters:CurrentStatusandSomePerspectives". *CatalysisToday*.**77**(4),419–449.

Mock,Srivastava&Wright(2017).FraudRiskAssessmentUsingtheFraudRiskModelasaDecisionAid. *Journalofemergingtechnologiesin accounting,*14(1),37-56.

Effect of Budget Deficit on Economic Growth in Nigeria

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Abstract

Nigeria like most nations of the world has been consistently operating a deficit budget for the last three decades with its peculiar antecedents, the study probed the effects of budget deficit in Nigeria. Specifically, it seeks to probe the effect of budget deficit on private investment, inflation in relation to the Gross Domestic Product (GDP) in Nigeria by adopting the ADF unit root test and ARDL model, Granger Causality test and the short-run diagnostics and stability using annual time series data covering 10 years from 2010 to 2020. The research findings admitted that, budget deficit have positive and significant impact on economic growth in Nigeria. Therefore, government budget deficit has no crowding out effect on investment. The findings revealed among other things that; there was presence of co-integration (long-run relationship) among the variables in the model, excess public expenditure and public revenue reduction has significant relationship with economic growth of Nigeria, while inflation rate and employment rate does not any positive relationship with economic growth of the country in the long run. The study therefore concluded that there is significant relationship between excess public expenditure and economic growth of Nigeria, depending on the variable of interest. Likewise, the study recommended among other things that government should ensure efficiency and effectiveness in the public financial management due to the insignificant influence of inflation rate on economic growth both in the long run and short run which is a pure indication of poor public financial management in the country. Also, the component governments in Nigeria should reduce it public borrowing as it has a significant inverse effect on the economic growth of the country in the long run

Keywords: Budget Deficit, Inflation, Economic Growth, Sector

INTRODUCTION

Government Budget is a document that presents a governing body's anticipated revenue(taxes and other fees) and proposed expenditure (purchases and transfer payments) for a fiscal year. A budget deficit occurs when a government spends more money than it takes in. The opposite of a budget deficit is a budget surplus. In the last three decades, deficit financing has become a major fiscal tool in the administration of public expenditure in Nigeria. From the middle of the 1980s up to the present, the federal government has consistently overspent its actual revenue accruals and have even borrowed in the pursuit of projects for which she has too little revenue backing. In fact, since the beginning of democratic rule in the current fourth republic, government has increasingly failed to balance its budget with the attendant consequences for price levels, interest rates, inflation and macroeconomic instability. The deficit financing of public expenditure by the Nigerian government is however not a recent issue and that it can be traced to the formative years of Nigeria's public finance in the colonial period. However, unlike the current practice, deficit financing was driven more in the colonial period by the need to build an infrastructure base for the economy rather than the current over bloated recurrent expenditure manifested in the lopsided allocation of the greatest proportion of public revenues to Personnel and maintenance costbudget as it is the practice in Nigeria today. In the last three decades, almost every year except 1995 and 1996 respectively, annual budget of government in Nigeria have been ended in deficits. A deficit policy plays a vital role in assisting countries achieve macroeconomic stability, poverty reduction, income redistribution and sustainable growth. For this reason, most governments use the budget as effective tool in achieving their economic objectives. This means that large and accumulating budget deficit may not necessarily be a bad policy objective if such deficits are effectively utilized to enhance economic growth. It is in line with this that an appropriate operational definition and measure of budget deficit must be clearly stated. Otherwise, the occurrence of large nominal budget deficit may be misleading depending on the operational measure adopted by a particular country. Also, deficits bring about a reduction of loan-able funds that are available to the private sector. Specifically, it will crowd out private investment in the

real sector, private savings, result to low growth and intensive inflationary pressures, current account deficits, real exchange rate appreciation and external debt crisis if the debt is unsustainable.

According to Premchard (1984) budget deficit implies an increase in the supply of government bonds. In order to improve the attractiveness of these bonds the government offers them at a lower price, which leads to higher interest rates. The increase in interest rates discourages the issue of private bonds, private investment and private spending. In turn, this contributes to the financial crowding out of the private sector. Budget deficit arises when the demand for government expenditure far exceeds government revenue that needs to be financed by net lending. For the economy of Nigeria, there has been persistent tendency towards budget deficit since independence as a result of ever-expanding government expenditure, inadequate revenue generation capacity of government and increasing debt levels (Pomeyie, 2001). The development of deficit financing is often traced to adoption of the Keynesian inspired public expenditure which Nigeria adopted to motivate economic performance. Keynes recommended deficit spending to moderate or end a recession. To him, when an economy is recording high unemployment, an increase in government purchases will help a market for business output thereby creating income which through multiplier effect encourages the demand for business output. The policy of deficit spending has however posed challenges to the Nigeria economy with regard to its effectiveness and the accumulation of debt, the justification of growth notwithstanding (Anyanwu &Oaikhenan, 1995; Ogboru, 2006). Persistent deficits were perceived to have adverse effects on the macroeconomic indicators. Various governments having the power to exercise a lot of influence over economic activities and budget deficit being their prominent instrument felt that the deficits have to continue to stimulate the economy. In 1986, the government introduced SAP with the hope that with restructuring of the economy, there would be reduction in the deficit spending. But this appears not to have been achieved as the deficits continue to escalate on yearly basis. The consequences of such deficit spending on many macroeconomic variables cannot be underestimated (Oladipo &Akinbobola, 2011). However, the effect of budget deficit on private investment and economic growth is a controversial issue among Economists. Some argues that it would crowd-in investments while others think it will have crowding-out effects. The critics of budget deficit argue that it will push up interest rates which will consequently crowd-out private investments from productive sectors as many investors will prefer to investment in government bonds at higher interest since it is safer (Checherita& Rother, 2010; Calderon & Fuentes, 2013; Irons & Bivens, 2010). The effect of budget deficit on public investment changes with time. In the shortrun, budget deficit is expected to boost public investment in infrastructures (IMF, 2015), but in the long-run as the debt pile up the interest payments will eat up substantial share of the government expenditure, leaving less money for public investment in infrastructure and education which will eventually hinder economic growth (Alesina, et al., 2018).

The Keynesian economists argue that government should run a large budget deficit in order to stimulate the economy in the short-run especially during recession. However, this short-term perspective has been contended by some economists arguing that the government cannot boost the economy effectively by increasing its spending substantially in such a manner without taking into account some important considerations (Bedard, 2016). The impact of budget deficit through government debts on economic growth depends on how the debt fund is being expended. If the fund is used to finance capital and developmental projects such as transport system, power projects, water supply, human capital development (in terms of quality education, sound health care etc), the productive capacity of the country will be improved and will consequently lead to economic growth especially if the country has a high growth potential (Nimani, 2013). Besides, the returns that would be generated from these infrastructures could be used to service and perhaps, repay the debt. On the other hand, if the public debt is used for recurrent expenditures such as administrative costs, the government would be forced to raise tax rate in the future in order to service the debt. This will not only scare away investors and hinder economic growth, servicing the debt will become a major burden to future generations (Alesina, et al., 2018). Be that as it may, lack of fiscal discipline poses a threat to macroeconomic stability in Nigeria. Thus, large budget deficits overtime is mostly explained as a consequence of corruption ranging from planned

political decision order than the resultant external shock or reactions on prevailing internal economic situation as stipulated by Sheneko (1993); Olomola (2000) and Obadan (2003). In view of the above, the understanding of the effect of budget deficit on economic growth of Nigeria becomes paramount. The rapid development of an economy requires industrialization and for a country to be industrialized there must be reasonable level of investment to boost production. That is why the industrialized nations appear to be most vibrant economically. Budget deficits are meant to accelerate economic activities during depressions through induced variables or aggregates. For a period of time the budget deficit has resulted in economic growth through improved investment capacity and production increase. However, in the last two decades, the economy has been in distress which runs contrary to the essence of deficits. There is an obvious reduction in the standard of living of the citizen and a decline in economic growth in Nigeria. This study is to examined and established the effect of budget deficit on the economic growth in the Nigerian context.

LITERATURE REVIEW

Conceptual Framework

Bugdget

A government budget is a government document presenting the government's proposed revenues and spending for a financial year. The government budget balance, also alternatively referred to as general government balance, public budget balance, or public fiscal balance, is the overall difference between government revenues and spending. A positive balance is called a government budget surplus, and a negative balance is a government budget deficit. A budget is prepared for each level of government (national to local) and takes into account public and social obligations. The government budget balance is further differentiated by closely related terms such as primary balance and structural balance (also known as cyclically-adjusted balance) of the general government. The primary budget balance equals the government budget balance before interest payments. The structural budget balances attempt to adjust for the impacts of the real GDP changes in the national economy.

Budget Deficit

The meaning of "deficit" differs from that of "debt", which is an accumulation of yearly deficits. Deficits occur when a government's expenditures exceed the revenue that it generates. The deficit can be measured with or without the interest payments on the debt. The primary deficit is defined as the difference between current government spending on goods and services and total current revenue from all types of taxes net of transfer payments. Epaphra (2017) defined budget deficit as the extent to which government expenditure exceeds government revenue which needs to be financed. Nwanna and Umeh (2019) defined fiscal deficit as a situation where current expenditure exceeds current expected income. Deficit financing arises each time the government has budget deficit. However, for the economy to grow as planned in a budget, shortfall of revenue resulting from excess expenditure has to be financed by raising fund from other sources available to the government. Deficit financing can be seen as the practice of seeking to stimulate a nation's economy by increasing government expenditures beyond revenue sources (CBN, 2012). This means that deficit financing can be defined to mean financing undertaken by a corporation or government to make up for a shortfall in revenue. Government or corporation may undertake deficit financing in order to provide an economic stimulus.

Economic Growth

Economic growth is the increase in the market value of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Of more importance is the growth of the ratio of GDP to population (GDP per capita), which is also called per capita income. An increase in growth caused by more efficient use of inputs is referred to as intensive growth. GDP growth caused only by increases in inputs such as capital, population or territory is called extensive growth (Schema, 2004).

Empirical Review

According to Omoke and Oruka (2010), who employed Pair Wise Grander Causality Test in an attempt to offer evident on the causal long-term relationship between budget deficit, growth and inflation in Nigeria, considering the broadest definition of money supply, money supple causes budget deficit which means that the level of money supply in the Nigerian economy will determine whether there has been or there will be budget deficits. Inflation and budget deficit revealed a bilateral or feedback causality proving that the changes that occur in inflation could be explain by its own lag and also the lag values of budget deficit and in the same vein, changes that occur in budget deficits are explained by its lagged values and the lagged values of inflation. The implication of their findings is that both budget deficit and inflation could be caused by money, supply meaning that they are both monetary phenomena and also, inflation is also caused and found to be dependent on the performance of the budget. Again, Paiko (2012) posits that prolong budget deficit in Nigeria could be responsible for the low private investment in the country due to its effect on the interest. To confirm this assertion, he conducted a study to assess the effect of budget deficit and government expenditure on private investment. Ezeabasili, Tsegba and Wilson (2012) studied economic growth and fiscal deficits: empirical evidence from Nigeria. They pointed out that there has been considerable debate about the relationship between fiscal deficits and economic growth. Although macroeconomic theory postulates that fiscal deficits stimulate economic growth, empirical research has been less conclusive about this relationship. This paper examines this controversial relationship within the Nigerian context, using data over the period, 1970 — 2006.

Using ordinary least squares regression analysis on data for the period 1980 to 2008, Ojong and Owui (2013) examined the impact of budget deficit financing on the Nigerian economy. It was discovered that deficit financing has not contributed significantly to economic growth in Nigeria. This is because of the negative impact of deficit financing on economic growth during the period under review. Bakare, Adesanya and Bolarinwa (2014) conducted a study on empirical investigation between budget deficit, inflation and money supply in Nigeria. The paper critically investigates the long term relationship between budget deficit, money supply and inflation in Nigeria between 1975 and 2012. The paper employed quantitative methodological framework and specifically draws on econometric technique to find the relationship between inflation rate, growth rate of money supply, growth of budget deficit/GDP and growth of external debt/GDP. Onwe (2014) investigated the implications of deficit financing on economic stability in Nigeria from 1970-2013. The study adopted regression analysis for estimation of data. The result of the study revealed that external source of deficit financing (EXF), non-banking public source of deficit financing (NBPF) and exchange rate have significant and positive effect on economic stability proxy for Gross domestic product (GDP), while Ways and Means Source of deficit financing (WM), Banking system source of deficit financing (BSF) and Interest Rate (INTR) have negative effect on economic stability in Nigeria. The implication is that government deficit financing through External source of deficit financing (EXF) and Non-banking public source of deficit financing (NBPF) will maintain economic stability while Government deficit financing through Banking System Source of Deficit Financing (BSF) and Ways and Means Source of Deficit Financing (WM) will reduce economic growth thereby causing instability in the economy.

In another study, Nwaeke and Korgbeelo (2016) provided empirical evidence on the relationship between deficit financing and selected macroeconomic variables in Nigeria using annual time-series data from 1981-2013 obtained from central Bank of Nigeria (CBN) statistical Bulletin for 2013. The ordinary least squares (OLS) method of the multiple regressions analysis was used to estimate the model. The study examined the sources of financing the overall budget deficits and their impact on the selected variables. Thus, the study identifies External loans (EXT), Domestic Banking System (DBS), Non-Bank Public (NBP) and Other Sources (OS) as the sources of financing budget deficit in Nigeria. The effect of deficits financed from these sources was examined on economic growth (proxied by real GDP; Inflation Rate (INFR) and Unemployment Rate (UNPR). The study reported that deficits financed from external loans have insignificant negative influence on economic growth while deficits financed from domestic sources

(e.g. DBS and NBP) stimulate economic growth in Nigeria. Nwanna and Umeh (2019) employed Ordinary Least Square (OLS) estimation technique coupled with Augmented Dickey Fuller (ADF) unit root test, Johansen Co-integration test and normality test to examine the effect of budget deficit on Nigeria's economic growth between 1981 and 2016. The results indicate that financing budget deficit through external debts has significant negative impact on Nigeria's economic growth while domestic debt has significant positive effect, but debt service has no effect on the economic growth. Therefore, the study suggests that external debts for financing budget deficit must be properly managed by reducing corruption, linkages and wastages in the system.

Theoretical Review

Keynesian Theory

According to Salen (2003) as stated by Wosowie (2013), this group of economists proposed a positive relationship between budget deficit and macroeconomic aggregates. They maintained that budget deficits results to an increase in the domestic production, increases aggregate demand, increases savings and private investment at any given level of interest rate. The main argument against the Keynesian theory suggests that an increase in the budget deficits would induce domestic captivation and thus, import expansion, causing current account deficit. In the mundell-Fleming framework, an increase in the budget deficit would induce an upward pressure on interest rate, causing capital inflows and an appreciation of the exchange rate. That will increase the current account balance. The Keynesian school of thought differs from the standard neoclassical paradigm in two ways; first, the Keynesian school permits that the possibility that some economic resources are unemployed, secondly, they presuppose that existence of large number of liquidity constrained individuals. This assumption guarantees that aggregate consumption is very sensitive to changes in disposable income. Many traditional Keynesians maintained that deficits need not crowd-out private investment. Eisner (1989) reported in Wosowei (2013) argued that increased aggregate demand enhances profitability of private investments and leads to higher level of investment at any given rate of interest. Therefore, deficits may stimulate aggregate savings and investment despite the fact that they raise interest rates. He concludes that evidence abounds that deficits have not crowded out investment; instead there is a crowd-in.

Neoclassical Theory

Bluatia (2010) Argued that neoclassical group of economists proposed an adverse relationship between budget deficits and macroeconomic aggregates. They maintained that budget deficits lead to higher interest rates discourages the issue of private bonds, private investment, private spending and increases inflation level and creates a similar increase in current account deficits and slows the growth rate of the economy through resources crowding-out. This school of thought considers individuals planning their consumption over their entire cycle by shifting taxes to the future generations. Budget deficits increase current consumption by assuring full employment of resources. The neoclassical maintains that increased consumption means a decrease in savings. Interest rate must rise as to bring about equilibrium in the capital market. Higher interest rates in turn bring about a decrease in private investment, domestic production and an increase in the aggregate price level. Yellen (1989) argued that in standard neoclassical macroeconomic models, if resources are fully employed so that output is fixed, higher current consumption means an equal and offsetting reduction in other forms of spending. Therefore, investment or net exports must be "fully crowded-out." It is important at this point to differentiate between "financial" crowding out and "resources" crowding out which occurs when the government competes with the private sector on purchasing certain resources such as skilled labour, raw materials etc. when the government sector expands, the private sector will contract because of the increase in prices of these resources due to an excess demand by the government. This will lead to a fall in investment and consumption by the private sector. Therefore, the government sector's expansion crowds out the private sector; the resources crowding out are an important issue to take into account especially in a developing

country like Nigeria where resources are scarce even sometimes to the private sector. Any excess demand for these resources by the government will severely impinge on private sector productivity.

Ricardian Equivalence Theory

The Ricardian Theory is another model or approach as advanced by Barro (1989) called Ricardian Equivalence Hypothesis (REH). This model suggests that government budget deficits do not affect the total level of demand in an economy. This model was initially proposed by the 19th century economist such as David Ricardo. This theory simply denotes that government may either finance their spending by taxing current taxpayers, or they may borrow money. If funds are borrowed, government must eventually repay this fund by raising taxes above what they would otherwise have been in the future; the choice therefore is between "tax now" and "tax later". David Ricardo argued that although taxpayers would have more money or fund now, they would realize that they would pay higher tax in future and save the extra money in order to pay the future tax. The extra savings by consumers would offset the extra spending by government; therefore, overall demand would remain unchanged.

METHODOLOGY

Secondary annual data was used for this study. In order to examine the effect of budget deficit on economic growth in Nigeria, information from the Central Bank of Nigeria Statistical Bulletin concerning Gross Domestic Product (GDP), Excess Public Expenditure (EPE), Public Revenue Reduction (PRR), Inflation rate (INFR)Unemployment Rate (UMR)covering the the period of years 2010-2020 (10years) was used. Other Secondary Sources of data are relevant articles, journals and newspapers. The following mathematical model was developed to analyze the effect of budget deficit on economic growth in Nigeria using Excess Public Expenditure (EPE), Public Revenue Reduction (PRR), Inflation Rate (INFR), Unemployment Rate (UMR) as the independent variables and regressed against the dependent variable Gross Domestic Product (GDP) used as proxy for Economic Growth. This study employed the model specified below.

$Ylt=\alpha it + \beta 1EPElt + \beta 2PPRlt + \beta 3INFRlt + \beta 4UMRlt + \varepsilon it$..3.1
Where:
Y represents economic growth in Nigeria measured by Gross Domestic Product (GDP) and
α= the constant term
EPE= Excess Public Expenditure
PRR= Public Revenue Reduction
INFR= Inflation Rate
UMR=Unemployment Rate
β= the coefficient of the function,   e = error term.
Since Gross Domestic Product (GDP) is the proxy to be used in measuring economic growth in Nigeria. In this study, the model will be modified as follows:
$GDPit = f(EPElt,PPRlt ,INFRlt,UMRlt)$..3.2
$GDPit = \alpha + \beta 1EPElt + \beta 2PPRlt + \beta 3INFRlt + \beta 4UMRlt +\varepsilon it$.................................3.3

RESULT AND DISCUSSION

The results from the Augmented Dickey-Fuller Test for Unit Root are summarized as follows:

Table 1 ADF Test for Unit Root

VARIABLE	ADF TEST STATISTC	5% CRITICAL VALUE	ORDER OF INTEGRATION
GDP	3.083192	-2,948,404	Stationary at level form 0(1)
EPE	-5.784503	-2.981038	Stationary at level form 0(1)
PRR	-7.754226	-2.967767	Stationary at level form 0(1)

INFR	-5.726747	-2.951125	Stationary at level form 1(1)
UMR	-5.747143	-2.981038	Stationary at level form 0(1)

These results show that at 5% critical value, Gross Domestic Product (GDP), Excess Public Expenditure (EPE), Public Revenue Reduction (PRR) and Unemployment Rate (UMR) are stationary at level form in absolute value, (i.e. they are integrated at order zero; 0(1)) while Inflation Rate (INFR) is not stationary at level form 0(1) i.e., they are not integrated at order zero; 0(1) but The variables are only stationary at 1st difference. That is, they are integrated at order one; I (1). This result is expected, since most macro-economic time-series data are known to exhibit non-stationary at level form.
Since all the variables are not stationary (i.e. at level form), we go further to carry out the cointegration test. The essence is to show that although all the variables are not stationary, the variables have a long term relationship or equilibrium between them. That is, the variables are cointegrated and will not produce a spurious regression.

Evaluation of Regression Result

Table 2: Results of Regression Analysis

Variables	Coefficient	Standard Eroor (S.E)	t*-Statist value	Prob.
Constant (C)	308.9954	19.77089	15.62881 -	0.0000
GDP	-0.080437GDP	0.071814GDP	-1.12007GDP	0.2716
EPE	0.045076EPE	0.033153EPE	-1.359628EPE	0.1841
PRR	+0.005574PRR	0.624806PRR	0.008922PRR	0.9929
INFR	0.07051INFR	0.021337INFR	3.304768INFR	0.0025
UMR	+0.459569UMR	0.227199UMR	2.022764UMR	0.0521

f* = 98.99854
R
2 = 0.942856
Adjusted R2 = 0.933332

Evaluation based on Economic Criteria

The sign and magnitude of each variable coefficient is evaluated against theoretical expectations.The signs of the variable coefficients from the estimated model are in line with a priori expectations. Gross Domestic Product (GDP) and Public Revenue Reduction (PRR) has a negative relationship on economic growth (GDP) while Inflation Rate (INFR), Private Investment (PI) and Private Savings (PS) shows a positive relationship each on Economic Growth (GDP). The constant term is estimated at 308.9954, which means that the model passes through the point 308.9954 Mechanically, if all independent variables were zero, real GDP would be 308.9954 (Gujarati and Sangeetha, 2007). The estimated coefficient for Gross Domestic Product (GDP) is -0.080437, Excess Public Expenditure (EPE) is -0.045076, Public Revenue Reduction (PRR) 0.005574, Inflation Rate (INFR) 0.07051 and Unemployment Rate (UMR) 0.459569. This implies that if we hold all other variables affecting economic growth constant, a ₦1 increase in Excess Public Expenditure will lead to a ₦0.080437 decrease in the GDP. And a ₦1 increase in Public will lead to a ₦0.045076 decrease in the GDP on the average.On the other hand, a ₦1 increase in Inflation will lead to ₦0.005574 decrease in the GDP also a₦1 increase in unemployment rate will lead to ₦0.07051 decrease in GDP and a ₦1 decrease unemployment rate will lead to ₦0.459569

increase.More broadly, Excess Public Expenditure and Public Revenue Reduction has a negative effect on economic growth in Nigeria while Inflation rate and unemployment Rate has negative effect on the economic growth of Nigeria. These variables are relevant to the study because changes in government spending or revenue create changes in fiscal deficits. For instance, rapid increase in government expenditure coupled with shortfalls in tax revenue will persistently create budget deficit.

CONCLUSION AND RECOMMENDATION

The study sought to evaluate the budget deficit in Nigeria between 2010 and 2020. The estimation used operational budget deficit due to the inclusion of real interest payment in primary deficit. This is a good choice since interest payment ultimately limits the deficit finance through growth of accumulated debt. Sustainability analysis requires government to be able to service its debts without large future correction to the budget. This would avoid rolling over initial debts with the interest forever. The unit root tests favoured the stationarity of the variables at 1 percent significance level after first differencing. This means government expenditure and revenue are integrated of order one process. This indicates that approximately 53 percent of disequilibrium is restored every year following shock to the system. This is relatively large indicating greater rate of convergence toward equilibrium. The diagnostic tests showed that government expenditure and revenue of Nigeria exhibits no heteroscedasticity and autocorrelation. It is recommended that efforts should be made to consistently increase government revenue as revenue and expenditure must be stationary and integratedof the same order. Since reduction in government expenditure is not plausible, the tax should be expanded to capture all "taxable" individuals and firms. This would ensure that expenditure do not move too far away from revenue. Any policy to increase expenditure in Nigeria should consider past and present values of government revenue. This is because expenditure and revenue take temporal precedence over each other. From the foregoing, the following recommendations are put forward;

i. Government should focus and direct its expenditure towards the production of goods that will stimulate general productivity in the economy to enhance GDP growth. Attention should focus on the real sectors.
ii. Fiscal discipline should be encouraged and time limits should be set for the realization of goals which would encourage commitment, probity, accountability and transparency by public fund managers.
iii. Mechanisms to ensure that borrowed funds are not diverted to private pockets, embezzled or misappropriated, should be put in place else government should redirect policy towards living within its own means.
iv. Government fiscal policies should focus on the diversification of the economy so as to enhance the performance of the non-oil sector, and to ensure growth in the economy.
v. Government should also ensure a morefriendly tax policy to avoid the crowding out effect it may have on private sector contribution to the growth of the economy. This crowding out of essential investment might have an adverse impact on the long-run economic growth and should be avoided.

References

A. E. Hassan and O. K. D. Okorafor, Monetary Policy and Macroeconomic Stability in Nigeria: Evidence from Error Correction Model. Journal of Economics and Sustainable Development. 4(6), (2013), 147-155.

A. O. Bakare, O. A. Adesanya and S. A. Bolarinwa, Empirical Investigation between Budget Deficit, Inflation and Money Supply in Nigeria. European Journal of Business and Social Sciences, 2(12),

A. S. Okoro, Deficit Financing and Trade Balance in Nigeria. International Journal of Accounting Research, 2(1), (2013), 49-54.

A. S. Taiwo and K. K. Agbatogun, Government Expenditure in Nigeria: A Sine Que Non for Economic Growth and Development. Journal of Research in National Development, 9(2), (2011), 155-162

Efuntade, O.O. (2020). The effect of budget deficit on economic growth in Nigeria. KIU Interdisciplinary Journal of Humanities and Social Sciences, 1(2), 320-334.

Barro, (2012). The Ricardian Approach to Budget Deficits. Journal of Economic Perspective, Vol.3.

Ben, O. and Abu, N. (2010). Do fiscal Deficits Raise Interest Rates in Nigeria? A Vector Auto regression Approach. Journal of Applied Quantitative method.

Bivens, J. (2010). Government debt and economic growth. Economic Policy Institute (EPI) Briefing Paper, 271, 1 - 9.

CBN Annual Report and Statement of Accounts.

Dr. Onwe, Basil UcheEuropean Journal of Accounting, Auditing and Finance Research Vol.2, No.10, pp.122-135, December 2014

Easterly, W. and Fischer S. (2011). The Economic of Government Budget Constraint." The World Bank Observer, Vol. 5, No. 2, July.

Eisner, (2009). Budget Deficits: Rhetoric and Reality. Journal of Economic Perspectives, Vol. 3.

Engen E.M. & Skinner J, (2012). Fiscal Policy and Economic Growth. NBER Working Paper 4223.

Ezeabasili, V.N., Mojekwu, J.N. & Herbert, E.W. (2012). An empirical analysis of fiscal deficits and inflation in Nigeria. CS Canada International Business and Management, 4(1),105-120.

Ezeanyeji, Imoagwu&Ejefobihi (2019). Public Debt and inflation in Nigeria: An econometric analysis. International Journal of Applied Research, 5(3), 219-224

Landau, D. L. (2006). Government and Economic Growth in the Less Developed Countries: An Empirical Study for 1960-88. Economic Development and Cultural Change 35, 35-75.

Effect of Inventory Management on Financial Performance of Listed Food and Beverage Firms in Nigeria

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Abstract

The study examined the effect of inventory management on the Financial performance of listed Food & Beverage firms in Nigeria for the period 2011-2020. The study uses secondary data using published annual reports of Food & Beverage firms in Nigeria. The Statistical package used for data analysis is E-view 9 to test the relationship between the independent Variable ((Inventory Management proxied by Inventory Turnover ratio and inventory Holding Period) and the Dependent Variable (Financial Performance proxied by Return on Asset) There is significant relationship between inventory Management and Financial Performance. Based on the findings, the study recommends Food & Beverage firms to manage their inventories with extra care, identify weaknesses in the managing inventories as the result is positive. All areas that will involve mopping up set-up costs, holding costs, obsolescence, has to be plunged in to minimize cost and maximize profit.

Keywords: Inventory Management, Financial Performance, Inventory Turnover, Return on Asset

INTRODUCTION

Poor Inventory Management creates a chain of problems which include: The study conducted by (Kontus,2014, Ogbodo etal,2017 and Akindipe,2014) realized that loss of sales, shortages, late delivery, loss of customer goodwill and image, failure to satisfy internal customers which affects their operations, excess expenditure and high premium freight costs. All these affect the performance of the supply chain management. These will result in ordering more than what is needed, which creates excess inventory and high obsolescence. Koumanakos (2008) established that firms' rate of returns is significantly affected by the level of inventory held. (Khaled & Hayam 2016) opined that relationship exists between management of inventory and the firm's financial performance. The study established that inventory to sales ratio affects the financial performance negatively on the initial growth stage and the maturity stage; it exerts a positive and significant coefficient on financial performance in either the rapid growth stage or the revival stage. (Further & Kwadwo 2016) investigated effect of efficient management of inventory on profitability of food and beverage firms. The study revealed that a significantly and positive correlation between raw materials inventory management and profitability of food and beverage firms in Ghana. In the words of Okoye et al (2016) effective inventory management enables an organization to meet or to exceed customer expectations of product availability while maximizing net profits and minimizing costs.

Mwangi and Nyambura (2015) further expressed that inventory management comprises of various techniques used to determine the right quantity of an inventory item at the righttime and place. The study further narrated thatinventory management involves the coordinating of materials, availability, controlling, utilizing and procuring of materials which may include raw materials, work-in-progress, finished goods and supplies held by a business organization to facilitate operations in the production process. This was supportedby Amahalu & Ezechukwu 2017 who opined that inventory management as the use of various techniques to optimize levels of all types of stock, raw materials, work-in-progress and finished goods and that managing inventory is a crucial aspect of working capital management especially inventories associated with successful functioning of food and beverage firms. In the words of (Nzewi 2007) inventories are held because of the benefits the firm derives, but there are also some costsassociated with holding them. For this reason, they should be held at optimal levels. That is, at a level where the marginal return is exactly off set by the marginal cost of funds required to finance the increase in inventory Hence the necessity of an effective inventory management technique.

According to International Accounting Standard 2(IAS 2) inventories are assets held for sale in the ordinary course of the business in the process of production for such sale or in the form of materials or supplies to be consumed in the production process or in the rendering of services. It is the stock of products a firm is manufacturing for sales and the components that make up the product. Contemporary inventory management involves the deployment of information and communication technology (ICT) tools in Nigeria. In the word of (Coyle etal 2003,) (Gofwan,2020) and Llambe (2021) ICT is an indispensable tool. In their studies, GIFMIS is used to manage and control inventories by means of many purchases, placingorder and issuances platforms for effective and efficient handling of firms' inventory. The financial performance according to (Lambe,2021), Firms are internet driven and machine driven (artificial intelligence), this contemporary management to consider the new normal and has shifted inventory paradigm in Nigeria. Therefore, the problem is how to balance the supply of inventories with demand. Ideally a firm wants to have enough inventories to satisfy the demand of its productions. On the other hand, it should have much inventoryon hand because of the cost of holing resulting in understocking which may cause the firm to stay off production resulting in poor performance of the organization financially. This therefore creates a relationship between inventory management and financial performance. There is a significant task to an investment manager to decide the right quantity of inventory to keep and estimate the appropriate time to reorder those inventories to eliminate issues such as losses and stock outs of inventories. The ideal quantity a company should purchase to minimize inventory cost, shortages cost and order cost and be able to maximize profit is the problem to be considered. Having much stock of inventory creates cost of holding, however, not having enough results into understocking leading to shortage in production. What quantity should be purchase/ordered so as to reduce these costs and maximize profit? The basic hypothesis underlying this study is stated thus;

$H0_{1:}$ Inventory Turnover has no significance relationship with Return on asset of food & beverage firms.

LITERATURE REVIEW

Conceptual Framework

Inventory Management

Inventory management is an evolutionary concept that every organization deals with. (Stanger etal 2012) opines that inventory performance of a firm can be increased by using six practical lessons which are recruiting experienced staff, understanding target stock levels and patterns of orders, monitoring remaining shelf life, transparency of inventory and keeping procedures as simples as possible. The study further states that management of perishable inventory leads to success of an organization. By having an optimum inventory investment, a company can increase their rate of return and minimize the risk of liquidity and loss of business.(Kontus,2014). Implications of successful inventory management include minimization of inventory and costs while improving profitability. Inventory management of a company depends on the nature of the company and the country in which it operates. In the examination of inventory behavior and its effect on financial performance of OECD countries, (Roumiantsev & Netessine 2007) found that there is a 76% to 95% variation of absolute inventory depending on the country. Vastag and Whybark (2005) study revealed that inventory management measured in terms of inventory turnover is weakly related to the overall company performance. However, inventory management itself cannot be a factor to increase financial performance. In contradiction to that (Leachman, etal 2005) in their study concluded that variations in manufacturing performance is subsequently explained by variation in inventory turnover.Inventory management involves the coordinating of materials availability, controlling, utilizing and procuring of materials which may include raw materials, work-in-progress, finished goods and supplies held by a business organization to facilitate operations in the production process.

Inventory Turnover

It measures the average number of periods a firm's inventory remains in the warehouse prior to sale. The levelof inventory held by a firm will largely depend on the increasing market demand which forces most

businesses to maintain a large inventory so as to meet the production needs and to meet the requirementof the customers. David et al (2000) see inventory turnover is an effective indicator of operational efficiency. It is critical measure of performance in food and beverage industry. Raw materials are the largest element of cost in product which results in a large inventory often required. (Brown and Howard 1975)

Inventory Holding Period

Inventory holding period is a ratio that depicts the number of days for which an organization holds inventory before sales. It shows how many days it takes for inventory to rotate in business. It is key performance indicator for managers to assess liquidity. It measures the ability of a business to manage its assets and how long it takes to convert them into cash or income. It can be calculated by dividing the average inventory by the cost of goods sold per day. The formula is:

Inventory Holding Period = Average Inventory/Cost of goods sold x 365 days.

Inventory holding Period is an efficiency ratio. Efficiency ratios show how a business manages its assets and liabilities. They are important indicator of the ability of the firm to generate cash Inventory holding period is important in this study as it relates to assessing the financial performance of a firm.

Financial Performance

Performance of a firm and its managers are directly impacted by the effectiveness of an inventory management system (Akindipe, 2014). Financial performance refers to how effectively a firm is using its resources to generate sales using their essential enterprise methodssubjectively. (Anshur etal 2018) Financial performance is a measure of how much a company's ability to create profit or revenue which can be viewed from the financial statements. It can be measured using liquidity ratio, profitability ratio, solvency ratio, efficiency ratio, leverage ratio. For profitability ratio there is Return on Investment (ROI) Return on Equity (Pas Christopher & Bryan, 1997). Financial performance is the achievement of the company's financial performance for a certain period covering the collection and allocation of finance measured by capital adequacy, liquidity, solvency, efficiency, leverage and profitability. It is the company's ability to manage and control its resources (Didin, 2018). It is the company's financial condition over a certain period that includes the collection and use of funds measured by several indicators of capital adequacy ratio, liquidity, leverage, solvency, and profitability. Financial performance is the company's ability to manage and control its resources. (Horne etal 2001) Financial Performance is substituted in this study by Return on Asset.

Return on Asset

This indicates how profitable a firm is relative to its total assets. The return on assets (ROA) illustrates how well management is employing the firm's total assets to make a profit. In the words of Ogbodo et al (2017), the higher the return, the more efficient management is in utilizing its asset base Loth (2006) stated that the ROA ratio is calculated by comparing net income to average total assets, and is expressed as a percentage. Since a firm's sole purpose is to generate revenues and make profits, this ratio helps both management and investors to see how well the Firm can convert its investments in assets (inventory management) into profits. (Shaun 2009) Argues that return on asset measures how profitable a firm's assets are utilized to generate profit. A higher ratio is more favorable to investors because it shows that the company is more effectively managing its inventories to produce greater amounts of net income. A positive ROA ratio usually indicates an upward profit trend. Keown (2003) opined that return on assets is one of the most important profitability ratios, it indicates the performance of the management in relation to the resources and assets of the firm. (Brealey,2002) pointed out that return on asset is the product of net profit margin and total asset turnover, The study argues that maximizing return on assets is a common goal and that the attainment of return on asset was influenced by both profitability and efficiency, leading to the development of a system of financial management for all operational decisions within a firm, The

long- term trajectory of return on assets is the best financial metric of a company's health and an indicator of how its decisions play out (Hagel etal,2010)

It can be calculated with the formula: Return on Assets= Net Income/Total Assets

Empirical Framework

Koumanakos (2008) established that firms' rate of returns is significantly affected by the level of inventory held. (Khaled & Hayam 2016) opined that relationship exists between management of inventory and the firm's financial performance. The study established that inventory to sales ratio affects the financial performance negatively on the initial growth stage and the maturity stage; it exerts a positive and significant coefficient on financial performance in either the rapid growth stage or the revival stage. Further and Kwadwo (2016) investigated effect of efficient management of inventory on profitability of food and beverage firms. The study revealed that a significantly and positive correlation between raw materials inventory management and profitability of food and beverage firms in Ghana. In the words of Okoye et al (2016) effective inventory management enables an organization to meet or to exceed customer expectations of product availability while maximizing net profits and minimizing costs. Mwangi and Nyambura (2015) further expressed that inventory management comprises of various techniques used to determine the right quantity of an inventory item at the right time and place. The study further narrated thatinventory management involves the coordinating of materials, availability, controlling, utilizing and procuring of materials which may include raw materials, work-in-progress, finished goods and supplies held by a business organization to facilitate operations in the production process. Eckert (2007) examined inventory management and role it plays in improving customer satisfaction. He found a positive relationship between customer satisfaction and supplier partnerships, education and training of employees, and technology.

Sitienei and Memba 2015) carried out a study on the effects of inventory management on the profitability of the Cement manufacturing firms in Kenya A cross sectional data from 1999 to 2014 was gathered for the analysis. The ordinary least squares (OLS) stated in the form of a multiple regression model was applied in the data analysis to establish the relationship between inventory management and firm's profitability. The variables used include inventory turnover, inventory conversion period, Inventory levels, storage cost, size of firm, gross profit margin, Return on assets and growth of firm. The results provideda negative relationship between inventory turnover, inventory conversion period and storage cost with profitability of the company. In addition, inventory level was found to be directly related to firm's size and storage cost. The study recommended that the Cement-manufacturing firms in Kenya should strive toensure that the right stock is kept in their warehouses to hedge against excessive holding cost and stock-outs. In Greece, Koumanakos (2008) studied the effect of inventory management on firm performance in manufacturing firms operating in three industrial sectors in Greece, food textiles and chemicals were used in the study covering 2000 - 2002 period. The hypothesis that lean inventory management leads to an improvement in a firm's financial performance was tested. The findings suggest that the higher the level of inventories preserved (departing from lean operations) by a firm, the lower the rate of return. In conclusion, most of the studies reviewed concentrated on conventional firm level variables such as inventory levels, demand and lead time. Edwin et al (2016) studied the effect of inventory management on profitability in Kenya on cement manufacturing company. Cross sectional data from 1999 to 2014 was gathered for the analysis. The ordinary least square (OLS) method, stated in the form of a multiple regression model, was applied in the data analysis to establish the relationship between inventory management and the firm's profitability. The results showed a negative relationship between inventory turnover, the inventory conversion period and storage cost with the profitability of the company.

Theoretical Framework

Just In Time Model (JIT)

Lysons & Gillingham (2003) view Just in Time as an inventory control philosophy whose goal is to maintain supply just enough, at the right place at the right time to make just the right amount of the products. The aim is that by limiting production and assembly to what is actually needed, both materials and work in progress inventories can be limited or significantly reduced. Just in Time implies a low or zero inventories and at times it is referred to as stockless buying. However, (Saleem 2004) points out that just in time inventory is only an approach which works to eliminate inventories rather than optimize them. The inventory of raw materials and work in progress fall to that needed in a single day. This is accomplished by reducing set up times and lead times so that small lots may be ordered. Just in Time (JIT) is a strategy that is meant to improve the financial performance of a business by reduction of excess inventory together with associated cost (Shin, Ennis & Spurlin, 2015). The JIT model is based on three crucial principles: waste elimination, continuous improvement in product and service quality and involvement of staff/workers in planning and implementation of the firm's strategies (Obiri-Yeboah, 2015). JIT is a management concept that was invented to specifically help firms in waste avoidance/reduction. JIT encourages waste minimization as well as productivity enhancement.

The elements of JIT include shared product design with suppliers and customers, movement towards single sourcing proximate suppliers, reduced machine set- up times and total preventive maintenance. It is an inventory strategy that is implemented to improve the return on investment of a business by reducing inventory and its associated carrying costs. In order to achieve JIT, the process must have signals of what is going on everywhere within the process. JIT can lead to dramatic improvements in a manufacturing organization's return on investments, quality and efficiency. It emphasizes that production should create items that arrive when needed, neither earlier nor later. Quick communication of the consumption of old stock, which triggers new stock to be ordered, is key to JIT and inventory reduction. This saves warehouse space and costs. The basic philosophy of JIT is that inventory is defined as waste. The technique was first used by Ford Motor company. It was subsequently adopted and publicized by Toyota Motor Corporation of Japan in the 1950s (Lysons & Gillingham, 2003). If JIT is implemented well, it has the potential of enhancing production quality, increase productivity, improve production efficiency and finally reduces wastes and other avoidable costs associated with production (Kootanaee etal2013). JIT help in reduction of inventory levels within a firm. As such, firms end up lowering their investments in inventories. JIT emphasize on having in hand the minimum required quantity of materials for immediate use. As such, inventory holding costs are substantially reduced (Kootanaee etal 2013).

Always Better Control (ABC) Theory

The Pareto principle was proposed by Vilfredo Pareto in 1887. ABC analysis is a categorization technique which is based on Pareto Principle. This principle helps in determination of what items to be given priority in management of a firm's inventory. In ABC analysis inventories are usually categorized to three classes. That is, class A, class B, and finally class C. Management efforts and oversights are expended in management of class A items. Class C items usually get the very least attention from the management while class B items are in-between (Ravinder & Misra, 2014). With the ABC model, products are categorized depending on their importance levels. Importance may be from the amount of cash flows to be generated from a product, stock out cost associated with a product, the products sales volume, profitability and so on. Once categorization is done, breaking points are also decided for each class (Class A, class B and class C) (Obiri-Yeboah etal, 2015). According to Saleem (2004) the ABC is the selective approach popularly known as Always (A) Better (B) Control (C). The ABC analysis goes by its name. It always controls the best, then better and lastly good. Its importance lies in the determination of priority, which enables the management to exercise control over the managed subjects according to priority fixed for a purpose or selective basis. 'A' items call for more careful attention as compared to items in (B) or (C) which may require less careful attention on behalf of Material Managers. The purpose of the ABC inventory classification is to be able to assess the status of every item kept in inventory in addition to determining what specific attention is required by each group of inventory (Banjoko, 2004).

As noted by Fuller (2000), it is possible to utilize the concept of ABC in the formation of rational inventory policy which should give the best possible service level to production while minimizing investment cost. (Saxena 2003) stresses that various studies have shown that only 20% of the items have 80% of the annual inventory consumption and 80% of the items have 20% of annual inventory consumption; this is based on the findings of an Italian static Ian Vilfred Pareto (2004). Fuller (2000) argues that categories of inventories of items should be controlled differently. For class A items, they should be controlled tightly, need accurate recording of receipts and issues, schedules should be constantly reviewed and minimum buffer stocks probably less than 2 weeks. Class B items require moderate level of control, all receipts and issues should be recorded, schedules should be moderately reviewed and later buffer stocks 6-8 weeks. Class C items need lower level of control, there should be minimal recording of receipts and issues, need lower level of schedule and review and need large safety stocks of 12 weeks. ABC analysis is a basic critical management tool that allows management to put much of their effort where returns will be greatest or highest. ABC inventory analysis is beneficial to classify materials based on demand of the items. It also holds good control over finance, since costly items are under close observation under A category. Items in group B have moderate demand and moderate control. Items in-group C are very economic and needs not to be taken care accurately (Priyank & Hemant, 2015). Huller (2003) further asserts that ABC analysis is an important tool to control the inventory investment in an organization. It provides good guidelines for adopting appropriate inventory management. This study is anchored on JIT because it is a strategy meant to improve the financialperformance of a business by reduction of excess inventory together with associated costs and it also encourages waste minimization as well as productivity enhancement.

Stakeholders' Theory

This theory was propounded by Dr. Edward Freeman in 1984.He perceived stakeholders as "those group without whose support the organization would cease to exist" In view the corporate environment as an ecosystem of related groups, all of whom need to be considered and satisfied to keep the company healthy and successful in the long term. This theory is a move away from Milton Friedman's shareholders'theory, where he propagated the idea that the only shareholders the organization should be worried about is the shareholders. The stakeholders' theory attempts to address the question of which group of stakeholders deserve the attention of management. The stakeholder's theory proposes that companies have a social responsibility that requires them to consider the interest of all parties affected by their actions. The original proponents of the stakeholders' theory suggested a restructuring of the theoretical perspective that extends beyond the owner Manage-employee position and recognize the numerous interest groups. (Wicks etal 2004) suggested that "if organizationswant to be effective they will pay attention to all and only those relationships that can affect or be effected by the achievement of the organization's purpose. Therefore, an audit report is not just a pilot document for shareholders only but a compass that all stakeholders can rely on in decision making. The stakeholders' theory is important in this research work as determining an appropriate inventory management will mean factoring in the interest of all stakeholders into the inventory management policy of the firm. Thus an effective and efficient inventory management reflects the interest of stakeholders. This is because any policy that neglects effective management of inventory will result in poor financial performance of industrial goods in the long run which may consequently lead to business failure

METHODOLOGY

This study eamines the effect of inventory management on the financial performance of listed beverage firms in Nigeria. To achieve this purpose, the researcher adopts E-view 9 data analysis on the following model.

$ROA = P_0+P1ITR+P2IHR+\ldots i$

Where: ROA =Return on Asset

ITR= Inventory Turnover Ratio

IHR=Inventory Holding Period

RESULT AND DISCUSSION

TABLE 1: Descriptive Statistics

Date: 08/23/22
Time: 16:13
Sample: 1 10

	ROA	ITR	IHR
Mean	2572.036	4580.025	0.835000
Median	2252.802	4266.653	0.405000
Maximum	4241.769	7240.427	2.230000
Minimum	1536.819	2667.544	0.160000
Std. Dev.	898.5483	1397.720	0.724159
Skewness	0.754851	0.627389	0.747482
Kurtosis	2.295685	2.550374	2.137449
Jarque-Bera	1.156358	0.740263	1.241213
Probability	0.560919	0.690644	0.537618
Sum	25720.36	45800.25	8.350000
Sum Sq. Dev.	7266501.	17582598	4.719650
Observations	10	10	10

Table one above presents the descriptive statistics of the variables employed. Thedescriptive statistics shows the trend and comprehensive evidence about thevariables. The Mean tells us about the average values of the set of the variables ROA has the highest average value of2572.036 whileIHR has the lowest value of 0.835000% The Median tells us about the middle values for each of the variables. ROA has the highest median value of 2252.802 while a IHR has the lowest median value of 0.405000. The maximum and the minimum tell us about the highest and lowest figures for each of the variables ROA hasthe values ranges from 4241.769 to 1536.81 while ITR, IHR has the values ranges from 7240.427 to 2667.544.2.230000and 0.160000 respectively. The standard deviation tells us about the deviation from the sample mean with respect to each of the variables. ROA has the highest standard deviation of 898.5483 while IHR has the lowest standard deviation of 0.724159

Besides, skewness tells us about the distribution of the variables. For normal skewness, the value should not be more than zero. If the value of a variable is more than zero, then the variable is said to be an abnormal distribution. However, based on this, the skewness values of ITR indicated a normal distribution while the skewness values of IHR alsoindicates normal distribution. Kurtosis value measures the peakness and flatness of the distribution of the series. If Kurtosis value is less than 3, it means the distribution of the variable is normal, but when it is more than 3, the distribution of the variable is said to be abnormal. However, based on this, the kurtosis values of ROA indicated normal distribution while the kurtosis value of 2.550374indicated by ITR also normal distribution. jarque-bera measures the difference between the skewness and kurtosis of each of the variables. ITRhas the lowest jarque-bera value of 0.740263 at 5% level of significance, independent variables all showed that the p-values are more than 5%, therefore, the null hypotheses shall be accepted, and conclude that the variables are highly statistically insignificant. i.e the distribution is not a normal distribution. while at 5% level of significance.

TABLE 2: Correlation Analysis

	ROA	ITR	IHR
ROA	1.000000	0.986855	-0.513357
ITR	0.986855	1.000000	-0.395966
IHR	-0.513357	-0.395966	1.000000

The correlation co-efficient presented in Table two indicate that positive relationship exists between ITR and ROA. This relationship is also found to be weak as indicated by the correlation co-efficient value of 0.986855. Correlation was found to exist between IHR and ROA. This was captured by the correlation coefficient value of -0.513357 between the two variables of interest.

TABLE 3: Regression Analysis

Dependent Variable: ROA
Method: Least Squares
Date: 08/23/22 Time: 16:19
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13.46238	133.9571	-0.100498	0.9228
ITR	0.597406	0.024097	24.79128	0.0000
IHR	-180.4045	46.51119	-3.878733	0.0061

R-squared	0.991707	Mean dependent var	2572.036
Adjusted R-squared	0.989337	S.D. dependent var	898.5483
S.E. of regression	92.78556	Akaike info criterion	12.14178
Sum squared resid	60264.12	Schwarz criterion	12.23256
Log likelihood	-57.70892	Hannan-Quinn criter.	12.04220
F-statistic	418.5215	Durbin-Watson stat	2.114990
Prob(F-statistic)	0.000000		

From table above, the coefficient of multiple determinations (R^2) is 0.991707%This indicates that about 99.17 of the total variations in average budgeted expenses is explained by the variations in the independent variables (IT, and IHR), while the remaining 98.93% of the variation in the model is captured by the error term. This indicates that the line of best fit is highly fitted. The standard error test is applied in order to measure the size of the error and determine the degree of confidence in the validity of the estimates. Usually if the standard error is smaller than half the numerical value of the parameter estimate, it can be concluded that the estimate is statistically significant. Having carried out a standard error test on the parameters estimated and as also indicated by their respective probability values, IT and IHR are statistically significant, given that the individual probabilities are 0.0000 and 0.0000 respectively, which is less than 5%. Similarly, when taken collectively the value of F-statistic is 418.5215 and the value of the probability of F-statistic is 0.000000. This result implies that the overall regression is positive and statistically significant at 5%. The coefficient of Inventory turnover (IT) is 0.507400, while that of inventory holding ratio (IHR) is -180.4045. This shows that both ITR and IHR as independent variables. ITR is positively related to ROA while IHR is negatively related to ROA. This shows that an increase in ITR will impact positively on the ROA while a negative change on IHR will also affect the ROA negatively. This result is consistent with 'a priori' expectation which hypothesizes that increase in ITR

and IHR will lead to a significant increase in ROA and the empirical evidence suggests that the relationship between ITR, IHR and ROA is statistically significant. Consequently, when taken collectively and based on the probability (F-Statistics) value of 0.000000 the null hypothesis is hereby rejected.

Test of Hypotheses One

H_{o1}: Inventory Turnover has no significance relationship with Return on asset of food & beverage firms

Given the F-Statistics value of 0.507400 of the Random regression analysis as well as the probability (F-Statistics) value of 0.00000, which is less than 0.05, there is enough evidence to reject the first null hypothesis of the study. In other words, the empirical analysis of the study shows that there is evidence to accept that; there is a significant relationship between Inventory turnover and Return on asset of listed Food and Beverages Firms in Nigeria.

Test of Hypotheses Two

H_{o2}: Inventory Holding Period has no significant effect on Financial performance of food &beverage firms.

Given the F-Statistics value of -180.4045 of the regression analysis as well as the probability (F-Statistics) value of 0.00000, which is less than 0.05, there is enough evidence to reject the second null hypothesis of the study. In other words, the empirical analysis of the study shows that there is evidence to accept that; there is a significant relationship between Inventory Holding Period and Financial Performance of listed food & Beverage Firms in Nigeria.

Discussion of Findings

Primary objective of inventory management is to minimize shortage of inventory be it non availability of inventories, inventory carrying cost obsolescence losses. Achieving of these objectives will result in more on return capital, which is materially, the prime objective of an organization whether commercial or industrial. it wouldn't be possible for an enterprise to maintain a reasonable profit margin if it had a poor inventory management system in the place. Inventory management is a crucial part of a firm because mismanagement of inventory threatens a firm's viability such as too much inventory consumes physical space, creates financial burden, and increases the possibility of damage, spoilage and lossThe estimates from the regression analysis recognize the level of significance, the inventory turnover ratio reflects the significant effect on the financial performance of the firms while the test shows that the return on asset has a boost when ever

CONCLUSION AND SUMMARY

From the analysis carried out, the following conclusion can be made. Inventory Turnover has relationship with Financial Performance. From the empirical analysis of the research, the (F-Statistics) value of 0.0000 is less than 0.05% which is enough evidence to reject the null-hypothesis, this shows that the relationship between Inventory Management and financial Performance is significant. The study found out that the inventory management has significant effect on return on Asset of Food & beverage firms in Nigeria. The Financial performance can be enhanced as the inventory is well managed.
Food & Beverage Firms are to ensure adequate management of their inventory as it is one of the keys to positive financial performance.

References

Akindipe, O. (2014). Inventory Management - A Tool for Optimal Use of Resources and Overall Efficiency in Manufacturing Smes. *Journal of Entrepreneurship Management and Innovation 10* (4).

Amahalu, N.N., Ezechukwu, B. O., & Obi, J.C. (2017).Corporate social responsibility and financial performance of quoted deposit money banks in Nigeria. *Asian Journal of Science and Technology, 08(12), 7183-7191.*

Amahalu, N.N., Nweze, C.L., & Obi, J.C. (2017). Effect of backflush accounting on financial performance of quoted food and beverage firms in Nigeria. *EPH - International Journal of Medical and Health Science, 2(3), 58-80*

Amahalu N.N., Abiahu, Mary-F.C., Obi, J.C., & Nweze, C.L. (2018). Effect of accounting information on market share price of selected firms listed on Nigeria stock exchange. *International Journal of Recent Advances in Multidisciplinary Research* 05(01), 33663374.

Bearley,R. A & Myers. S (2002) Principles of Corporate Finance,Seventh Edition New York,Macgraw Hill.

Edwin, S., & Florence, M. (2015). The effect of inventory management of profitability of cement manufacturing companies in Kenya. *International journal of management and commerce innovations, 3(2).*

Hagel, J. Brown J.S & Davison, L (2010). The Best Way to Measure Company Performance, *Harvard Business 4(6) 56-40*

Keown, A J 2003,Foundation of Finance: The Logic and Practice of financial management. 4th Edition, Pearson Education,New Jersey, USA.

Leachman, C., Pegels, C., & Shin, S. K. (2005). Manufacturing Performance: Evaluation And Determinants. International Journal of Operations & Production Management, 25 (9) Pp. 851 874.

Mwangi, W., & Nyambura , M. T. (2015). The Role of Inventory Management on Performance of Food Processing Companies: A Case Study of Crown Foods Limited Kenya. *European Journal of Business and Social Science*

Nzewi, U.C, (2007). *Financial management.* Onitsha, Noben press ltd.

Ogbodo, O.C., Amahalu, N.N., & Abiahu, M-F.C. (2017). Effect of intellectual capital on financial performance of quoted deposit money banks in Nigeria. *Journal of Global Accounting,* 5(1), 114 125.

Okoye, E.I., Amahalu, N.N., Nweze, C.L., & Obi J.C. (2016). Effect of financial leverage on dividend policy of quoted conglomerates. *Managing diversification for sustainable development in sub saharan Africa, Faculty of Management Sciences, 2016 International Conference, 8-10, November, 2016.*

Okoye, P.V.C., Amahalu, N.N., Nweze, C.L., & Obi J.C. (2016). Cash flow statement and liquidity: Empirical evidence from quoted banks in Nigeria. *Managing diversification for sustainable development in sub-saharan Africa,Faculty of Management*

Sitienei, E., & Memba, F. (2015). The Effect of Inventory Management on Profitability of Cement Manufacturing Companies in Kenya: A Case Study of Listed Cement Manufacturing Companies in Keny. *International Journal of Management and Commerce Innovations*.

Stanger, S. H., Wilding, R., Yates, N., & Cotton, S. (2012). What Drives Perishable Inventory Management Performance? Lessons Learnt From The UK Blood Supply Chain. *Supply Chain Management: An International Journal.*

Effect of Board Characteristics on Earnings Management of Listed Manufacturing Firms in Nigeria

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Abstract

This study examines the effect of board characteristics on earnings management of listed manufacturing firms in Nigeria. This study adopts expo facto research design. The study proxies board characteristics with board independence, board size, board meetings and board gender diversity. While earnings management is measured with discretionary accruals. The population of the study is thirty-eight (38) listed manufacturing companies on the Nigerian Exchange Group as at 2020. The study employed filtering sampling technique to arrive at the sample size of thirty-four (34) listed manufacturing companies. Secondary data were collected from the Annual financial reports and accounts of the companies for the period of ten (10) years ranging from 2011–2020. Panel regression analysis was used to analyze the hypotheses with reference to Hausman test to determine whether to use fixed or random effect. Based on Hausman test, fixed effect regression was adopted for the study. It was found that board meetings, board size and board gender diversity have significant positive effect on discretional accruals, while board independence have insignificant negative effect on discretional accruals. The study concludes that that board number of meetings, board size, and board gender diversity have significant positive effect on earnings management, while board independence has insignificant negative effect on earnings management of listed manufacturing firms in Nigeria. The study recommends that board size and board meetings should be reduced by listed manufacturing firms in Nigeria. In addition, the number of outside independent board members should be increased by listed manufacturing firms in Nigeria. Lastly, board members should be selected based on their knowledge of accounting and finance and not based on gender consideration.

Keywords: Board Gender Diversity, Board Independence, Board Meetings, Board Size, Earnings Management

INTRODUCTION

The integrity of financial disclosure has been an issue of constant concern among regulators, financial analyst and accounting practitioners; especially after the series of high-profile accounting scandals and frauds involving well-known firms such as Worldcom and Enron (US) and One Tel (Australia), Nortel (Canada), Parmalat (Italy) and Transmile Group Berhad (Malaysia), Oceanic bank, Intercontinental bank, Afribank and Cadbury in Nigeria. For firms in Nigeria, poor corporate governance practice have been cited as one of the causes of the corporate collapses noticed among firms in Nigeria (Adeyemi &Fagbemi, 2010). However, earnings management basically occurs when managers use personal opinion in reporting financial information and in structuring accounting transactions to alter financial reports to either mislead stakeholders on the original economic performance of the company or to manipulate contractual outcomes that depend on reported accounting numbers. Thus, the very nature of accounting accruals gives managers a great deal of discretion in determining the earnings a firm reports in any given period because of the information asymmetry relationship that exist between managers and owners (Uwuigbe, Daramola & Oyeniyi, 2014). Managers can manipulate earnings in order to maximize their own interests or to signal their private information, thus influencing the informativeness of earnings (Gul, Srinidhi &Tsui, 2003). Nevertheless, in an environment characterized by imperfect information, a variance in the interest between management and shareholders can lead to sub-optimal management decisions. Such decisions are possible because the actions of managers are largely unobservable and the goals of the managers and their shareholders are not necessarily aligned. Managers are posited to opportunistically manage earnings to maximize their utility at the expense of other stakeholders.

Corporate governance is the set of processes used in conducting and controlling the company has become a subject of an active debate. One of its important determinants that attracted a lot of attention is the board

of directors which is viewed as the "apex body" of corporate governance. It is responsible for monitoring the managers on behalf of the shareholders and overseeing financial reporting process by companies. Therefore, the board of directors should play a role in restraining earnings management. Literature shows that most of the studies (Fodio, Ibikunle& Oba, 2013; Uwallomwa, Daramola &Anjolaoluwa, 2014; Egbunike, Ezelibe&Aroh, 2015; Hussaini&Gugong, 2015; Idris, 2015; Awaisu& Rabiu, 2015; Imoleayo, Eddy, Dick, Egbide& Olamide, 2016) conducted are on insurance, Food and Beverages and Consumer Goods industry in Nigeria, non is on manufacturing industry in Nigeria. Their results were also mixed which re-emphasize the need to reexamine the effect of board characteristics on earnings management of listed manufacturing firms in Nigeria considering the importance of the manufacturing industry in the development of Nigeria. The major objective of this study is to examine the effect of board characteristics on earnings management of listed manufacturing firms in Nigeria.

LITERATURE REVIEW

Board Characteristics

According to Fama and Jensen (1983), board of directors is the main decision makers in the firms. Previous studies have emphasized that board characteristics such as, board size, board independence, board multiple directorships, board experience, board gender diversity, and meeting frequency influence the performance of the firm. Hermalin and Weisbach (2012) argue that boards do not exist only to satisfy legal requirements because if so, their composition would also be legally demanded, whereas in practice, different compositions are observed. The authors argue that if board composition were merely the result of laws, somewhere in the world, there would be a lobby to eliminate any requirements.

Board Independence

According to Alzoubi and Selamat (2012), a board comprising non-executive directors has responsibility to control and monitor management, thus, helps in reducing agency cost and improves financial reporting quality (Fama& Jensen, 1983). Moreover, independent directors do not seek self-interests and control managerial activities. Likewise, they strengthen the firm's earnings quality in terms of earnings predictability and earnings persistency. Additionally, a higher proportion of independent board members encounters a lower earnings management incidence and can decrease the chance of financial information fraud (Roodposhti&Chashmi, 2011).

Board Size

Board size is significant for effective decisions making and has a nonlinear relationship with firm performances (Vafeas, 2005). According to Lipton and Lorsch (1992), the best board size should not exceed eight or nine directors, more than that number leads to a decrease in board effectiveness due to the process and coordination problem. Likewise, Fodio et al. (2013) revealed that small boards are more effective because the directors can communicate better among them, as well as easy to manage. A small board gives better financial reporting supervision because it is less bureaucratic and is linked with higher market values (Iraya et al., 2015).

Board Meetings

The levels of board interaction and activities have influence on earnings management. Boards that normally meet often are more likely to solve the problems of the company effectively (Lipton & Lorsch, 1992). Lawler and Conger (2001) suggest that number of times a board meets is an important resource in improving the effectiveness of the board. Directors on board that meet frequently are more likely to discharge their duties in accordance with shareholders interest because more time can be devoted to monitoring issues such as earnings management, conflict of interest and monitoring management.

Board Gender Diversity

Board gender diversity is simply defined as the proportion of women on the board. The Board of Directors' gender diversity measure by the percentage of females in the Board to the Board's total size. Gender diversity is having the presence of females on the Board. Board gender diversity is a significant aspect of the board; it is defined as the presence of female directors on the board of directors of corporations. The concept of board diversity suggests that companies' boards should be designed in a way to reflect the structure of the society with an appropriate representation of gender (Daily & Dalton, 2003). Women and men have different social backgrounds; the gender diversity of the board has been considered an important dimension of the board of directors that can influence the extent of environmental information disclosure.

Earnings Management

Earnings management can be defined as the adjustment of a firms' reported economic performance by insiders either to mislead some stakeholders or to influence contractual outcomes. Earnings management is more informative and trustworthy if they are followed by a good governing system. Earnings management, unlike fraud, involves the selection of accounting procedures and estimates that conform to generally accepted accounting principles (GAAP). That is, any firms that have earnings management would be manifested within the bounds of accepted accounting procedure manipulation (AbdulRahman& Ali 2007). Earnings Management assumes various terminologies: creative accounting, financial re-engineering, and accounting magic. Schipper (1989) defines earnings management as disclosure management in the sense of purposefully intervention in the external reporting process, with the intent of obtaining some private gain.

Empirical Review

Norman, Takiah and Mohammed (2005) assessed the effectiveness of some board characteristics to monitor management behaviour with respect to their incentives to manage earnings. The result showed the ratio of independent board members is not significantly related to earnings management in firms with duality status. While, Younes, Saeed and Amin (2011) examined the influence of the board of directors' combination on earnings management for a panel of 480 observations from 2001 to 2008 in Iranian company. It failed to get statistically significant relationship between board size and board independence with earnings management. Rahnamay and Nabavi (2011) examined the association between corporate governance internal mechanisms and earnings management. The population used in this study comprised of firms listed on the Tehran Stock Exchange between 2004 and 2008, the sample comprises 196 firms. The study found that firms with higher ownership concentration and board independence manage earnings less. The study of Awais and Wang (2011) investigated the efficiency of corporate governance characteristics in reducing earnings management among the listed firms of Shanghai and Shenzhen stock exchange, China. The sample comprised of 1009 firms over the period of 4 years from 2002 to 2006. The study lacked evidences to find relationship between board size, director's shareholdings and proportion of independent directors with DAC. Fodio, Ibikunle and Oba (2013) investigated the effect of corporate governance mechanisms on reported earnings quality of listed Insurance companies in Nigeria. The study used twenty five (25) quoted insurance firms during the period 2007-2010. Multiple linear regressions results found that board size, board independence and audit committee size are negatively and significantly associated with earnings management. The study of Luciana and Alfredo (2014) investigated the effects of the board's structural and compositional characteristics on the quality of accounting information of companies listed on the Brazilian Securities. The results revealed that board independence positively influence the quality of reported accounting information. Earnings informativeness is positively affected by board independence and negatively affected by larger board size, especially regarding board independence.

Uwuigbe, Daramola and Anjolaoluwa (2014) examined the effects of corporate governance mechanism on earnings management in Nigeria. Findings from the study revealed that while board size and board

independence have a significant negative impact on earnings management. The study of Egbunike, Ezelibe and Aroh (2015) examined the influence of corporate governance and earnings management practices in Nigerian quoted companies. The findings showed that board size, firm size, board independence, and strength of the audit committee have significant influence on earnings management practices among Nigerian quoted companies. Hussaini and Gugong (2015) examined the influence of board characteristics on earnings management of listed food and beverages firms in Nigeria. The study covered the period of six years 2009 to 2014. The analysis revealed an inverse relationship between board size, board meetings and board financial expertise, and earnings management of listed food and beverages firms in Nigeria, while board composition and women directorship are positively significantly related to earnings management of listed food and beverages firms in Nigeria. The work of Kothari, Lenon and Wesley (2005) employed performance adjusted discretionary accrual model to measure the earnings management by using the discretionary accruals. Findings revealed that there is a significant relationship between board size, board composition, board financial expertise and board meetings and earnings management of the firms. Daghsni, Zouhayer and Mbarek (2016) examined the effect of board size, independence, CEO duality and its activity on earnings management in companies listed on the SBF 250. Based on a sample of 70 French listed companies over the period of 4 years from 2008 to 2012, it found that earnings management is negatively associated with board size. Moreover, the board activity is found to have a positive relation with the earnings management. The study found no effect of the board independence on the earnings management. Nguyen (2016) investigated the extent whether board of directors and ownership characteristics are related to earnings management in Vietnamese context. Based on sample of 570 non financial listed firms from 2010 to 2014, the study found that board with higher percentage of non-executive directors and concentrated ownership might not have any effect on earnings management. While Imoleayo et al. (2016)evaluated the role board structure plays in curtailing earnings management practices in Nigerian companies. It sampled the data of 137 quoted companies in Nigeria for a period of 8 years (2003-2010). The study showed that there is a negative significant relationship between board size, gender, and board composition with earnings management; also, there is a positive significant relationship between board meeting and earnings management practices in Nigeria.

Bernardus and Umanto (2011) assessed the effect of board characteristics on earning management in companies listed in the Indonesian Stock Exchange during the 2004-2008 period. It is discovered that the independent board of directors, board size, managerial ownership, board composition/multiple directorships, board tenure, and audit committee do not affect earning management practices. AbdulRauf, Johari, Buniamin and AbdRahman (2012) examined the impact of company and board characteristics on earnings management practices among Malaysian public listed companies. The study used regression analysis to analyze the data. The results, however, indicated that board size and board race do not influence the practice of earnings management. Idris (2015) investigated the impacts of board competency, frequency of board meetings and gender mix on earnings management of listed foods and beverages firms in Nigeria from 2007 to 2013. The results revealed that board competency has no significant impact on earnings management. The impact of frequency of board meetings and gender mix on earnings management were however found to be negative and statistically significant. Abbadi, Hijazi and Al-Rahahleh (2016) investigated the effect of corporate governance quality on earnings management in Jordan. Using a panel data set of all industrial and service firms listed on Amman Stock Exchange during the period 2009-2013. In particular; the results showed that earnings management is affected negatively by overall categories of governance index represented by board of director, board meeting. The work of Yulius and Arya (2016) examined the effect of corporate governance on real earnings management for the period 2011 to 2014. The results showed that the audit committee meetings, board of directors, institutional ownership affect the real earnings management. The board of directors is an internal party company who know the company's operations. Awais and Wang (2011) investigated the efficiency of corporate governance characteristics in reducing earnings management among the listed firms of Shanghai and Shenzhen stock exchange, China from 2002 to 2006. The study found a significantly positive association between earning management and different corporate governance

characteristics such as board meetings, females directors and concentrated ownership. The study lacked evidences to find relationship between board size, director's shareholdings and proportion of independent directors with DACC as well as between the presence of audit committee and DACC. Abubakar (2017) examined the relationship between board attributes and real earnings management of listed Nigerian financial institutions. Data were collected from 45 financial institutions quoted on the NSE from 2011 to 2016. For analysis purpose, the Panel Corrected Standard Errors (PCSEs) regression was utilized. The regression result shows that board meeting and board expertise have a significant positive impact on real earnings management, whereas, female directors has a significant negative influence on real earnings management.

Theoretical Framework

Agency Theory

Jensen and Meckling (1976) define the agency theory as the relationship between the agent (management of a business) and the principal (shareholders). In an agency relationship there is an employment agreement (contract) where one or more persons (the principal) govern another person (the agent) to perform a service on behalf of the principal and authorized agent to make the best decisions for the principal. In the agency theory, described relations within the company between the shareholders of the company (as the principal) and the management of the company (as agent). Agency theory that began to develop refers to the fulfillment of the main goal of management is to maximize shareholder value. Agency theory states that between management and owners have different interests (Jensen &Meckling, 1976). Agency conflict arises when the management of a company apart from its ownership. Principals give authority to the board of commissioners and directors for the care of the running of the company and make decisions on behalf of the owner. With its authority, then the manager is not likely to act in the best interests of the owners for their differences of interests. Manager wants contractual fee as a means of fulfilling the needs of economic and psychological, otherwise the owner is motivated to contract with agencies to maximize the return to add to well-being. In other words, management has different interests with the principals.

Agency conflict is exacerbated by the problem of information asymmetry (Lopes &Fracolli, 2008). According to the study, accounting can contribute to a company's corporate governance mechanisms by providing useful information to decision makers and therefore reducing information asymmetry and the impact of agency conflicts. This study is based on agency theory, the theoretical framework most often used by researchers to understand the relationship between board characteristics and earnings management (Carter, Simkins & Simpson, 2003). In this sense, the corporate governance framework of which the board of directors is a part, serves as an effective tool in meeting the expectations and needs of the shareholders. Board of directors may provide better monitoring of management leading to transparent and reliable reporting.

METHODOLOGY

This study adopts ex-post facto and causal research design. The population of this study is the thirty-eight (38) listed manufacturing companies on the Nigerian Exchange Group as at 2020. This study set criteria that for any of the manufacturing firms to be included in the study, the manufacturing firm must have been listed prior to the year 2011, it was found that Bua Cement Plc was listed in the year 2020, Dangote Cement was listed in the year 2010, Notore Chemical Industry Plc was listed in the year 2018, Multi-Trex Integrated Foods Plc was listed in the year 2011. Therefore, using filtering sampling technique, the study arrived at a sample size of thirty-four (34). The data utilized for this study are secondary data obtained from annual audited account and financial report of listed manufacturing firms published in the Nigerian Exchange Group fact book for the period of ten years covering 2011 to 2020. The data are analyzed using Panel regression model. Also, earnings management is proxied with a modify Jones model by Dechow et

al. (1995) while board characteristic are proxied with board size, board independence, board meetings and board gender diversity. The model for the study is stated as;

$DACCit = TACCit/TAit\text{-}1 - [\alpha1 (1/TAit\text{-}1) + \alpha2 [(\Delta REVit - RECit/TAit\text{-}1)] + \alpha3 (PPE\ it/TAit\text{-}1) + \mu_{it}]$.
Where:
DACC= Discretionary Accruals of firm i in year t
$TACC_{it}$ = Total Accruals = prediction error.
TA_{it-1} = Total Asset in year t less total asset of firm i in year t -1
ΔREV_{it} = Changes in Revenues in year t less changes revenues of firm i in year t -1
REC_{it} = Receivables in year t less receivables of firm i in year t -1
PPE_{it} = Property, Plant and Equipment of firm i in year t
α_1- α_3 = Coefficient of the explanatory variables
i= number of sampled across-sectional firms
t= time period of the sampled firms
Therefore, the study employed the absolute value of residuals from the first regression to represent Earnings Management.

Variables of Measurement
Table 1: Variables of Measurement

Variable	Nature of Variable	Proxy(ies)	Measurement
Earnings Management	Dependent Variable	Discretional accruals	Modified Jones Model (1995).
Board Characteristics	Independent Variable	Board Size	Number of Board members
		Board independence	Number of non- executive directors to executive directors on the board
		Board number of Meetings	The number of times board of directors hold meeting in a year
		Board gender diversity	The proportion of women to men in the board.

Source: Table Computed by the Researcher, 2022.

In view of the above, the various hypothesis and variables are combined into a function relation to explain the relationship between board characteristic and earnings management. The empirical models for the study are:

$DACC_{it} = \alpha_0 + \beta1BIN_{it} + \beta2BSZ_{it} + \beta3BMT_{it} + \beta4BGDit + \mu_{it}$
Where:
DACC = Discretionary Accruals
BIN = Board Independence
BSZ = Board Size
BMT = Board Meeting
BGD = Board Gender Diversity
β1 – β4 = Coefficient of Explanatory Variables
α = Constant or Intercept
μ = Error Term
i= individual firms
t= time period

RESULT AND DISCUSSION

Table 2: Descriptive Statistics

Statistics	DACC	BIN	BSZ	BMT	BGD
Mean	0.080181	0.237273	10.43182	3.977273	0.536364
Max	0.332200	0.350000	19.00000	5.000000	1.000000
Min	-0.419232	0.160000	6.000000	3.000000	0.200000
Std	0.036944	0.054915	3.578994	0.698458	0.349811
Skewness	-1.268210	0.479837	0.965703	0.029742	0.476954
Kurtosis	5.815906	2.370476	3.254962	2.097195	1.415574
JB	26.33170	2.415005	6.958111	1.500759	6.270634
Prob	0.000002	0.298943	0.030837	0.472187	0.043486
Observation	340	340	340	340	340

Source: Eview Output, 2022.

The table above shows that the mean of discretionary accruals (DACC), Board independence (BIN), Board size (BSZ), board meetings (BMT), and Board Gender Diversity (BGD) are 0.080181, 0.237273, 10.43182, 3.977273 and 0.536364 respectively. It shows the average number of DACC, BIN, BSZ, and BGD of the cement sector in Nigeria. The standard deviation of all the variables is less the mean numbers, it indicates that the data are not widely dispersed from the mean.

Correlation Coefficient Matrix

Table 3: Correlation Coefficient Matrix

	DACC	BIN	BSZ	BMT	BGD
DACC	1				
BIN	-0.05917264	1			
BSZ	0.024723937	-0.65767790	1		
BMT	0.190709485	0.040788731	-0.12622691	1	
BGD	0.202093381	-0.18478459	0.119051079	0.193826387	1

Source: Eview Output, 2022.

The table above presents the correlation matrix of the independents variables. It is observed that the variables correlate fairly well (between -0.65 and 0.20). There is no correlation coefficient greater than 0.8, hence there is no problem of multicollinearity of data (Wallace & Naser, 2005).

Variance Inflation Factor

Table 4: Variance Inflation Factor

Variable	VIF	1/VIF
C	NA	0.055063
BIN	1.800032	0.268109
BSZ	1.794594	6.29E-05
BMT	1.064822	0.000980
BGD	1.081448	0.003970

Source: Eview Output, 2022.

Table above presents the variance factor (VIF) and tolerance coefficients of each of the explanatory variables. It is observed that the collinearity diagnosis revealed a VIF well below 10, a tolerance above 0.2. This shows that there is no threat of multicollinearity or independent errors. Researchers suggested that multicollinearity does not constitute a problem when the vif does not exceed 10 and when the tolerance for each of the variable is above 0.2 (Wasserman & Kutner, 1990).

Fixed Effect Model Regression Results

Table 5: Fixed Effect Regression Results

Variable	Coefficient	Standard Error	t-statistics	Prob
C	1.084623	2.362789	0.459043	0.3397
BIN	-0.044947	0.280995	-0.159955	0.1241
BSZ	0.470989	0.222745	2.114473	0.0429
BMT	0.184885	0.076994	2.401301	0.0267
BGD	0.543603	0.193188	2.813856	0.0111
R^2	0.48			
Adj. R^2	0.41			
F-Statistics	6.67			
Prob(F-Statistics)	0.007			
Hausman P-value	0.0223			
Heteroskedasticity Observed R-square	0.1563			
Br-Godfrey LM Ob. R	0.3194			

Source: Eview Output, 2022.

The regression line DACC = 1.084 - 0.044BIN + 0.470BSZ + 0.184BMT + 0.543BGD indicates that Earnings Management (DACC) will increase by 0.044 units for every unit increase in Board independence (BIN), increase by 0.470 units for every 1 unit increase in Board size (BSZ), increase by 0.184 units for every 1unit increase in Board Meetings (BMT), and increase by 0.543 units for every 1unit increase in Board Gender (BGD). The significant value or P-value of 0.042, 0.026 and 0.011 for BSZ, BMT and BGD of less than the t-value of 0.05, indicate significant effect of BSZ, ACM and BMT on DACC of listed manufacturing firms in Nigeria. The F-Statistic of 6.670 and its corresponding P-value of 0.007 indicates that the model is fit. The Coefficient of Determination (R^2) of 0.48 indicates that about 48% of variation in DACC can be explained by BSZ, BMT, BMT and BGD or the ability of the regression line to predict DACC is about 48%.

The Hausman Specification Test indicates that Fixed Effect Model is most appropriate to Random Effect Model given the Chi-Square value of 8.89 and its corresponding P-value of 0.0223 which is less than the critical value of 0.5. The Breusch Pegan-Godfrey Test of Heteroskedasticity test showed observed Rsquared of the auxiliary regression P-value of 0.1563, indicates that the data are homokesdasticity. Thus, the p-value of 0.5493 which is greater than 0.05 makes the study to accept the hypothesis that the residuals are not heteroskeadasticity but homokesdasticity and is desirable. The Breush--Godfrey serial correlation LM test for serial correlation as shown in the above table was performed on the residuals and the results showed observed R-squared of 0.3194, which is in excess of 0.05, which lead us to reject the presence of serial correlation in the residual.

Discussion of Findings

In the regression result, board independence on earning management, insignificant negative effect was found. This means that, earnings management of listed manufacturing firms in Nigeria decreases with increase in board independence. The finding is in tandem with the findings in the previous works of Rahnamay and Nabavi (2011); Awais and Wang (2011); and contradicts the study of Olfa, Mighri and Karim (2016); Nguyen (2016); Imoleayo et al. (2016). In the case of board size on earnings management, a significant positive effect was found. This implies that, management of earnings of listed manufacturing firms in Nigeria is a function of board size. The finding on board size and earnings management is positively significant. This finding is consistent with the findings in previous study of Egbunike, Ezelibe and Aroh (2015); the study contradicts the works of AbdulRauf et al. (2012); Fodio, Ibikunle and Oba (2013). Based on the regression result, board meetings on earnings management, a significant positive effect was found. This finding is consistent with the findings of previous studies like: Kothari, Lenon and Wesley (2005);Imoleayo et al. (2016);Also, the finding is contrary to the study of Hussaini and Gugong (2015); Idris (2015) that found negatively associated to current discretionary accruals. Also, the regression result of board gender diversity on earnings management, a significant positive effect was found.This finding is consistent with the findings in previous studies such as Imoleayo et al. (2016). The finding contradicts the study of Idris (2015).

CONCLUSIONS AND RECOMMENDATIONS

Based on the result obtained, the study concludes that board number of meetings, board size, and board gender diversity have significant positive effect on earnings management of listed manufacturing firms in Nigeria, while board independence has insignificant negative effect on earnings management of listed manufacturing firms in Nigeria. The study offers the following recommendations based on the findings of the study:

i. The board size should be reduced by listed manufacturing firms in Nigeria as it is found by this study that board size has encouraged earnings management of listed manufacturing firms in Nigeria.

ii. The number of outside independent board members should be increased by listed manufacturing firms in Nigeria as it is found by this study that board independence has reduced earnings management.

iii. Board meetings should be reduced as it is found that board meetings increases earnings management.

iv. Board members should be selected based on their knowledge of accounting and finance and not based on gender consideration as it is found by this study that board gender diversity does not reduce earnings management of listed manufacturing firms in Nigeria.

References

Abbadi, S. S., Hijazi, Q. F., & Al-Rahahleh, A. S. (2016). Corporate governance quality and earnings management: Evidence from Jordan, *Australasian Accounting, Business and Finance Journal*, *10*(2), 54-75.

Abdul Rahman, R. & Ali, F. H. M., (2006). Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal, 21*(7), 800.

Abdul Rauf, F. A., Johari, N. H., Bunamin, S. B., & Rahman, N. R. (2012). The impact company and board characteristics and earnings management. *Global review of Accounting and Finance*, *3*(2), 114-127.

Abubakar, I.A., Ishak, R. B., &Chandren, S.A.P. (2017). The effect of board attributes on real earnings management in Nigerian Financial Institutions. *Journal of Accounting, Business and Finance Research, 1*(1), 76-83.

Adeyemi, S. B., &Fagbemi, T. O. (2010). Audit quality, corporate governance and firm characteristics in Nigeria. *International Journal of Business and Management, 5*, 169-179.

Alzoubi, E. S. S., &Selamat, M. H. (2012). The effectiveness of corporate governance mechanisms on constraining earning management: Literature review and proposed framework. *International Journal of Global Business, 5*(1), 17-35.

Awais, G., & Wang, Z. (2011). Corporate governance characteristics and earnings management: Empirical evidence from Chinese listed firms. *International Journal of Accounting and Financial Reporting, 1*(1).

Bernadus, Y.N., &Umanto, E. (2011). Board characteristics and earning management. *Journal of Administrative Science & Organization,* January, *18*(1), 1-10

Campbell, K., &Minguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics*, *83, 435–451*.

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity and firm value. *Financial Review, 38*(1), 33-53.

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity and firm value. *The Financial Review 38*: 33–53.

Cornet, A., &Warland, P. (2008).La gestion de la diversité des ressourceshumaines dans les entreprises et organisations. Edition un iversité de Liège.

Daghsni, O., Zouhayer, M., &Mbarek, K.B.H. (2016). Earnings management and board characteristics: Evidence from French listed firms. *Arabian Journal of Business Management Review* 6: 249. doi:10.4172/2223-5833.1000249.

Daily, C. M., & Dalton, D. R. (2003). Board of directors' leadership and structure: Control and performance implications. *Entrepreneurship: Theory and Practice, 7*: 65–82.

Egbunike, A.P., Ezelibe, C.P., Aroh, N.N. (2015). The influence of corporate governance on earnings management practices: A study of some selected quoted companies in Nigeria. *American Journal of Economics, Finance and Management, 1*(5), pp. 482-493.

Fama, E. F., & Jensen, M. (1983). Separation of ownership and control. *Journal of Law and Economics*, *26,* 301-325.

Fodio, M.I., Ibikunle, J., & Victor, C. O. (2013). Corporate governance mechanisms and reported earnings quality of listed Nigerian insurance firms. *International Journal of Finance and Accounting, 2*(5), 279-286.

Gul, F. A., Srinidhi, B., &Tsui, J. (2003). Do female directors enhance corporate board monitoring? Some evidence from earnings quality. *Working paper*, The Hong Kong Polytechnic University.

Hermalin, B. E., &Wesberch, M. S. (2012). Information disclosure and corporate governance. *Journal of finance,* LXVII (1).

Hussaini, B., &Gugong, B.K. (2015). Board characteristics and earnings management of listed food and beverages firms in Nigeria. *International Journal of Accounting, Banking and Management, 3*(3), pp. 1 – 14.

Imoleayo, O.F., Eddy, O.O., Dick, M.O., &Kolade, O.J. (2016). Corporate governance a tool for curbing earnings management practices in Nigeria: Preparers Perspective. *Mediterranean Journal of Social Sciences, 7*(2).

Iraya, C., Mwangi, M., &Muchoki, G.W. (2015). The effect of corporate governance practices on earnings management of companies listed at the Nairobi Securities Exchange. *European Scientific Journal, 11*(1), 169-178.

Jensen, M. C., &Meckling, W. H. (1979). Theory of the firm, managerial behaviour agency, cost and ownership structure. *Journal of Financial Economics, 3,* 305-360.

Kothari, S. P., Leone, A. J., &Waslwy, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, *39,* 163-197.

Lawler, E. E., & Conger, J. A. (2001). Strategy and business, *10*(3), 431-457.

Lipton, M., & Lorsch, J. W. (1992). Modest proposal for improved corporate governance. *A Business Law, 48*(49).

Lopes, A. L. M., &Fracolli, L. A. (2008). Revisãosistemática de literatura e metassíntese qualitativa: consideraçõessobresuaaplicaçãonapesquisaemenfermagem. *Texto& Contexto-Enfermagem, 17*(4), 771-778.

Luciana, H., & Alfredo, S.N. (2014). Effects of board of directors' characteristics on the quality of accounting information in Brazil. *Research in Contemporary Finance, 25*(66), p. 255-266, set./out./nov./dez.

Nguyen, T.H. (2016). The impact of board of directors and ownership characteristics on earnings management of publicly listed firms in Vietnam. University of Twente Student Theses.

Norman, M. S., Takiah, M. I., & Mohammed, M. R. (2005). Earnings management and board: Characteristics evidence from Malaysia. *JurnalPengurusan, 24*, 77-103.

Rahnamay, F.R., &Nabavi, C.S.A. (2011). The impact of corporate governance mechanisms on earnings management.*African Journal of Business Management, 5*(11), 4143-4151.

Roodposhti, F. R., &Chasmi, S. A (2011). Impact of corporate governance mechanism on earnings management. *African Journal of Business Management, 5*(11), 4143-4151.

Schipper, K. (1989). Commentary on earnings management. *Accounting Horizons*, 91-102.

Uwuigbe, U., Daramola, S.P., &Anjolaoluwa, O. (2014). The effects of corporate governance mechanisms on earnings management of listed firms in Nigeria. *Accounting Manage. Information System, 13:* 159-174.

Uwuigbe, U., Daramola, S.P., &Oyeniyi, A. (2014). The effects of corporate governance mechanism on earnings management of listed firms in Nigeria. *Accounting and management information systems, 13*(1).

Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics*, *53.*

Younes, B.N., Saeed, M.B., & Amin, B. (2011). Board combination and earnings management: Evidence from Iran. *Journal of Basic and Applied Science Research, 1*(12), 3116-3126.

Yulius, K.S., & Arya, P. (2016). Corporate governance and real earnings management. *International Journal of Business, Economics and Law, 9*(1).

Effect of Corporate Board Mechanisms on Sustainability Disclosure Score of Listed Oil and Gas Firms in Nigeria

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Abstract

This study focused on the effect of corporate board mechanism on sustainability disclosure score of listed oil and gas firms in Nigeria. The broad objective of the study was to evaluate the effect of corporate board mechanisms on the environmental disclosure score of listed oil and gas companies in Nigeria. The specific objectives were to; to ascertain the effect of Board Gender Diversity on the Environmental Disclosure Score in listed Oil and Gas companies in Nigeria? to ascertain the effect of Board Size on the Environmental Disclosure Score in listed Oil and Gas companies in Nigeria? to ascertain the effect of Board Independence on the Environmental Disclosure Score in listed Oil and Gas companies in Nigeria? The study adopts the Ex-post Facto research design and the Ordinary Least Squares (OLS) estimation techniques in analyzing time series data on the effect of corporate board mechanisms on sustainability disclosure score of listed oil and gas firms in Nigeria. Environmental disclosure is the dependent variable, while board gender diversity, board size and board independence served as the independent variables for a period of 40 years. The data were collected from the 2021 edition of the annual report of oil and gas firms in Nigeria. The findings of the study reveals that a negative relationship exist between board gender diversity, board size and board independent on environmental disclosure. This implies that a unit increase in board gender diversity, board size and board independence will lead to decrease in environmental disclosure on the average. It was also revealed that the rate at which the independent variables explain what happens on the dependents is 14.5139% which is believed by the researcher to be low. The researcher recommends that there is need for government and relevant stake holders of the industries to take appropriate measures in promoting the board gender diversity and board size of the industries through work place policies so as to enhance the organizational performance.

Keywords: Corporate board, Sustainability disclosure, Oil and gas, Board size, Board independence

INTRODUCTION

Sustainability is a modern concept in business which posits that businesses should carry out their activities in consideration of the impact and effect of their activities on the environment so that future generations will also have an environment to exist in and carry out their own business activities. Sustainability disclosure is all about organizations' reporting the social and environmental impacts of their activities. Sustainability disclosure covers three areas: Social, Governance and Environmental. Social Sustainability disclosure has seventeen variables, Governance has nineteen variables while environmental has seven variables: Biodiversity, Material, Emission, Water, Environmental Impact and Compliance to environmental law. Environmental disclosure score of a company is determined by how many areas of environmental sustainability it reports on. Some companies report on only the Social Responsibility aspect, others report on only one or two variables. Prior to 1980s, much attention was not paid to sustainability and sustainability disclosure by businesses and organizations, however this attitude changed as a result of the environment disasters of 80s which were traceable to the environmental impact of business activities of corporations. Nigeria being a major oil producer has had its fair share of the civil unrests and pressures arising from environmental pollution caused by businesses in particular oil exploration. Worthy of mention is the late writer and environmentalist Ken SaroWiwa and his group MOSOP (Movement for the Survival of Ogoni People). It was reported that "the group argued that oil production had devastated the region's environment, while bringing no benefit to its 500,000 people. Ken Saro-Wiwa said that Shell had turned what was once an area of unspoilt natural beauty into a grubby black moonscape. Oil from dilapidated pipelines and pumping stations seeped into the soil and destroyed it". Another case worthy of mention is the Exxon Mobil Oil Spill of 2010 in Akwa-Ibom State. On May 1st, 2010, a ruptured ExxonMobil pipeline in the state of Akwa Ibom, Nigeria, spilled more than a million

gallons into the delta and contributed to the major environmental issues in the Niger Delta. According to Wikipedia and Sahara Reporters report showed that fishermen hauled in fish killed in ExxonMobil's oil spill in a location about 20 kilometers from the shoreline and supplied the bad fish to unsuspecting members of the public. The Nigerian Environmental Rights Action group issued a demand for N51 billion ($100 Million) from ExxonMobil in Nigeria for their failure to compensate fishermen within the coastal areas who suffered devastating losses due to the oil company's exploration activities and major oil spills.

Thick balls of tar have also been sighted washed upon the shoreline as well as oil slicks. The spill has only exacerbated the already growing problem of pollution in the Delta. The Nigerian government estimates there were over 7,000 spills, large and small, between 1970 and 2000, according to the BBC. That is approximately 300 spills a year, and some spills have been leaking for years. Vast swathes of the Delta have been seen covered with tar and stagnant lakes of crude due to oil spills of the past. Due to the absence of sustainability reporting regulatory standards in Nigeria, sustainability disclosure practice of companies has been largely guided by its board of directors which is the apex decision making organ of the companies. A number of studies have been carried out in the past on the relationship between various corporate board mechanisms and sustainability practices of companies but very little has been done on Board Gender Diversity, Board Size and Board Independence in relation to Environmental Sustainability Disclosure Score of listed Oil and Gas Firms in Nigeria. The following hypotheses are those which are germane to this study;

i. Corporate Board Gender Diversity has no significant effect on the Environmental Disclosure Score of listed Oil and Gas companies in Nigeria?
ii. Corporate Board Size has no significant effect on market value/capitalization in fast-moving consumer goods companies in Nigeria.
iii. Corporate Board Independence has no significant effect on market value/capitalization in fast-moving consumer goods companies in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Corporate Governance

There are many and varied definitions of the Concept of Corporate Governance different scholars and academicians. Tirole (2001) described corporate governance as a mechanism for the protection of shareholders' interests. Hill and Jones (2001) described corporate governance as controls put in place to ensure that management actions are in line with the interests of shareholders. Shleifer and Vishny (1997) defined corporate governance as a mechanism for safeguarding the interest of investors. The Cadbury Report (1992) defined corporate governance as the system by which companies are directed and controlled. The same report described the board of directors as being the most important corporate governance mechanism requiring constant monitoring and assessment. Ibekwe, W. and Harry, A. (2018) identified 7(seven)key issues considered in corporate governance. Theseinclude shareholders rights, stakeholders' rights, financial transparency, proper accounting, information sharing, over sight and review. According to Millstein (1998) there are four identified principles of corporate governance. These include fairness, transparency, accountability, and responsibility.

Corporate Board Mechanisms

According to Ingley, (2008) quoted in Adeniyi, S. and Fadipe, A (2018) corporate boards are increasingly seen as responsible for matters relating to sustainability reporting. The Nigerian Code of Corporate Governance (2018) describes the board as being central in corporate governance and the highest governing body in the Company. The code states as principle 1, that "A successful Company is headed by an effective Board which is responsible for providing entrepreneurial and strategic leadership as well as

promoting ethical culture and responsible corporate citizenship. As a link between stakeholders and the Company, the Board is to exercise oversight and control to ensure that management acts in the best interest of the shareholders and other stakeholders while sustaining the prosperity of the Company". Jensen and Meckling, (1976) described the board of directors as the key driver of corporate governance established to safeguard the interest of the shareholders from the management. Corporate Board Mechanisms are those structures, processes and means, which enables the board to achieve its objectives. These corporate board mechanisms according to Wagana, D and Nzulwa J (2016) include the number of independent directors, the tenure of boards, the size of the board and board gender diversity. Ogbechie (2010)opined that Corporate Governance Mechanisms abound and harnessed in every organization and they include board composition, board independence, board size, board financial expertise, board leadership, board diversity, ownership concentration, and board culture. It is the duty of the Board of Directors to ensure that shareholders get a true and fair report of the performance of the business.

Davoren J., describes Corporate Governance Structure as a combination of various mechanisms, which drive the organization towards its objectives and simultaneously satisfy stakeholders' need. She identified three types of Corporate Board Mechanisms, namely: Internal Mechanisms, External Mechanisms and Independent Audit. She explained Internal mechanisms to include Board Characteristics like Board Structure, Board Committees, Board Size, Board Independence, Gender Diversity and Board Meetings. This study focuses on Board Gender Diversity, Board Size and Board Independence. Ogbechie (2010) postulated that Corporate Governance Mechanisms abound and are harnessed in every organization and they include board composition, board independence, board size, board financial expertise, board leadership, board diversity, ownership concentration, and board culture.

Board Gender Diversity

Kang et al (2007) described Board Diversity as variety in the composition of the Board of Directors. Walt & Ingley (2003) saw Board Diversity as the combination of individuals with various attributes, characteristics and expertise on a board. Nielsen &Huse (2010) were of the opinion that a combination of varieties of skills, abilities, knowledge, information and expertise will lead to better performance by a board. Corporate Board Diversity could be on the basis of numerous characteristics like Academic Qualification and Experience, Age, Culture, Gender etc. this study shall focus on Board Gender Diversity.Principle 2 of the Nigerian Code of Corporate governance states that "the effective discharge of the responsibilities of the Board and its committees is assured by an appropriate balance of skills and diversity (including experience and gender) without compromising competence, independence and integrity". Dutta and Bose (2006) quoted in wuranga describe gender diversity in the board room as the presence of women on the board of directors and term it an important aspect of board diversity. Ekadah and Mboya (2012) also describes board gender diversity as the inclusion of female directors in the boards. According to Taylor, K (2012), the benefits of having women on boards are not just theoretical. Data analyzed by Catalyst reveals that between 2004 and 2008 the top quartile of companies with the highest percentage of women directors out-performed companies in the quartile with the lowest percentage by 26% (measured by return on invested capital)

Board Size

Board size refers to the total number of directors on the board of each sample, which is inclusive of the C.E.O and Chairman for each accounting year. Subsection 2.1 of the Nigerian Code of Corporate Governance stipulates, "The Board should be of a sufficient size to effectively undertake and fulfil its business; to oversee, monitor, direct and control the Company's activities and be relative to the scale and complexity of its operations". According to Governance Today, the optimal board size should be between eight and 10 members, with eight being more suitable for a larger, more commercial operation, and 10 more appropriate for smaller organizations.

Board Independence

The Independence of a board could be defined as the ability of the board to act independently (free from undue influence) in the discharge of their responsibilities. This ability of the board to be independent could depend on the number of independent directors on the board. Some authors have described board independence as the proportion of Independent Non-Executive Directors on corporate boards calculated from the number of independent members divided by the total number of board members. Section 2.3 of the Nigerian Code of Corporate Governance lists a number of factors to be taken into consideration in the composition of a board. Section 2.3b specifically demands for an appropriate mix of Executive, Non-Executive and Independent Non-Executive members such that majority of the Board are Non-Executive Directors. It is desirable that most of the Non-Executive Directors are independent.

Sustainability Disclosure

World Business Council for Sustainable Development (2002) describes corporate sustainability as the commitment of business to contribute to sustainable economic development, and to work with employees, their families, the local community and society at large to improve their quality of life (Adeniyi, S. & Fadipee, A. 2018). According to Oyewobi (2022), Sustainability measures the rate in which resources are consumed by an organization in relation to the rate it can regenerate those resources**.** Andrew Beattie (2021) defined sustainability as meeting the needs of the present without compromising the ability of future generations to meet theirs. He explained further, that a company implements sustainable practices by reducing their consumption of limited resources or finding alternative resources with lower environmental consequences. According to Google dictionary. Sustainability refers to the ability to be maintained at a certain rate or level; avoidance of the depletion of natural resources in order to maintain an ecological balance, "the pursuit of global environmental sustainability". The Brundtland Report published by Oxford University Press in 1987 defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"(Janggu, T. & others, 2014). Three fundamental components of sustainability highlighted by the report are environmental protection, economic growth and social equity.

Businesses hitherto had not considered the impact of their activities on the environment. The focus of businesses before now had been on short-term maximization of economic gains without consideration for the future. Various industrialists release carbon monoxide and other waste products into the environment in the course of their production activities without bothering about the effect of these wastes on the environment and the implication for the business. Sustainability recognizes the interdependence of economic, social and environmental factors, it also considers the future generation. Prior to the emergence of the concept of sustainability, corporations were required by law to publish the annual report of their economic activities and most corporate decision making revolved around the financial statement. The law did not require publication of sustainability reports. However, with the emergence and development of sustainability thought, corporations began to see the need to report not only on their financial performance but also on sustainability issues. Global Reporting Initiative (2011) defines Sustainability Reporting as the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development. Sustainability disclosure is a systematic tool to gather and present sustainability information for the management process and to stakeholders such as employees, shareholders, customers, local communities, NGOs, investors or financial analysts. Sustainability disclosure is also described as a tool to increase transparency and accountability in the issues that traditional financial reporting is not dealing with. These will include the linkages between environmental, social and economic issues as well as long term perspective (Niemenmaa, V., Turtainen M. & Others (2013).Sustainability reporting guidelines for Malaysian companies by ACCA (2005) details out these three components as follows:

Table 1: Three components of sustainability reporting

Environmental reporting	Impacts of processes, products and services on air, water, land, biodiversity and human health
Social reporting	Workplace health and safety, employee retention, labour rights, human rights, wages and working conditions at outsources operation
Economic reporting	payroll expense, job creation, labour productivity, expenditures on outsourcing, R&D, investments in training and other forms of human capital

Source: (Janggu, T. and others 2014)

Empirical Review

Adegboye, A. and others (2019) studied the influence of audit committee characteristics on the sustainability disclosure among the Nigerian listed banks. They Used the Fixed Effect regression estimator of panel data for ten (10) listed banks in Nigeria over the period of 2014–2016, the result shows that the influence of audit committee independence and gender diversity of audit committee are significantly positive on the sustainability disclosure. However, the audit committee magnitude has a negative and significant influence on the sustainability disclosure. Elaigwu M., AyoibChe-Ahmad and Salau (2020) in their study "Board governance mechanisms and sustainability reporting quality: A theoretical framework", aims to conceptually examine the association between board governance mechanisms and SRQ in Malaysia. Their findings showed a positive association between the examined board governance elements and SRQ based on multiple theories. Ofoegbu, G., Odoemelam, N. &Okafor, R. (2018) in their work, Corporate Board Characteristics and Environmental disclosure quantity: evidence from South Africa (Integrated Reporting) and Nigeria (Traditional Reporting) examined the influence of corporate board characteristics on environmental disclosure quantity of listed firms in two leading emerging economies: South Africa and Nigeria which practice integrated reporting framework and traditional reporting framework, respectively. Their findings indicate a significant positive association between board independence and environmental disclosure in Nigeria. Temple Moses (2019) studied the relationship between Audit Committee Composition, the Board of Directors Characteristics and the quality of financial reports of commercial banks in Nigeria. The findings showed that Board Composition has a positive relationship with the quality of financial reports. Frank Sampong and others (2018) in their study of "Disclosure of CSR Performance and Firm Value: New Evidence from South Africa on the Basis of the GRI Guidelines for Sustainability Disclosure". Rao and Tilt (2016), in their study: Board Composition and Corporate Social Responsibility: The Role of Diversity, Gender, Strategy and Decision Making, averred that Gender Diversity is positively related to Corporate Social Responsibility Reporting.
Umoren, O. and others, (2015) provided evidence that the level of environmental information reported by sample companies listed in the Nigeria Stock Exchange (NSE) was 7%. The study used a sample of 40 companies across eight sectors and data from two-year 2013–2014 was analysed using descriptive statistics, correlation, and linear regression.

Asaolu T. O., Agboola A and others (2011) studied sustainability reporting in Nigerian Oil and Gas sector using data from the annual reports of selected oil companies to ascertain the extent to which their reporting has been in line with international best practices. Their findings showed arbitrary and incompatible sustainability reporting indicators among all the sampled companies. Wagana D and Nzulwa, J., (2016) studied the relationship between board gender diversity and financial performance. Their findings showed that even though there is a reasonable consensus that corporate governance, in particular, board gender diversity, influences firm financial performance, very limited research actually examined whether diversity among board members has any influence on non-financial performance measures. Oladele, K., Kehinde, S., and Others (2021) examined the relationship between regulatory compliance and Environmental sustainability of oil and gas firms in Nigeria. Their findings showed that regulatory compliance does not have a significant effect on environmental sustainability of oil and gas

firms in Nigeria. Dutta & Bose (2006) in their study discovered that there exists a relationship between gender diversity in the boardroom and financial performance(Return on Assets and Return on Equity) of commercial banks in Bangladesh. Ika and others (2021) and others studied the relationship between Corporate Governance practices and Environmental Reporting of102 listed Indonesian manufacturing companies from 2015to 2017. Their findings showed that audit committee effectiveness and board size positively affect environmental reporting. Ogungbade (2021) studied the effect of Corporate Governance Mechanisms on Corporate Social Responsibility (CSR) of Deposit Money Banks using data from 12 listed Nigerian banks. He discovered that audit committee size has a significant positive relationship with CSR spending on education and health but has an insignificant effect on community development whilst Board Size and Board Gender Diversity have an insignificant effect on CSR activities on education, health, and community development. Osemene and Fagbemi (2019) studied the effect of Corporate Governance on Environmental Reporting of listed consumer goods companies in Nigeria. Their findings showed a positive and significant relationship between board independence, institutional ownership, board size and environmental reporting. Aliyu (2018) studied the effect of Corporate Governance and Risk Management on Corporate Environmental Reporting in listed non-financial companies in Nigeria from 2011 to 2015. The study showed a positive and significant relationship.

Pasko, O and others (2021) studied the relationship between corporate governance attributes (Board Size, Board Independence, Female Directors and C.E.O Duality and sustainability reporting conduct of listed companies in China from 2015 to 2018. Their finding showed that board size and board independence were positively associated with the sustainability reporting conduct while female directors and C.E.O duality do not have a significant effect on sustainability reporting conduct in the Chinese institutional settings. Janggu, T. and others (2014) examined the impact of good corporate governance (CG) on the sustainability disclosure of 100 public listed companies in Malaysia from the perspective of agency theory. The data was analysed using Structural Equation Modelling technique of Partial Least Squares. The findings from the study indicate that board size, professionalism and board designation had a significant impact on sustainability disclosure. However, board independence and board ownership were not significant in motivating sustainability disclosure. Said and others (2009) showed that only government ownership and audit committee have a positive and significant relationship with the level of Corporate Social Responsibility (CSR) disclosure (Janggu, T & others, 2014). Zahra (1989) identified a negative relationship between ownership structure and Corporate Social Responsibility (CSR) disclosure in Malaysia likewise Said and others (2009). However, Ghazali and Weetman, (2006) found a strong positive relationship (Janggu, T & others, 2014). Al-Malkawi et al. (2014) found that the diversity of board membership is positively associated with CSR performance while diversity in education is not related to CSRP. Zahra, (1989), found that diversity in directors' board tenure is significantly associated with both charity and CSRP (Janggu, T & others, 2014).

According to Janggu, T and others (2014), "the relationship between board size and CSRP was inconclusive". According to Jensen (1993), larger boardsare less effective in coordinating communication and decision making and are more likely to be controlled by the CEO while Naveen Kumar and Singh, (2013) found that board size was negatively related with firm value. Adeniyi, S. and Fadipe, A. 2018, examined the effect of board diversity on sustainability reporting in Nigeria. The specific objectives of the study was to ascertain the effect of board size, board gender diversity and board independence on sustainability reporting among brewery manufacturing firms. Their findings showed that board gender diversity does not significantly affect sustainability reporting of brewery manufacturing firms in Nigeria. Ajibolade, S. and Uwuigbe, U. (2013) studied the effects of corporate governance on corporate social and environmental disclosure among selected forty listed firms in Nigeria for the period 2006 to 2010. Corporate Social and Environmental Disclosure was measured using 50 items of information and Corporate Governance mechanisms examined were CEO duality, Board size, proportion of non-executive directors and audit size. Their findings showed a significant negative relationship between CEO duality and Corporate Social and Environmental Disclosure and significant positive relationships between

proportion of non- executive directors, board size, audit size and Corporate Social and Environmental Disclosure.

Masud and others (2018) studied the effect of corporate governance (CG) elements on environmental sustainability reporting performance (ESRP) in South Asian (SA) countries. The study looked at three South Asian countries (Bangladesh, India, and Pakistan) and 88 listed organizations' sustainability reports during the years 2009–2016 from the Global Reporting Initiative (GRI) database. The study considers a variety of mixed theoretical frameworks—i.e., agency, resource dependency, stakeholder, legitimacy and political cost theories—to indicate which ownership (foreign, institutional, director andfamily) and board characteristics (independence, size, diversity and committee) affect Environmental Sustainability Reporting Performance practices in the world's most environmentally vulnerable region. The result of the study indicate Environmental Sustainability Reporting Performance has a positive association with foreign and institutional ownership, board independence, and board size as well as director share ownership. No relationship found between Environmental Sustainability Reporting Performance and family ownership, female directorship, and CSR and environmental committees. Mahmood, Z. and others, 2018 studied the impact of corporate governance (CG) on economic, social, and environmental sustainability disclosures of top 100 companies listed on the Pakistan Stock Exchange (PSE) for the period ranging from 2012 to 2015. They found that a large board size consisting of a female director and a CSR committee (CSRC) is better able to check and control management decisions regarding sustainability issues (be they economic, environment, or social) and resulted in better sustainability disclosure.

Theoretical Framework

Stakeholders Theory

Stakeholder Theory is a view of capitalism that stresses the interconnected relationships between a business and its customers, suppliers, employees, investors, communities and others who have a stake in the organization. The theory argues that a firm should create value for all stakeholders, not just shareholders. "The 21st Century is one of "Managing for Stakeholders." The task of executives is to create as much value as possible for stakeholders without resorting to tradeoffs. Great companies endure because they manage to get stakeholder interests aligned in the same direction." (Freeman, R. 1984) According to Ofoegbu, G., Odoemelam, N. & Okafor, R. (2018)stakeholder theory deals with the recognition and identification of the relationship existing between the company's behaviours and its impact on its stakeholders. They further submitted that the stakeholder theory perspective takes into consideration, the environment of the firm, including customers, suppliers, employees, and other segments of the society, every one that affects or is affected by the decisions of the company. One of the duties of the company to it's stakeholders is the provision of adequate information of its activities.

Legitimacy Theory

Legitimacy theory states that organizations continuously try to ensure that they carry out activities in accordance with societal boundaries and norms (Deegan et al., 2002)According to Ofoegbu, G., Odoemelam, N. & Okafor, R. (2018) Legitimacy theory derives from the concept of organisational legitimacy which grants an organisation the right to carry out its operations in a social environment. In other words, an organization can only claim legitimacy to exist in a social environment if its operations are within the norms and aspirations of that society. Legitimacy theory can be seen from the perspective of a social contract between the organization and the community within which it operates. The community grants the organization the right/legitimacy to operate and the organization endeavours to operate within the standards that are acceptable to the community failing which it loses its legitimacy or right to operate in that community. The need for continued acceptance by the community and pressures from the community would be a motivating factor for organisations to make sustainability disclosures

Stewardship Theory

This theory was propounded by Donaldson and Davis (1989) and posits that managers, left on their own, will act as responsible stewards of the assets they control. This implies that management has no need for supervision. In other words, management of organisations will adopt sustainability practices and sustainability disclosure with or without the corporate board of director.

Agency Theory

Agency theory took shape in the 1970s, according to Encyclopedia Britannica. The theory defines the agent-principal relationship as an implied or formal contract in which the principal hires the agent to look out for the principal's interests. In business, for example, the investors in a company expect management to provide a good return on the investors' money. According to the Shareholder theory by Milton Friedman, a corporation exists to maximize profits for its shareholders at all costs and the board of directors exist to protect the interest of shareholders. This has some implications for sustainability and sustainability disclosures.

METHODOLOGY

The ordinary least square (OLS) technique is employed in obtaining the numerical estimates of the coefficient parameters, the OLS is chosen because of its BLUE (best linear unbiased estimator) properties, according to (Gujarati 2009) OLS method have some very attractive statistical properties that have made it one of the best and most powerful method of regression. It is intuitively appealing and mathematically much simpler than any other econometric techniques. E view 8 regression software package is employed in this analysis to test non violation of the basic assumption of the OLS model. For this study, the research design adopted is the *Ex-Post Facto.* The *Ex-Post Facto* design was used because the study is a quasi-experimental study examining how independent variables affect a dependent variable.

Model Specification

This study is built on a multiple regression model and made use of econometrics procedure in estimating the relationship between the variables under study. The fundamental relationships between the dependent variable and independent variables are specified as follows:

The functional form of the model is specified as:
ED = f (BGD, BS, BI)……………………………………….…………….. (3.1)
The mathematical form of the model is specified as:
$ED_t = \beta_0 + \beta_1 BGD_t + \beta_2 BS_t + \beta_3 BI_t$ ……………………..………………. (3.2)
This econometric form of the model is specified as:
$ED_t = \beta_0 + \beta_1 BGD_t + \beta_2 BS_t + \beta_3 BI_t + \mu_t$.. (3.3)
$\beta_1 > 0, \beta_2 > 0, \beta_3 > 0$

Where:

ED = Environmental Disclosure
f= functional relationship
BGD = Board Gender Diversity
BS = Board Size
BI = Board Independent
β_0 = Constant
$\beta_1, \beta_2, \beta_3$= are the relative slope coefficients and partial elasticity of the parameters.
μt = stochastic error term

RESULT AND DISCUSSION

Unit Root Test

Table 4.1 Summary of Regression Result

VARIABLES	ADF test Statistics	5% critical Value	Order of Integration
ED	-7.958224	-1.949609	First Order I(1)
BGD	-9.005205	-1.949609	First Order I(1)
BS	-6.002381	-2.938987	First Order I(1)
BI	-3.744027	-2.606857	Level Form I(0)

From the result of the stationarity test conducted through Eviews statistical software, environmental disclosure, board gender diversity and board size are integrated at first order whereas board independence is integrated at order zero. Since all the variables are not stationary at level, there is a need to conduct a cointegration test so as to ascertain if there is long run relationship among the variables under study.

Co-integration Test

To test for co-integration among the variables, we carried carry out ADF test on the regression residuals as proposed by Gujarati (2004). The ADF unit root test on the residuals work with the same decision rule as unit root test. Accept the null hypothesis if the Augmented Dickey-Fuller test statistics is lower than the 5% level of significance, otherwise, reject the null the hypothesis. The co-integration test result is summarized as follows:

Table 4.2: Co-integration Test Result

Null Hypothesis: ECT has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.541556	0.0000
Test critical values:	1% level	-2.625606	
	5% level	-1.949609	
	10% level	-1.611593	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ECT)
Method: Least Squares
Date: 08/21/22 Time: 04:34
Sample (adjusted): 1983 2021
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECT(-1)	-1.206069	0.159923	-7.541556	0.0000

R-squared	0.599401	Mean dependent var	-0.008885
Adjusted R-squared	0.599401	S.D. dependent var	0.671729
S.E. of regression	0.425156	Akaike info criterion	1.152587
Sum squared resid	6.868802	Schwarz criterion	1.195243
Log likelihood	-21.47545	Hannan-Quinn criter.	1.167892
Durbin-Watson stat	1.931141		

In the e-views generated co-integration test result above, the ADF test statistics (-7.541556) is greater than the 5% critical value (-1.949609) in absolute terms. This implies that the residuals are stationary (that is, the variables are co-integrated or that the linear influence of the independent variables cancels out) and the variables have long-term relationship.

Error Correction Mechanism Test

Table 4.3: Error Correction Mechanism Test Result

Dependent Variable: D(ED)
Method: Least Squares
Date: 08/21/22 Time: 04:36
Sample (adjusted): 1983 2021
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.352853	0.407790	0.865282	0.3929
D(BGD)	-0.013593	0.008460	-2.606718	0.0174
D(BS)	-0.029793	0.046227	-3.644502	0.0236
BI	-0.005572	0.006376	-0.873970	0.3883
ECT(-1)	-0.227054	0.177265	-1.280874	0.2089

R-squared	0.145139	Mean dependent var	0.000000
Adjusted R-squared	0.044567	S.D. dependent var	0.458831
S.E. of regression	0.448491	Akaike info criterion	1.353351
Sum squared resid	6.838889	Schwarz criterion	1.566628
Log likelihood	-21.39034	Hannan-Quinn criter.	1.429873
F-statistic	5.443136	Durbin-Watson stat	1.966097
Prob(F-statistic)	0.041114		

Source: Eviews Computations

The e-views generated error correction mechanism result shows the magnitude of the short run disparity to be -0.227054, that is to say the degree of the short run dynamics is 22.7054 percent. This shows a very low speed of adjustment to equilibrium after a shock.

Regression Result

In the regression result, the variables under consideration are environmental disclosure (dependent variable), board gender diversity, board size and board independent as the independent variables. From the result the estimated coefficient value of b_o, b_1, and b_2, are 0.352853, -0.013593, -0.029793, -0.005572, respectively.

Evaluation of Regression Results

Evaluation Based on Economic Criterion

The regression results is been evaluated based on a priori expectations in this section. The signs and magnitude of each variable coefficient is evaluated against theoretical expectations. The constant term is estimated at 0.352853 This means the model passes through the point 0.352853 mechanically and if the independent variables are equal to zero, environmental disclosure would be 0.352853. The estimated coefficient for BGD is -0.013593 meaning that if other variables affecting environmental disclosure are held constant, a unit increase in board gender diversity on education will bring about a 0.004500 decrease in environmental disclosure on the average. Likewise, the estimated coefficient of BS is -0.029793, meaning that holding all other variables affecting environmental disclosure constant, a unit increase in board size will bring about a 0.029793 decrease in environmental disclosure. Finally, the estimated coefficient of BI is -0.005572, meaning that holding all other variables affecting environmental disclosure constant, a unit increase in board independent will bring about a 0.005572 decrease in environmental disclosure.

Evaluation Based On Statistical Criterion

R^2 –Result and Interpretation

The coefficient of determination (R^2) is given as 0.145139 this implies that 14.5139% of the variation in environmental disclosure is explained by the variation in BGD, BS and BI on the average.

t–Test Result and Interpretation

To find the tabulated t-value, we use degree of freedom (df) and 5% level of significance: 2/100=0.05/2=0.025

$T_{0.025,}$df: df=n-K. where n=11 and K=3

df=40-3=37. Therefore; df=37

From the t-Test distribution table, the t-tabulated value is equal to $t_{0.025,32}$= 1.960

The result of the t-test of significance is shown in table 4.5 below: The result of the t-test is presented below and evaluated based on the critical value (1.960) and the value of calculated t-statistics for each variable.

Table 4.5: Result of t-Test of Significance

VARIABLES	t-computed (t*)	t-tabulated ($t_{a/2}$)	Conclusion
BGD	-2.606718	1.960	Significant
BS	-3.644502	1.960	Significant
BI	-0.873970	1.960	Insignificant

Table 4.5 shows that board gender diversity has significant impact on the environmental disclosure in Nigeria, this is because the $t^*>t_{a/2}$ (-2.606718>1.960). Therefor, we reject the null hypothesis (H_o) and accept the alternative hypothesis (H_1) which states that board gender diversity has significant impact on the environmental disclosure in Nigeria. For BS, $t^*> t_{a/2}$(-3.644502>1.960), therefore we accept the null

hypothesis (H_0) which states that board size has significant impact on the environmental disclosure in Nigeria. For BI, t*> $t_{a/2}$(-0.873970<1.960), therefore we accept the null hypothesis (H_0) which states that board independence has no significant impact on the environmental disclosure in Nigeria.

Result and Interpretation of F–Test of Significance

v_1=4-1=3, V_2=40-4=36, df= (3,36) at 5% level of significance and df= (3,36), $f_{0.05}$= 3.32 and F*= 5.443136. Since f*> $f_{0.05}$, we reject the null hypothesis and conclude that the variables; BGD, BS and BI, have joint influence on environmental disclosure. This implies that the entire regression plain is significant.

Evaluation Based on Econometric Criterion

Result and Interpretation of Autocorrelation Test

Using the durbin-watson statistics, the region of no autocorrelation (positive or negative) is given as follows

du< d*< (4-du)

du= 1.58

d*= 1.966097

(4-du)= 4 – 1.58= 2.42

By substitution, the region becomes:

1.58<1.966097<2.42

The result shows that there is no presence of autocorrelation problem in the model as the computed durbin Watson statistics fall within the zero autocorrelation regions.

Normality Test Result and Interpretation

The Normality test was done using the Jaque-Berra test of normality Jaque-Berra test of normality is hinged on the hypothesis that K is close to or exactly 3 and S is close to or exactly o, thus making the JB value close to or equal to O, which is the condition for normal distribution.

Decision rule:

For the residual to be normally distributed, the K value should be drawing close to or exactly three (3) and S should draw close to or exactly zero (0), thus making the JB value close to or equal to zero (0), which is the condition for normal distribution.

Table 4.6 Result of Normality Test

Skewness	Kurtosis	Jarque-berra	Probability	Test
-0.008765	4.298861	2.741939	0.253861	ND

ND- Normally distributed

From the normality table, the Jaque-Berra draw close to zero (0) as stated, this implies that the residuals are not normally distributed.

Evaluation of Research Hypotheses

Based on the decision rule of the t-statistics, board gender diversity and board size have significant impact on the environmental disclosure in Nigeria whereas board independence has no significant impact on the environmental disclosure in Nigeria. More so, the rate at which the independent variables jointly affect the dependent variable is 14% which is considered to be very low by the researcher. From the regression result board gender diversity and board size have significant impact on the environmental disclosure in Nigeria whereas board independence has no significant impact on the environmental disclosure in Nigeria which implies that board gender diversity are significant variables to determine the environmental disclosure whereas board independent is not a significant variable to determine the environmental disclosure in Nigeria.

Summary of Findings

The study investigates the effect of corporate board mechanism on sustainability disclosure score of listed firms in Nigeria. To conduct the analysis, a multiple regression model was built to test for the effect of corporate board mechanism on sustainability disclosure score of listed firms in Nigeria. The finding of the study reveals a negative relationship between board gender diversity, board size and board independent on environmental disclosure. This implies that a unit increase in board gender diversity, board size and board independence will lead to decrease in environmental disclosure on the average. It was also revealed that the rate at which the independent variables explains what happens on the dependents is 14.5139% which is believed by the researcher to be low.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, we conclude that board gender diversity and board size have significant impact on the environmental disclosure whereas board independent has no significant impact on the environmental disclosure with the time frame specified. It is also concluded that a negative relationship between board gender diversity, board size and board independent on environmental disclosure. This implies that a unit increase in board gender diversity, board size and board independence will lead to decrease in environmental disclosure on the average. The study concludes also that the residuals are normally distributed as the probability value of the normality test is above the 0.05 criterion mean level. From the findings of this study, the following recommendations are given;

Having seen that board gender diversity and board size have significant impact on the environmental disclosure there is need for government and relevant stakeholders of the industries to take appropriate measures in promoting the board gender diversity and board size of the industries through work place policies so as to enhance the organizational performance. More so, there is need to close monitor the board independence since the result indicated that it does not have significant impact on the environmental disclosure, this will help to examine the areas is affecting the work environment.

References

Adedotun, S. (2003). Corporate governance and organizational performance. Corporate Governance in Nigeria, FITC Publishers, Lagos, (2003) 147-235.

Adegboye, A., Ojeka, S., Adegboye, K., Alabi, O., Afolabi, M., &Iyoha, F. (2019). Data on chief financial officer attributes and risk management strategies for Nigerian listed financial institution. Data in Brief, 27, 104609. https://doi.org/10.1016/j.dib.2019.104609

Adeniyi, S. I., &Fadipe, A. O. (2018). Effect of Board Diversity on Sustainability Reporting in Nigeria: A Study of Beverage Manufacturing Firms. Indonesian Journal of Corporate Social Responsibility and Environmental Management, 1(1), 43–50.

Ajibolade, S. O., &Uwuigbe, U. (2013) Effects of Corporate Governance on Corporate Social

and Environmental Disclosure among listed Firms in Nigeria, European Journal of Business and Social Sciences, Vol. 2, No.5 , pp 76-92, August 2013. P.P. 76 – 92 URL: *http:/ / www.ejbss.com/ recent .aspx*

Aliyu, U. S. (2018) Board characteristic and corporate environmental reporting in Nigeria, Asian Journal of Accounting Research, (2018).

Asaolu T.O., Agboola A.A., Ayoola T. J., and Salawu M.L: Sustainability Reporting in the Nigerian Oil and Gas Sector Department of Management and Accounting, Obafemi Awolowo University, Ile Ife, Nigeria citeseerx.ist.psu.edu/viewdoc/download?doi= 10.1.1.841.2937&rep=rep1&type=pdf

Dalton, C. M. & Dalton, D. R. (2005). Boards of Directors: Utilizing Empirical Evidence in Developing Practical Prescriptions, British Journal of Management, vol. 16, pp. s91-s97.

Deegan, C., &Blomquist, C. (2006). Stakeholder influence on corporate reporting: An exploration of the interaction between WWF-Australia and the Australian minerals industry. Accounting, Organizations and Society, 31(4–5), 343–372. doi:10.1016/j. aos.2005.04.001.

Donaldson, L., and Davis, J. H. (1991). Stewardship Theory or Agency Theory:CEO Governance and Shareholder Returns. Australian Journal of Management, 16(1).

Dutta, P., & Bose, S. (2006). Gender Diversity in the boardroom and financial performance of commercial banks: Evidence from Bangladesh. The Cost and Management, 34(6).

Ekadah, J. and Mboya, J. (2012). Effect of Board Gender Diversity on the Performance of Commercial Banks in Kenya. European Science Journal, 8(7).

Elaigwu Moses, AyoibChe-Ahmad &SalauOlarinoyeAbdulmalik | (2020) Board governance mechanisms and sustainability reporting quality: A theoretical framework, Cogent Business & Management, 7:1, 1771075, DOI: 10.1080/23311975.2020.1771075 To link to this article: https://doi.org/10.1080/23311975.2020.177107

Freeman, R. E. (1984). Strategic Management: A Stakeholder Approach. Cambridge University Press Friedman, M. (2007). The social responsibility of business is to increase its profits. Corporate ethics and corporate governance (pp. 173–178). Springer, Berlin, Heidelberg.

Ghazali, N. A. M., and Weetman, P. (2006). Perpetuating traditional influences: Voluntary disclosure in Malaysia following the economic crisis. Journal of International Accounting, Auditing and Taxation, 15, 226-248.

Global Reporting Initiative. (2011). Sustainability Reporting Guidelines (3.1). Amsterdam: Global

Global Reporting Initiative (GRI). (2015). GRI's History. GRI News letter. https://www.globalreporting.org/information/about-gri/grihistory/Pages/GRI%27shistory. aspxGnanaweera, K. A. K., Kunori, N., &Ntim, C. G. (2018

Hermalin, B. E. &Weisback, M. S. 2003, 'Board of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature.' Center for Responsible Business. Working Paper Series. Paper 3

Hill C, & Jones, G. (2001) Corporate Governance Theory, Houghton Mifflin Co. 5th

Ibekwe, W. & Harry, A.J. (2018) Corporate Governance in International Oil Companies: lesson For Nigeria: HARD International Journal of Economics and Business Management, 4(5), 1-13

Wagana, D &Nzulwa, J. (2006). Corporate Governance, Board Gender Diversity and Corporate Performance: A Critical Review of Literature, School of Human Resource Developmet, Westland's Campus, Jomo Kenyatta University of Agriculture and Technology, Kenya culled from: URL: http://dx.doi.org/10.19044/esj.2016.v12n7p221

Walt, N. and Ingley, C. (2003). Board dynamics and the influence of professional background, gender and ethnic diversity of directors. Corporate Governance: An International Review, 11, 218-234.

Impact of Trading Volume on Capital Market Development in Nigeria

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Abstract

This study investigates the impact of trading volume on capital market development in Nigeria from the period 2011 to 2020 (10 years). The capital market development proxy by market capitalization (MCAP) while trading volume variables considered are total value of shares traded (TVAT) and total volume of shares traded (TVOT). Data were collected from the Nigerian Exchange (NGX) Market Trading Statistics. The methodology used was regression analysis using the E-views 10 econometric package. We tested for the impact of total value of shares traded on market capitalization in the first hypothesis. In the second hypothesis, we tested the relationship between total volume of shares traded and market capitalization also using E-views 10. The findings of the study indicated that the model used for both tests judging by the F-Statistics was well fitted. The R^2 and the adjusted R^2 measuring the goodness of fit of the model indicates that the two hypotheses were explained by the independent variables. The Durbin Watson statistics indicate that there no trace of auto-correlation in both hypotheses one and two. The result of hypothesis one shows that total value of shares traded has a strong positive significant impact on market capitalization (TVAT coefficient = 7.937517, p = 0.0158< 0.05). The result shows that TVAT has a positive and significant impact on the MCAP of Nigerian exchange. Total volume of shares traded (TVOT coefficient = -112.3415, p=0.0139< 0.05). the result shows that TVOT has a negative and significant impact on MCAP of Nigerian exchange, The study concluded by stating that total volume of shares traded had a negative but significant impact on market capitalization and attributes it to the possibility of investor misspecification about future earnings or illiquidity of low volume shares. The study recommends that investors should make volume-based trading a strategy. Also, policy on capital gains tax should be reviewed to encourage trading rather than holding for dividends.

Keywords: Trading volume, Capital market development, Industrialization, Stock market liquidity

INTRODUCTION

The possession of industrial capabilities by an economy is considered an important potential for improved economic development. Indeed, one of the distinguishing factors between developed and developing economies is the acquisition of industrial know-how. The benefits of appropriate industrial base for an economy lies in its combination of suitable technology management techniques and other resources in order to move the economy from a traditional and low level production to a more automated and efficient system of mass processing and manufacture of goods and services. This explains why every economy seeks to expand if the economy is already industrialized (Idyu et al., 2014). Through the establishment of industries, both small and large, a nation could produce most of the goods and services its people require. Nonetheless, for industries to expand and for industrialization to take place, availability and assessability of long-term capital is indisputable. Capital provides the stimulus for the effective and efficient combination of factors of production to ensure sustainable growth. Capital could be long term or short term capital. The long term capital of a firm is committed to investment in non-current assets, which includes the shareholders' funds and long term loans. On the other hand, short term capital is applied for investment in current assets such as cash, marketable securities and short term credits (Uruakpa, 2019). The capital market has been identified as an institution that helps to channel capital or long-term resources to firms with relatively high and increasing productivity, thus; enhancing economic expansion and growth (Okoye et al., 2013). This is made possible through the vital roles of the capital market. Capital market in all economies of the world is responsible for mobilizing effectively idle funds from the excess economic unit and channel it to the scarce economic unit for productive activities. It is established toresolve the dilemma of the dearth of long-term capital and shortfall of investable funds, particularly in developing economies(Nigeria inclusive) in which savings are inversely proportional to investment needs.

Thus, effective functioning of the capital market is a pre-requisite for economic growth and capital formation. In addition, the capital market creates possibilities for foreign investment and inflow of foreign capital for productive ventures.The role of capital market includes channeling resources, promoting reforms to modernize the financial sectors, financial intermediation capacity to link deficit to the surplus sector of the economy, and a veritable tool in the mobilization and allocation of savings among competitive uses which are critical to the growth and efficiency of the economy. Yet, the capital market, as a key economic driver; requires functional institutions and infrastructure to facilitate the fulfilmentof itsfundamental obligations in the economy.

The stock marketis one of the institutional framework through which the capital market operates. It is an organized, deep, transparent and accessible platform, in which individuals and institutions, public and private sector organizations trade financial securities (Lambe, et al., 2021). The market makes available different preference for portfolio managers and financial institutions through long-term fund mobilization and simultaneously providing platforms for savers to invest when the needs arise without upsetting the smooth operation of the firms. The stock exchange is the fulcrum of the stock market. The Nigeria exchange (NGX), then Nigeria Stock Exchange (NSE); hasevolved in order to meet the needs of its valued customers and to achieve the highest level of competitiveness. Outstanding radical effort, in the right direction, is the internationalization of the market with the cross-border listings of M-net/Supersports on the Nigeria Exchange (NGX) and the Johannesburg Stock Exchange (JSE) and further attempts at signing a Memoranda of Understanding (MoU) with the Ghana Stock Exchange (GSE) and the Nairobi Stock Exchange (NSE) to facilitate the cross-border listing of securities, evidenced by the secondary listing granted to Oando Plc (a Nigerian oil company) in 2005 on the Johannesburg stock exchange securities. Despite these efforts, the capital markets in Nigeria is still presumed to performs below their potentials compared to capital markets in other economies like Europe (Idris, 2020) and market capitalization is low (Udo et al., 2021). Notably, past research findingson capital markets focused mostly on the behavior of returns - predictability, variability, information content, economic growth, etcetera -(Lambe et al., 2021; Udo, et al., 2021; Okoye, 2019; Dalut, 2018; Araoye et al., 2018; Onoh et al., 2017; Okoye et al., 2016; Ogunleye, 2015; Enekwe, 2014; Emeh & Chigbu, 2014; Okoye & Nwisienyi, 2013;),with implications of trading volume on capitalmarket developmentleft unattended to except a few. The paucity of research findings in this area makes a case for undertaking this study framed “Impact of trading volume on capital market development in Nigeria. In consequence of the foregoing raised questions the following hypothesis are those germane to the study.

H_{01}: Total value of shares traded has no significant positive effect on capital market development in Nigeria.

H_{02}: There is no significant relationship between total volume of shares traded and capital market development in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Trading Volume

Ordinarily, volume is a measure of quantity, however from capital market viewpoint; volume relates to the number of shares that have changed hands over a certain period of time. It is the number of stocks that have been traded over a certain period and is always quoted for a single trading day (Mpofu, 2012). It reveals how many share have been exchanged amongst market participants – owners, sellers and buyers. Trading volume is a key element in predicting the movement of stock prices in the market because it is seen as an important part of the information that signals future price movements. The ups and downs of the volume fangs are determined by various factors both from within the company and from outside. Thus the trading volume is related to Signaling The signaling theory assumed that information received by each party is not the same. The company's executives who have better information about the company will be

encouraged to pass on the information to potential investors to increase the company's share price. Signal theory indicates the existence of information asymmetry between the management of the company and interested parties with information

Capital Market Development

Capital market is an integral part of the financial system that provides an efficient delivery mechanism for mobilization and allocation, management, and distribution of long-term funds for investment projects (Lambe et al., 2021). The development of the capital market for self-sustained industrialization and economic growth is a sine-qua-non. Capital market development is the process of improving the quantity, quality, and efficiency of stock market services. Capital market development is the performance of stock market based on either the increase or reduction in stock prices or returns (Samathan et al., 2013). A well-thought-out capital market is not just correlated with a healthy economy but actually causes economic growth

Trading Volume and Capital Market Development

Ordinarily, volume is a measure of quantity, however from capital market viewpoint; volume relates to the number of shares that have changed hands over a certain period of time. It is the number of stocks that have been traded over a certain period and is always quoted for a single trading day (Mpofu, 2012). It reveals how many share have been exchanged amongst market participants – owners, sellers and buyers. Trading volume is a key element in predicting the movement of stock prices in the market because it is seen as an important part of the information that signals future price movements. The ups and downs of the volume fangs are determined by various factors both from within the company and from outside. Thus the trading volume is related to Signaling The signaling theory assumed that information received by each party is not the same. The company's executives who have better information about the company will be encouraged to pass on the information to potential investors to increase the company's share price. Signal theory indicates the existence of information asymmetry between the management of the company and interested parties with information

Market Liquidity and Capital Market Development

Liquidity is typically the market's ability to absorb large amount of trades without causing excessive price movements. In addition, liquid markets are characterized by narrow bid and ask spreads, signifying that transactions are carried out in a cost effective manner. Liquidity determines the success of public offerings, reduces the cost and risk for underwriters and market makers. It also reduces the cost for investors via ensuring lower volatility and transaction cost. From the macro perspective, liquid capital markets are essential for the efficient allocation of capital, which results in lower cost of capital for issuers. While at the micro level, a liquid market ensures access to a diverse range of investors with various trading strategies (OICU – IOSCO, 2007). When a firm's share prices reflect all the available information, the firm's transaction costs will go down and this will in turn have an impact on the market capitalization. On the other hand, if there is lack of information sharing among firms listed, this will cause adverse impact on market capitalization (Msangi, 2015; Aduda et al., 2012).). Liquidity in the stock market is good for the capital market development. Thus, liquidity refers to the depth, breadth, degree of resiliency as well as trading speed present in a market. The more liquid a market, the wider the set of potential counter offers for any outstanding transaction, and hence the higher the probability of a favourable match. Thus, investors are generally attracted to markets with higher levels of liquidity. Therefore, liquidity is crucial to both the growth and development of capital markets vis-à-vis financial system stability.

Capital Market Development and Industrialization of Nigeria

The industrial sector plays a catalytic role in a modern economy and has many dynamic benefits crucial for economic development (Akinlo & Lawal, 2015). Productive activities such as manufacturing, mining, oil exploration and production process involve the use of labour, capital, technology, entrepreneur, and

land resources which are aimed for profitable results that ultimately enhance companies' returns and revenue for the government (Solomon, 2015). Industries are responsible for the production of materials which are either raw, semi or finished goods for onward sales to users or consumers, thus increasing the economic output of the nation. The industrial sector consisting of the manufacturing, solid minerals, crude petroleum and natural gas sectors is seen as a major backbone to national development owing to its numerous benefits such as employment generation, goods production for local and foreign use, source of foreign revenue.

The relevance of the capital market to the industrial sector of any nation can be seen in the role which capital markets play in the mobilization of funds and their eventual transfer to businesses, the government and individuals that need those funds for investment. The need for an effective capital market stems from the realization that through it, savings can be mobilized and channeled for productive investment. Apart from that, the ability to mobilize funds easily and cheaply on the capital market has also been found to be an incentive for enterprises to expand their operations and diversify into large-scale enterprises. Many experts shared the view that industrialization is a prerequisite for economic development of any country (Uruakpa, 2019; Msangi, 2015; Okoye et al., 2013; Aduda et al., 2012). It is industrial development that can break vicious circle of poverty and under-development, however, availability of capital stands as a sure guarantee for effective industrialization and that is where the capital market comes in. Without capital market there would be no industrialization, because savers would be less willing to invest in large, long-term projects that characterized the early phase of industrial revolution (Owolabi & Ajayi, 2013). Notably,capital market mobilizesthe huge capital requirement of the industrial sector via harnessing and channeling the surplus funds to the scarce unit (the industrial sector) for productive activities. Thus, savings, creation of liquidity, risk diversification, improved dissemination and acquisition of information, and enhanced incentive for corporate control, improving the efficiency and effectiveness of these functions, through prompt delivery of their services, to increasing the rate of industrialization that guarantee economic growth (Uruakpa, 2019).

Empirical Review

Idyu, Ajekwe, and Korna (2013) sought to determine the impact of the Nigerian capital market on the industrial sector component of the Nigerian gross domestic product. An ex-post facto research design was adopted using secondary data to determine the level of impact on the growth of the Nigerian industrial sector for the period 1990 – 2009. The ordinary least square (OLS) estimation technique was adopted. The results showed (i) a positive significant impact of the market capitalization on industrial sector component of the gross domestic product and (ii) a positive significant impact of the market capitalization on average capacity utilization rates of the manufacturing sector. The result however showed (iii) a positive but non- significant impact of the annual market capitalization on industrial loans of the stock exchange. It was therefore concluded that every effort must be made by government and market operators to make the market viable and result oriented to further improve the economy. Aklahyel et al., (2014) examined the role of capital market in the industrial development of Nigeria. It adopted a theoretical discus to ascertain whether the capital market enhance industrial development in Nigeria. It found that the capital market facilitates the efficient mobilization and allocation of funds for production purposes in order to stimulate economic growth and development of the nation through industrialization. Finally, the paper recommends that government should introduce some tax incentives to motivate and encourage investors among other recommendations.

Akinlo and Lawal (2015) examined the impact of exchange rate on industrial production in Nigeria over the period 1986-2010. The results of the study obtained using the Vector Error Correction Model (VECM), confirm the existence of long run relationship between industrial production index, exchange rate, money supply and inflation rate. Moreover, exchange rate depreciation had no perceptible impact on industrial production in the short run but had positive impact in the long run. Finally, the results show money supply explained a very large proportion of variation in industrial production in Nigeria. Ibi et al., (2015) examined the relationship between capital market and industrial sector development in Nigeria,

utilizing annual time series data covering the period from 1980-2012. The study adopted both descriptive and analytical methodology in its investigation. The descriptive methods were used to analyze trend performances of the variables captured in the study. The analytical methodology employed modern econometric techniques such as the unit root test, co-integration test, granger causality test and the error correction mechanism (ECM) in the estimation of the relevant relationships. The results of the co-integration test showed that there existed a long run equilibrium relationship among the variables. The results of the granger causality test as presented showed that there is a bi-directional relationship between industrial output and market capitalization and between industrial output and number of deals, but a unidirectional causality relationship running from industrial sector development to value of transaction. The results of the short run dynamics revealed that capital market has positive and significant impact on industrial output in Nigeria via market capitalization and number of deals. On the other hand, value of transaction has negative and significant impact on industrial output in Nigeria during the evaluation period. The results also showed that real gross domestic product has a positive and significant impact on industrial output in Nigeria, while exchange rate and gross domestic investment have negative and significant relationship with industrial output in Nigeria. The study therefore recommended that the government should implement appropriate reform policies aimed at ensuring efficiency in the workings of the stock market in Nigeria. Also, there is need to reduce the cost of raising capital by firms on the stock as high cost and other bureaucratic delays could limited the use of capital market as veritable source of raising funds for investment.

Onoh et al., (2017) investigated the effect of trade volume and market turnover on daily stock returns of the Nigerian Stock Market (NSM) using secondary data obtained from daily trading at the stock exchange. The methodology used was regression analysis using the Stata statistical package. The findings of the study indicated that the model used for both tests judging by the F-Statistics was well fitted. The R^2 and the adjusted R^2 measuring the goodness of fit of the model indicates that variations observed in the dependent variable for the two hypotheses were explained by the independent variables. The Durbin Watson statistics indicate that there is a slight trace of autocorrelation in hypothesis one but no trace of such in hypothesis two. The result of hypothesis one shows that value of transaction ratio has a negative but significant impact on the share return (VTr coefficient = -8.51 $p = 0.00 < 0.05$, t-value = 30). The result shows that Turnover ratio has a positive and significant impact on the Log ASI of Nigerian (TOr coefficient = 0.36, $p = 0.00 < 0.05$, t-value = 146.44). The study concluded by stating that Volume of trade had a negative but significant effect on stock returns and attributes it to the possibility of investor misspecification about future earnings or illiquidity of low volume stocks. The turnover at the market had a positive and significant effect on the stock market returns attributable to a possible anticipation of higher market illiquidity by investors and consistent with the positive cross-sectional relationship between stock return and illiquidity. The study's recommendations to policy include reviewing policies on capital gains tax to encourage investors especially in an ailing market. A second recommendation is that investors should make trading volume-based strategies to make profits and theoretically this provides evidence of weak form inefficiency of the Nigerian Stock Exchange. The research recommends for further study, the investigation into new or existing theories on the "size effect" of market returns on volume and price. Currently theoretical explanations in literature for size effect do not sufficiently explain the gaps in previous research even though there is a general agreement about the importance of size. It is important that more research be made in studying theoretical and empirical applications of models measuring weighty risk management strategies such as portfolio rebalancing. As a risk control strategy knowledge of portfolio rebalancing can be seen where an informed investor acknowledges the usefulness of compounding effect of returns on his portfolio by calculating based on compound average and not simple average

Uruakpa (2019) examined the impact of the capital market on industrial sector development in Nigeria. The objective was to determine the relationship between capital market indicators proxy by all share index, market capitalization, and value of transactions with industrial sector output. The study was carried out using CBN Statistical Bulletin from 1985-2017. Data were analyzed using OLS, ADF, Co-integration

and Error Correction Model. The result of the analysis indicated that capital market indicators proxy by value of transactions, market capitalization, and All Share Index all jointly impact on industrial growth both in the short run and long run. This means that the stock market has a great responsibility in mobilizing long-term capital and conforms to apriori expectation on the significant role of the stock market which is the heart of capital market activities. It therefore recommended that the market should be reformed as a driver for industrial development in Nigeria. If rapid industrial development is the dream of the government and monetary authorities, listing requirement at the capital market must be made in such a way that medium scale industries are opportune to get listed. Much as the standard remains uncompromised, it has to be made to give room for wider participation. It also suggested the need for the capital market to be diversified with more tradable financial instruments, which will give industrial firms more options to trade and raise capital at the market.

Theoretical Framework

Capital Market Theory

Capital market theory followed modern portfolio theory by Markowitz, as researchers, explored the implications of introducing a risk-free asset. Sharpe is generally credited with developing the CAPM, but Lintner and Mossin derived similar models independently in the mid1960s. Capital Market Theory assumes that: All investors are efficient investors who choose investments on the basis of expected return and risk. Investors can borrow or lend any amount at a risk-free rate of interest and all investors have homogeneous expectations for returns. The capital market theory is a model that seeks to price assets, most commonly, shares. Capital market theory sets the environment in which securities analysis is performed. Capital market theory is a positive theory in that it hypothesizes how investors do behave rather than how investors should behave, as in the case of modern portfolio theory.

Signaling Theory

This theory propounded by Spence (1973) provides opportunity for communication between two parties to a transaction. It is concerned with the reliability of certain signals in terms of decision making. Signaling theory considered the quality and reliability of financial information sent by the firms to the users of such financial information for decision making, particularly; investors. Spence (1973) states that good performing firms differentiates themselves from non-performing firms by sending good signals about their performance to capital markets and investors (existing and potential). Signals sent by companies through financial statements informed the investors about their future financial performance. Again, signaling theory assumes that managers of firms have more access to financial information than the shareholders.

Efficient Market Theory

The Efficient Markets Theory (EMT), developed by Fama in 1965; is a theory that explains the capital market development. It states that the price of an asset reflects all relevant information available about the intrinsic value of the asset known as present value of the cash flows the owner of the security expects to receive. However, the profit opportunities represented by the existence of undervalued and overvalued stocks motivate investors to trade and their trading moves the prices of stocks toward the present value of future cash flows (Ewah et al., 2009; Hodnett & Hsieh, 2012). Again, Fama in 1991 pointed out that market efficiency is a continuum because the lower the transaction costs in a market including the cost of obtaining information and trading, the more efficient the market. The informational efficiency of stock prices matters in two ways. First, investors care about whether various trading strategies can earn excess return, that is to say beat the market. Second, if stock prices accurately reflect all information, new investment capital market goes to its highest-valued use, as a result the capital market development goes up. The author further mentioned three different forms of market efficiency as weak form, semi-strong form and strong form. Each form of Efficient Market Theory has ability to rule out the possibilities of consistent outperformance by a certain group of investors who use certain type of information as the tool

in their trading activities. However, under assumption of efficient capital markets, all investors are risk averse and completely rational in making their decisions.

This study is underpinned by the signaling and efficient market theories because each emphasizes the importance of good information to the capital market and investors. Good decision to invest is a function of quality and reliable information, as expressed by the two theories. Investors prefer firms that send information that is a veritable tool for trading activities, which in turn increases trading volume that impact capital market development.

METHODOLOGY

The study employed the ex post facto research design. Ex post facto design examines how an independent variable present, prior to the study, affects a dependent variable. The target population of the study is from 2011-2020. The study employed secondary data obtained from Nigeria exchange (NGX) fact book. To investigate the impact of trading volume on capital market development in Nigeria the researcher first identifies the variables and the relationship between the variables.

$$MCAP = f(TVOT,TVAT) \quad \ldots (1)$$

In formulating an econometric model, equation (i) is re-written;

$$MCAP_t = \alpha_t + \beta_1 TVOT_t + \beta_2 TVAT_t + \varepsilon_t \quad \ldots (2)$$

Where;

MCAP = Market capitalization; TVOT = Total volume of shares traded; TVAT = total value of shares traded; α = Intercept; β_1, β_2 = Coefficient of independent variables; ε = Error term; and t = Time

RESULTS AND DISCUSSIONS

Table 1: Descriptive Statistics

	MCAP	TVOT	TVAT
Mean	11168131	88047.92	880628.1
Median	11604467	94346.89	958059.4
Maximum	14036042	108472.5	1338624.
Minimum	6536656.	15840.00	164460.0
Std. Dev.	2444139.	26773.10	368119.2
Skewness	-0.529721	-2.180268	-0.532706
Kurtosis	2.185855	6.617125	2.396542
Jarque-Bera	0.743854	13.37411	0.624693
Probability	0.689405	0.001247	0.731728
Sum	1.12E+08	880479.2	8806281.
Sum Sq. Dev.	5.38E+13	6.45E+09	1.22E+12
Observations	10	10	10

Source: *Computed by the Researcher (2022) using E-views 10*

Table 1 above shows summary description of the data relating to the variables of the study. Market capitalization (MCAP), total volume of trade (TVOT) and total value of transactions(TVAT) have minimum values of6536656, 15840 and 164460 and a maximum of 14036042, 108472.5 and 1338624 respectively. The average values of MCAP, TVOT and TVAT are respectively 11168131, 88047.92 and 880628.1 with standard deviation 2444139; 26773.10 and 368119.20. Skewness measures distribution of table in which MCAP, TVOT and TVAT is less than zero is normal and period is -0.529721, -2.180268 and -0.532706 respectively. Kurtosis measures the fitness of the value in which MCAP, TVOT and TVAT is 2.185855, 6.617125 and 2.396542 respectively. Jarque-Bera measures the difference between

kurtosis and skewness for MCAP, TVOT and TVAT is 0.743854, 13.37411 and 0.624693, while probability of MCAP, TVOT and TVAT is 0.689405, 0.001247 and 0.731728 respectively.

Table 2: Regression Analysis

Dependent Variable: MCAP
Method: Least Squares
Date: 08/18/22 Time: 14:20
Sample: 2011 2020
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14069573	1950878.	7.211917	0.0002
TVOT	-112.3415	34.47425	-3.258709	0.0139
TVAT	7.937512	2.507292	3.165770	0.0158

R-squared	0.622795	Mean dependent var	11168131
Adjusted R-squared	0.515022	S.D. dependent var	2444139.
S.E. of regression	1702108.	Akaike info criterion	31.77596
Sum squared resid	2.03E+13	Schwarz criterion	31.86673
Log likelihood	-155.8798	Hannan-Quinn criter.	31.67638
F-statistic	5.778763	Durbin-Watson stat	1.959930
Prob(F-statistic)	0.032963		

Source: *Computed by the Researcher (2022) using E-views 10*

H_{01}: Total value of shares tradedhas no significant positive effect on capital market development in Nigeria.

From Table 2 above, the result showed that the variable has a positive significant impact on capital market development. It was observed that total value of shares traded (TVAT) on capital market development contributes positively to capital market development in Nigeria. The coefficient of determination (R^2) is 62.3%, which implies positive relationship between the explanatory variables which is total value of shares traded and the dependent variable, market capitalization (surrogate of capital market development). This means that the impact of TVAT on capital market development accounts for 62.3% influence on the capital market development in Nigeria while the remaining 37.7% account could be explained by other variables not included in the model. The adjusted R^2 of 0.52 is the same to the R^2 of value of 0.76, implying that the model is fit for making generalization. Furthermore, the value of F-statistic = 5.778763 indicates the model's goodness of fit to the data. Also, Durbin-Watson stat of 1.959930 shows absence of positive auto-correlation among the variables in the model. To end with, the p-value of total value of shares traded (TVAT) is 0.0158, which is less than 0.05 degree of freedom. The study, thus; concludes that there is positive significant relationship between total value of shares traded and capital market development in Nigeria.

Decision Rule

Since the p-value is 0.0158 is less than 0.05 degree level, the Null hypothesis, which states that total value of shares traded has no significant positive effect on capital market development in Nigeria, stands rejected while the alternate hypothesis that says total value of shares traded has significant positive effect on capital market development in Nigeria; has no reason why it should not be accepted.

H_{02}: There is no significant relationship between total volume of shares traded and capital market development in Nigeria.

From Table 2 above, the result of the variable has a strong negative significant impact on capital market development. It was observed that total volume of shares traded (TVOT) on market capitalization (proxy of capital market development) contributes to capital market development in Nigeria. The coefficient of -112.3415 shows that TVOT has negative impact on capital market development in Nigeria. Furthermore, the value of F-statistic = 5.778763 indicates the model goodness of fit to the data. Also, looking at the Durbin Watson stat of 1.959930 shows absence of positive auto-correlation among the variables in the model. Finally, looking at the p-value of total volume of shares traded is 0.0139, which is less than 0.05 degree of freedom. Therefore, the study concludes that there is positive significant relationship between total volume of shares traded and capital market development in Nigeria.

Decision Rule

Since the p-value is 0.0139 which is less than 0.05 degree level, the Null hypothesis that says there is no significant relationship between total volume of shares traded and capital market development in Nigeria; stands rejected while the Alternate hypothesis that states there is significant relationship between total volume of shares traded and capital market development in Nigeria, is accepted.

Discussion of Findings

The study findings in Table 2 confirms that value of shares traded (TVAT) has a strong positive significant impact on capital market development. On the other hand, the total volume of shares traded (TVOT) has a negative but significant impact on capital market development in Nigeria. Both variables have p-value of 0.0158 (2 percent) and 0.0139 (1 percent) which are less than 0.05 (5 percent) level of significant on capital market development in Nigeria. The result of the study is consistent with empirical finding of Onoh e al., (2017),

CONCLUSION AND RECOMMENDATIONS

The study concludes by stating that total volume of shares traded had a negative but significant effect on market capitalization and attributes it to the possibility of investor misspecification about future earnings or illiquidity of low volume shares. The total value of shares traded at the market had a positive and significant impact on the market capitalization attributable to a possible anticipation of higher market illiquidity by investors and consistent with the positive cross-sectional relationship between share price and illiquidity. The study suggests towards policy, the possibility that investors should make volume-basedtrading a strategy. Also, policies on capital gains tax can be reviewed to encourage trading rather than holding for dividends. In addition, there is the need for diverse investment instruments as well as education of the masses on wealth buried in these untapped financial assets such as derivatives, convertibles, future, swaps, and options. The study recommends for further research investigation into price-volume effect on capital market development.

References

Onoh, J. O., Ukeje, O. S., and Nkama, N. O. (2017). Trading Volume and Market Turnover in the Nigerian Capital Market: Implications to Stock Market Returns.IIARD International Journal of Economics and Business Management ISSN 2489-0065 Vol. 3 No. 1 2017 www.iiardpub.org

Idris, M. (2020). Analysis of capital market development and economic growth in Nigeria. Global journal of Applied, Management and Social Sciences (GOJAMSS), 20, 156-172. ISSN: 2276 - 9013

Lambe, I., Oyewobi, I. and Daniel, E. K. (2021). Effect of capital market on economic growth of Nigeria. International Journal of Accounting, Business and Entrepreneurship (IJABE). 1(1), 2021. ISSN:2795-3484

Dalut, N. A. (2018). Impact of capital market on the performance of SMEs in Nigeria. Bingham University Journal of Accounting and Business (BUJAB). 1(3), January, 2018, ISSN: 2346-7428

Mpofu, R. T. (2012). The relationship between Trading Volume and Stock Returns in the JSE Securities Exchange in South Africa. Corporate ownership & control. 9(4), Continued – 2

Aduda, J. Masila, M.J .and Onsongo, N. E, (2012) "The Determinants of Stock Market Development: The case for the Nairobi Stock Exchange''. International Journal of Humanities and Social SciencesVol.2.9, pp. 214- 227.

Samathan, B., Dasgupta, P. and Pradhan, R.P. (2013). Finance Development and Economic Growth in BRICS: A panel data analysis. Journal of Quantitative Economics 11, Vol 1 (3), pp. 308-322.

Uruakpa, P. C. (2019). Impact of the Capital Market on Industrial Sector Development in Nigeria. Journal of Finance and Economic Research, Vol. 4, No. 1, 2019. www.absudbfjournals.com.

Ibi, E. E., Joshua, N. J., Eja, B. R.and Olatunbosun, H. U. (2015). Capital market and industrial sector development in Nigeria: An empirical investigation. European Journal of Accounting Auditing and Finance Research, 3 (6), 63-79.

Akinlo, O. O. and Lawal, Q. A. (2015). Impact of exchange rate on industrial production in Nigeria 1986-2010. International Business and Management, 10 (1), 104-110.

Aklahyel, U. M., Askira, A. D. and Gaya, Y.H. (2014). Theoretical analysis of the role of capital market in the industrial development of Nigeria. International Journal of Research in Social Sciences, 4(4), 64-69.

Okoye, G. O. (2019). Effect of Capital Market on Economic Growth and Development in Nigeria. *International Journal of Academic Research in Business and Social Science, 9(2): 211-220*

Hariyanto, D. (2021). Effect of Trading Volume, Market Capitalization, Firm Size in explaining Return on Vultures. *Journal of Advanced Research in Economics and Administrative Sciences (JAREAS). 2(3), 50-64. ISSN: 2708-9320*

IOSCO (2007). Factors Influencing Liquidity in Emerging Markets. *Report of the IOSCO Emerging Markets Committee. Retrieved, August, 14, 2022* https://w.w.w.iosco.org/library/pubdocs/pdf/IOSCOPD258.pdf

Moderating Role of Profitability on the Effect of Board Attributes on Environmental Disclosure of Listed Oil and Gas Firms in Nigeria

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Abstract

Despite the global rising awareness about protection of environmental values and push by multinational companies to ensure that social and environmental information are properly disclosed, several companies operating within Nigeria have not taken the issue seriously. The concept of environmental disclosure is in its adoption stage in Nigeria and companies are indifferent about adherence to it. This is suspected to be as a result of prevailing characteristics of board members in a company. The purpose of this study is to investigate this suspicion by examining the effect of Board Attributes on Environmental Disclosure of Listed Oil and Gas Firms in Nigeria with consideration to the moderating role of profitability. Board attributes were grouped into board size, frequency of board meeting, degree of board independence, how diverse is the board and ownership concentration of board of the companies. Secondary data drawn from the published annual reports of eight (8) environmentally inclined oil and gas companies listed on the Nigeria Exchange Group was employed. Multiple regression model was used to analyse the data which spans a period of 15 years from 2006-2020. The result of the analysis showed that return on asset has a significant negative moderating effect on the relationship between board gender diversity and environmental disclosure, and a positive significant moderating effect on the relationship between board ownership and environmental disclosure. Further analysis revealed that return on asset has an insignificant moderating effect on the relationship between board size, board meeting, board independence and environmental disclosure. Based on the outcome of the analysis, it was concluded that board attributes affect environmental disclosure. Also, profitability as has a moderating factor role to play in influencing the perception of board members about environmental disclosure. It is therefore recommended that listed oil and gas companies adhere to the letters of the Global Reporting Index by making full disclosure on environmental value protection observed by the company. The result of the analysis will help regulators and business managers make informed decision on how to improve corporate governance practices and environmental information disclosure.

Keywords: Board Attributes, Environmental Disclosure, Profitability

INTRODUCTION

In recent years, companies in the extraction industries are doing more because of the growing social economy which occasioned the need for more natural resource. Most of these companies however have eyes on their economic goals without an aorta of consideration to the ecological environment (Andrew et al., 2020). Tietenberg and Lewis (2016), affirmed that harmful substances are being emitted into the environment as a result of their operations causing damage to the environment. This substantiated the assertion of Shen et al. (2015) that operations of these organizations in terms of how they manage their waste, their attitudes towards rehabilitation and greenhouse gas emission have adverse effects on the environment that have caused damages beyond what natural ability can repair. This circumstance has become a matter of public concern to government of countries of the world. In China for instance, the government is very concerned about economic activities that are causing severe environmental challenges. Hence, during her 18th National Congress of the Communist Party, emphasized the need for the development of ecological civilization, enhancement of green water and green hills with insistence on the protection of environment (Goron, 2018). To facilitate this pronouncement, the government each year awards environmentally friendly companies. Organizations operate in an environment. In the context of this study, these companies are extraction companies who emit carbon monoxide into the atmosphere or spill crude into their waters thereby causing environmental hazard. Rationally, there should be some form of efforts made by the companies to compensate the host communities and the disclosure of such efforts documented in their annual reports to promote transparency and prove their commitment towards safeguarding the welfare of the people. Environmental disclosure is a tool that provides information about

environmental performance of companies and reflects concerns about environmental issues to stakeholders. The essence of this is to increase the integrity of information available to stakeholders and to accomplish desired environmental agreement that will strengthen competitive position of the company through adopting production processes that aligns with societal expectation of environmentally friendly products (Ala, 2019). This will also, place the organization in a supporting position in addressing environmental issues (Rifai, 2012). As a result, there is a need for companies to make environmental disclosure.

In countries where the economy depends on extraction of natural resources, sustaining the ecological environment is a matter of critical concern. Nigeria is one of such countries where oil and gas sector accounts for a sizeable proportion of her GDP and has been named the largest oil producer in Africa (Okafor et al., 2022). Although non-financial in nature, environmental disclosure is an integral component of the integrated report. Environmental disclosure is important to provide explanations on how they have handled environmental challenges which can inform decisions of investors in the capital market (Okudo & Ndubuisi, 2021). The concept of environmental disclosure is captured in environmental accounting which according to Okafor et al., (2022) "is the identification, allocation and evaluation of material streams and their associated cash flows via the use of environmental accounting structures to provide insight in environmental impacts and associated financial effects". The horizon of environmental accounting spans activities beyond mere profiteering but also emphasizes peaceful coexistence between the society and the company. This requires that companies commit themselves to ethical behaviours that will stimulate sustainability of the environment while making profit from their legitimate operation. Environmental disclosure is still a voluntary action which can be influenced by several factors including board attributes. Price (2018) opined that board members are valuable tools for corporate governance and will hence play an essential role in determining disclosure level. The decision to disclose crucial environmental information depends on board composition and other organizational characteristics (Htay et al, 2012). In fact, the quality and volume of environmental information divulged will vary from one company to another depending on the board characteristics. In Nigeria, environmental disclosure is a matter of policy and there are no particular accounting standards guiding compliance. Available guidelines only recommend without any sanction imposed for non-disclosure. Environmental information disclosure is important in knowing how environmental issues were addressed. Disclosure is done by some companies only to promote industry practices and fulfil disclosure requests by environmental promoters (Okafor, 2018). However, non-disclosure can pose reputational risk on the company which will come at a cost and affect wealth creation objective of shareholders. Risk could come as a result of the demands of community members on environmental and social concerns which if the company fails to address could disrupt operations. Companies are required to be strategic in the ways and processes they address the demands of various stakeholder. One way is to have a board composition that will effectively monitor and manage risk following regulatory framework provisions (Price, 2018).

Although researches on Environmental Disclosure are gaining prominence in corporate governance, the focus however has mostly been on what influences disclosure. Very few literatures exist on whether profitability can motivate the decision of the board on environmental disclosure. While it is common knowledge that board attributes can affect disclosure, the direction of such impact is an ongoing discussion. This study seeks to address the issue of environmental disclosure from the perspective of board attributes being moderated by profitability. To achieve this, the following hypotheses have been formulated:

$H0_1$: Board size has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

$H0_2$: Frequency of Board meeting has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

$H0_3$: Board independence has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

$H0_4$: Board diversity has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

$H0_5$: Board ownership has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Board Attributes

Owners of businesses are interested in maximizing wealth. This objective can influence what decision they will make corporate governance doctrines regardless. Yusoff and Alhaji (2012) averred that there is no pattern for explaining the varying and complex relationship between corporate governance and firm's profitability. However, researches have shown that the characteristics of the board can influence firm performance. What remain unknown is whether profitability can affect the decision of the board regardless of the attributes.

Board Size

Board size refers to the composition of a company's board of directors. Corporate governance stipulates the number that makes for an effective board. Ntim et al., (2013) sees board size as a corporate governance tool that can affect the level of voluntary disclosure. Having a large number of directors on the board can bring in diverse expertise and increased monitoring mechanism. However, Jensen (1993), averred that a larger board can lead to ineffectiveness which will result from the inability of the Chief Executive Officer to control the board. He further opined that an increase in the number of directors on the board will increase monitoring capacity which benefit may be eroded by incremental cost of poorer communication and a slower decision-making process.

Board Independence

Board is seen to be independence when management can carry out their functions without interference or external influence that can jeopardize objectivity. Corporate governance doctrine was clear on how the board should be formed and how a single person should not usurp multiple powers to himself. The board should be made up of dependent and independent members. Dependent members are those who are loyal to the direct owners of the company while independent members represent the interest of the minor shareholders (Sharif & Rashid, 2014). Chen and Jaggi (2000), sees board independence as the fundamental basis for which management can make objective decisions, evaluation and supervision of the board of directors. It is recommended that the board should be composed of a higher number of independent directors and they should form major component of sub committees of the board.

Board Diversity

Ben-Amar et al (2017) sees board diversity from the perspective of gender equality. Liao et al., (2014), considers gender diversity of the board as an important factor that can affect environmental disclosure. Naciti (2019) in his research opined that diversifying the board through age demography will make for an effective board with robust knowledge. It can be inferred from the conclusion of these researchers that board diversity refers to a situation where a company absorbs different gender, age bracket, expertise etc, on the board of directors. The purpose of the board of director is to improve the quality of decisions being made. Management must therefore do all it can to engage capable hands including foreign directors when necessary.

Board meeting

Board meeting is defined as the coming together of directors to assess issues of concerns for the company. It is a platform where strategic matters that will improve the organization and provide sound monitoring are discussed. The frequency of board meeting is an attribute that can influence decision-making. Gul and Leung (2004) expressed board meeting as the number of meetings in a year, meeting attendance rate and board stability. The frequency of meeting will determine how fast the board can respond to arising matters and take advantage of opportunities.

Board concentration

The concentration of power can either be equally distributed among all board members or concentrated in the hands of few directors. Where power is equally distributed, a company is likely to record fewer extreme decisions and outcome. Adams et al., (2005) found that companies will experience higher variability in performance when their Chief Executive Officers are powerful. Companies that have smaller boards are likely to make more extreme decisions than larger groups. Impliedly, where there is higher concentration of power within the boards, there is a possibility of higher volatility of performance. Alternatively, distributed power among directors always result in difficulty in reaching consensus which may affect firm performance.

Environmental Disclosure

Corporate environmental disclosure has different meaning to different organizations. However, the common factor in defining environmental disclosure is that it covers the protection of natural resources, preventing the damage of ecological environment and compensation of the society for possible damage done to it (Gerged, 2021). This disclosure is well captured through environmental accounting which is a component of corporate social reporting. In modern day business circle, addressing environmental issues is a major area of challenge to management. There are several regulations that impose commitment on organizations to preserve the environment. Disclosure of such effort is required to communicate the response of companies to the plight of the communities inflicted by their operations. There is a responsibility on the communities however to monitor the changing environmental behaviour of organizations and raise awareness about environmental problems (Ayasrah, 2018). Environmental disclosure is relatively new in the Nigeria space despite rapid adoption of disclosure practices by companies across the globe. It reflects information of performance and activities of environmental management of the company and the attendant financial implication whether present, past or future (Darwish, 2009). The importance of environmental disclosure can never be over-emphasized because it is a tool to mitigate environmental and social risk which is why many organizations are adopting it in their annual reports to achieve the desires of investors and other stakeholders. Disclosure can help a company achieve many advantages for investors and other beneficiaries because companies that perform their duty towards the environment will enjoy unprecedented patronage. On the contrary, failure to perform environmental obligations can mount pressure on a company. Such company may eventually be faced with a bigger burden of remedying damages caused by environmental pollution.

Environmental disclosure could give a company competitive advantage over other companies in the industry. According to Thi & Pham, (2018), unlike government and investors who assess companies based on compliance to regulation and profitability respectively, communities will always evaluate companies based on their contribution towards environmental growth and development. Environmental responsibility requires companies to involve in programmes that will promote societal growth and improve condition of the environment which should be documented and disclosed in the annual report for the public to access (Radka, 2019). In essence, environmental disclosure has a singular purpose of meeting the information needs of the host communities of the companies which will in turn improved the validity and trustworthiness of the financial reporting system while also increasing the company's image and reputation (Khasharmeh & Desoky, 2013).

Return on Assets

Profitability is measured by how much a company is able to earn from putting its assets to use. In finance, return on assets is a measure of profitability and hence is the ratio of profit to assets (CFI Team, 2022). Profitability can be a motivating factor for decision-making in a company. This is based on the fact that owners of business desire value creation and this can only be achieved when higher return is earned. Efficient management of assets in the generation of returns can be assessed using the return on assets metric. A higher return shows efficient management and vice versa. Business owners are concerned about efficient management of their investment. Marshall et al (2022) opined that while comparing revenue with profit is great, business survival hinges on the measurement of returns in relation to the resources applied to earn such returns. A firm's decision to disclose environmental information may be influenced by profitability. This according to Legendre and Coderre (2013) could be because companies may feel that environmental disclosure will improve relationship with stakeholders. Hence, beyond wealth maximization, the company will always pursue to be in a good relationship with the society. This require them compensating them for damages and hazards caused by their operations. In the same vein, such efforts must be properly disclosed. It is rational that when board members are certain that such disclosure will influence financial performance, they will voluntarily push for disclosure. They may be indifferent where profit is not a potential for environmental disclosure. This study seeks to validate this possibility as there was no literature to address this area of environmental disclosure practice.

Empirical Review

Okafor et al., (2022) sought to ascertain the determinants of environmental disclosure of quoted Oil and Gas firms in Nigeria for a period of thirteen (13) years spanning from 2008 to 2020. Specifically, this study ascertained the relationship between Leverage, Firm Size and Audit Committee Size and Effluent Disclosure. Panel data were used in this study, which were obtained from the annual reports and accounts of eleven (11) sampled quoted Oil and Gas firms. Ex-Post Facto research design was employed. Descriptive statistics of the dataset from the sampled firms were used to describe using the mean, standard deviation, minimum and maximum values of the data for the study variables. Inferential statistics using Pearson correlation coefficient, Multicollinearity test, Panel Least Square (PLS) regression analysis and Hausman test were applied to test the hypotheses of the study. The results of the tested hypotheses revealed that there is a significant and positive relationship between Leverage and Effluent Disposal of quoted Oil and Gas firms in Nigeria; there is a significant but negative relationship between Firm Size and Effluent Disposal of quoted Oil and Gas firms in Nigeria; there is a significant and positive relationship between Audit Committee Size and Effluent Disposal of quoted Oil and Gas firms in Nigeria. The study recommended amongst others that oil and gas firms should be encouraged to leverage on debt source of fund in order to build wealth with other people's money so as to enable the firms get more involved in environmental development. Wisdom et al., (2021) analysed the relationship amid board characteristics and environmental information disclosure of listed Nigerian manufacturing firms. The data used were sourced from twenty (20) Nigerian listed companies from the manufacturing sectors, which were randomly chosen from manufacturing firms listed on the Nigerian stock market between 2013 and 2017. The study made use of ordinary least squares regression. Research findings showed that there is a positive and significant relationship linking board independence and environmental disclosure in Nigeria's oil and gas and manufacturing sectors. In line with the results, it was recommended that a large board of directors comprised of foreign directors would improve firms' environmental disclosure.

Ndalu et al., (2021), investigated the relationship between board characteristics and environmental disclosure of quoted oil and gas firms in Nigeria: The moderating role of firm size with its specific objectives such as to determine the relationship between board independence and environmental disclosure. The research design adopted was ex-post facto design while, the population and the sample size for the study is the 12 quoted oil and gas companies in the Nigerian Stock Exchange (NSE). Secondary data were used in this study and data were analyzed using both descriptive, inferential statistics and Pearson Correlation Coefficient Statistical tool complementarily with the aid of Statistical Package

for Social Sciences version 23.0 to test the null hypotheses. The findings of the study reveal that board independence has a negative relationship with environmental disclosure. The findings of the study further indicate that firm size significantly moderates the relationship between board characteristics and environmental disclosure. Based on the findings, the study recommends that independence should be assessed by weighing all the relevant factors that may compromise independence while the classification of directors as independent or otherwise in the integrated report should be done on the basis of assessment. Moruff et al., (2021) examines the relationship of specific oil and gas firms' attributes; firms age, board composition, financial performance, existence of foreign directors on the board and financial leverage with Environmental Disclosures (ED). Data were collected from the published annual reports of nine listed oil and gas firms quoted on the floor of the Nigerian Stock Exchange (NSE) as at 2018, for a period of seven years (2012-2018). Generalized Least Square (GLS) was used to test the hypotheses after satisfying the criteria of post estimation tests. The result established a positive and significant relationship between board composition, financial leverage, existence of foreign directors on the board and ED. However, firm age and financial performance was found not to have significant relationship with ED. The study recommended that NSE should pursue actualization of the standard for disclosing ED by listed Oil and Gas firms. It also recommended that Firms that so far comply with disclosing their EI should be motivated through tax incentives by the regulatory authorities to achieve an improved ED practice in Nigeria.

Oware and Mallikarjunappa (2021), examined the moderating and mediating effect of corporate social responsibility (CSR) disclosure and CSR expenditure on the association between listed firms' financial performance and gender diversity. There are 80 listed firms with 800 firm-year observations from 2010 to 2019 that qualified for the study using the Indian stock market. The first finding shows a negative association between financial leverage and gender diversity. The second finding shows that the implementation of CSR disclosure hurts the improvement of gender diversity. The third finding shows that CSR expenditure improves gender diversity of listed firms in an emerging market. The fourth finding shows that CSR expenditure positively mediates the negative association between financial leverage and gender diversity. The fifth finding shows that CSR disclosure does not mediate the association between financial performance (return on assets, price to book ratio and financial leverage). The sixth finding shows that CSR expenditure negatively moderates the negative association between return on assets and gender diversity. Based on the result of analysis, it was recommended that firms' management should be careful in designing strategies for gender diversity improvement, especially when the firms seek to use CSR disclosure to communicate to stakeholders and investors. Salawu et al., (2021) took a step towards addressing the shortcoming of environmental disclosure practice in Nigeria by examining board characteristics and their effects on Social and Environmental Disclosure in Nigeria. The study employed a mixed theoretical approach in explaining the relationship between board characteristics and Social and Environmental Disclosure. Global Reporting Initiative (GRI) Index was used for grading companies' Social and Environmental Disclosure performance. Panel data which covers a period of seven years (2012 - 2018) was obtained from the published Annual Reports of fifty (50) selected environmentally sensitive enterprises listed on the website of the Nigerian Exchange Group as of 2019. Panel corrected Standard Error (PCSE) regression was used for testing the hypotheses. Board size, board expertise, board independence and board gender diversity were found to have positive and significant relationship with Social and Environmental Disclosure. The study concluded that Board Characteristics impact Social and Environmental Disclosure and further recommends that listed firms should comply adequately with corporate governance requirements related to Board Characteristics to ensure that Social and Environmental Disclosure is not compromised.

Andrew et al., (2020) examined the impact of board characteristics on environmental accounting information disclosure for listed mining companies in China. The study categorized board characteristics into board size, independence characteristics, diversity characteristics, behavioural characteristics, and incentive characteristics. 34 mining companies were used as samples and panel data from Shanghai and

Shenzhen Stock Exchange covers a period between 2000-2018. Analysis of the impact of board characteristics on environmental disclosure before and after the promulgation of Environmental Information Disclosure Degree was carried out using multiple regression analysis model. The result of the analysis showed a significant positive correlation between board characteristics and Environmental Accounting Disclosure Index (EADI). In terms of diversity characteristics, both females on board and foreign nationals revealed a negative and insignificant relationship with EADI. Based on the result of analysis, the study recommends that management should increase awareness of environmental protection and environmental information disclosure to ensure stakeholder information needs, focusing on fulfilling environmental responsibilities and improving the quality of corporate environmental information disclosure. Ala, (2019) focuses his study on the relationship between the characteristics of the board of directors and the environmental disclosure in the industrial companies listed on the Amman Stock Exchange in Jordan for the period of 2014-2017. A total of 63 industrial companies were studied using three variables: the board size, board independence and board ownership in addition to the control variable firm size. A measure of the level of environmental disclosure was used in the annual reports of the companies sampled. Panel data was employed to test the hypotheses of the study. The outcome of analysis found that the general trend of the level of environmental disclosure during the years (2014-2017) was increase which is as a result of increasing awareness among Jordanian industrial companies of the importance of environmental disclosure. This level of environmental disclosure is relatively low compared to developed countries. The study also found a positive relationship between the board size, the board ownership, the firm size and the level of environmental disclosure. It was recommended that increase in the number of members of the board should be prioritize to provide a variety of knowledge and expertise that reduce the problem of the agency and contribute to enhancing the capabilities of the board members

Christian et al., (2020), did a study on the assessment of environmental disclosure: the moderating effect of firm attributes and foreign-domestic ownership ratio with specific interest on the role of firm size, leverage and profitability. Secondary data retrieved from the annual reports of oil and gas quoted companies on the stock exchange of Nigeria was employed in the study. The study period spans from 2010-2018 and the Generalized Least Squares (GLS) regression was used for the estimation of the specified models. The findings of the study show that profitability has a significant impact on environmental reporting of oil and gas quoted companies in Nigeria. The study further revealed a significant moderating effect of foreign-domestic ownership ratio on the relationship between firm size, leverage, Profitability and environmental reporting. The study recommends that firms that are well to do financially should pay more attention to environmental reporting and firms should improve their environmental performance irrespective of their leverage. The study further recommends that both small and big firms need to improve their environmental performance and the presence of more foreign-domestic ownership should lead to more robust disclosures of environmental issues. This study of Halil, (2016) primarily aims to analyze the relationship between selected board characteristics and the extent of environmental disclosure in annual reports of Turkish companies, using a sample of 62 non-financial firms listed on the BIST-100 index at the end of 2011. The content analysis is used to measure the extent of environmental disclosure. Board size, board independence, board gender diversity and audit committee independence, are considered as the independent variables that may have an impact on the extent of the environmental disclosures of Turkish companies. Results of regression analysis showed that only board size has a statistically significant and positive relationship with environmental disclosure. This result reveals that firms with larger boards will disclose environmental information more than firms with smaller boards. Other board characteristics were found to be unrelated to the extent of environmental disclosure. It was recommended that number of board members be increased to achieve greater monitoring effectiveness since larger boards lead to a diversity in terms of expertise, including financial and accounting.

Theoretical Review

Stakeholders Theory

Stakeholder Theory explains the interconnected relationship that exists between an organization and its employees, customers, investors, environmental group, communities, suppliers and others who have contributed a stake and expect a return from the organization. Propounded by Freeman R. Edward in 1984, the theory postulated that creation of value objective should consider a wider stakeholder rather than a shallow shareholder view. Hence, shareholders interest should be seen as one of many group interests that an organization must serve. Anyone that is affected by the organization or its activities in any way qualifies as a stakeholder. The theory is concerned with the business ethics that addresses morals and values in managing an organization. Morals and values relate to corporate social responsibility, market economy, and social contract theory. Corporate existence requires efficient stakeholder management. Harrison et al., (2019) averred that the goal of an organization notwithstanding, an organization should be able to manage relationships that can assure corporate existence. For the purpose of this study, stakeholder theory is viewed from the perspective of those groups that can control or are affected by a company's environmental disclosure practices. These could be internal or external stakeholders. The organization must ensure that information content of the environmental report is such that is reliably transparent. Rissy (2021) asserted that such action can reduce stakeholder dilemma. He opined that stakeholder theory provides the understanding that organizations are structured by providing knowledge that provides rich expertise which encourages administrative progress in environmental and social reporting to satisfy the needs of strong stakeholders.

The Legitimacy Theory

The behaviour of organizations in developing, executing and communicating their policies on social responsibility to relevant stakeholders is largely controlled by legitimacy theory. Legitimacy theory hinges on the concept of social contract. The theory explains the mutual responsibility that exists between organizations and the society which is based on the concept of social contract. Social contract assumes that there is an existing burden of responsibility and expectations that both the company and the society owe to each other and the which must be upheld at all times. Dowling and Pfeffer in 1975 propounded this theory to address the gap between an organization and the environment in which they carry out their activities. Ajape (2019) averred that environmental disclosure is a powerful instrument that refines the perspective of the communities about the organization and convey the extent of their practical contribution to the society in which it operates. Organizations therefore must develop various disclosure strategy that will appeal to members of the communities where they are located. By this theory, firms are obligated to report their social and environmental commitments to stakeholders.

Contingency Theory

Contingency theory could be traced back to an Australian Psychologist Fred E. Fielder in 1964 who argued that the personality of a leader and situation from which such leader operates will determine his effectiveness or otherwise. Contingency theory provides a linkage for environmental information disclosure by companies especially where the disclosure is not compulsory but induced by certain firm's attributes and external factors or both (Ajape, 2019). Setting an objective of having competitive advantage through established reputation and social acceptance could motivate an organization to embrace contingency approach to environmental disclosure. Otherwise, having board members who are interested in environmental sustainability could be an influence for adopting environmental disclosure (Moruff et al., 2021).

METHODOLOGY

Ex post facto research design was adopted for this study because the research relies heavily on historical data and a cross section of oil and gas companies in Nigeria. The study used a population of eight (8) oil and gas companies listed on the Nigeria Stock Exchange. These companies include: Oando Plc, Conoil

Plc, MRS (Texaco Chevron) Plc, Ardova (Forte Oil) Plc, Japaul Gold & Ventures Plc, Total Nigeria Plc, Eterna Oil Plc and 11 Plc. These companies were selected because they are environmentally sensitive by reason of the nature of their operations. Given the size of the population, the study adopted the same population number of eight (8) companies as the sample size. Data used for them is obtained from the Nigeria Stock Exchange and it covers a period of 15 years from 2006-2020. Purposive sampling technique was employed to select oil and gas companies that for the period under review consistently filed their annual reports with the Exchange Group. They are: Oando Plc, Conoil Plc, MRS (Texaco Chevron) Plc, Ardova (Forte Oil) Plc, Japaul Gold & Ventures Plc, Total Nigeria Plc, Eterna Oil Plc and 11 Plc. Secondary data harvested from the published annual reports of the sampled listed oil and gas companies in Nigeria was used for this study. Pearson Correlation Analysis, Multicollinearity Test, Panel Least Square regression analysis and Hausman Specification Test was employed for analysing data and drawing inferences in this study. The Global Reporting Initiative (GRI) framework disclosures was adopted for this study with respect to the G4 guidelines to help in arriving at indices for environmental disclosure.

Model Specification

$$ENTD_{it} = \beta_0 + \beta_1 BODS_{it} + \beta_2 BMET_{it} + \beta_3 BODI_{it} + \beta_4 BODG_{it} + \beta_5 MAOW_{it} + \beta_6 FSIZ_{it} + \varepsilon_{it} \quad \text{.......................} \ (i)$$

Where:

ENTD: Environmental disclosure index (ENTD) dataset are used to measure the level of environmental information that is disclosed in a company's annual financial report.
BODS: Board Size in numbers is computed as the total numbers of all directors of a company including the Chairman +Vice Chairman +CEO/Managing director + Executive Directors +Non-Executive Directors or Independent Directors but excluding the company secretary
BMET: Board Meetings in numbers is the number of the board meetings held by the board of directors in a year. Note: This may not be disclosed by many companies.
BODI: Board Independence in percentage is computed as the non-executive directors to total board size.
BOGD: Board Diversity in percentage is computed as the female directors to total board size
MAOW: Board Ownership or Shareholding in percentage is computed as total directors direct and indirect shares owned divided by total outstanding shares
FSIZ: Firm Size
β: Interception of the equations;
Ɛ: The error term.

$$ENTD_{it} = \beta_0 + \beta_1 BODS_{it}*ROA + \beta_2 BMET_{it}*ROA + \beta_3 BODI_{it}*ROA + \beta_4 BODG_{it}*ROA + \beta_5 MAOW_{it}*ROA + \beta_6 FSIZ_{it} + \varepsilon_{it} \quad \text{.......................} \ (ii)$$

Where:

ENTD: Environmental disclosure index (ENTD) dataset are used to measure the level of environmental information that is disclosed in a company's annual financial report.
BODS: Board Size in numbers is computed as the total numbers of all directors of a company including the Chairman +Vice Chairman +CEO/Managing director + Executive Directors +Non-Executive Directors or Independent Directors but excluding the company secretary multiplied by Return on Assets
BMET: Board Meetings in numbers is the number of the board meetings held by the board of directors in a year. Note: This may not be disclosed by many companies multiplied by Return on Assets.
BODI: Board Independence in percentage is computed as the non-executive directors to total board size multiplied by Return on Assets.
BOGD: Board Diversity in percentage is computed as the female directors to total board size multiplied by Return on Assets
MAOW: Board Ownership or Shareholding in percentage is computed as total directors direct and indirect shares owned divided by total outstanding shares

FSIZ: Firm Size
ROA: Return on Assets
β: Interception of the equations;
Ɛ: The error term.

RESULTS AND DISCUSSION

Table 1 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
endi	118	0.0156	0.0446	0	0.25
bods	118	8.7881	2.3960	4	16
bmet	118	9.9692	8.6786	2	14
bodi	118	65.6792	12.1144	40	90
bogd	118	4.6271	1.0025	2	8
maow	118	13.1942	20.5671	0	78.2
roa	118	3.2520	19.8436	-71.36	176.27

Source: Descriptive Statistics Output using STATA 14.0 Results based on study data

From table 1 Environmental Disclosure index (ENDI) recorded a mean value of 0.0156 implying that on average most of the companies ENDI disclosure environment issues by 1.56%. It also recorded a minimum value of zero naira 0 and a maximum value of 0.25 for all the sampled companies within the study period. This indicates that, some companies do not disclose environmental issues for some years under review, while the highest disclosure was 0.25. This also indicates a high variation of environmental disclosure among the companies as depicted by the value of standard deviation of 0.0446 which is higher than the mean value. Board size (BODS) recorded a mean of about nine (9) board members, implying that, most of the companies have nine members on the board. It also recorded a minimum value of four (4) and a maximum of sixteen (16) board members implying that the lowest number of board members in the sampled listed oil and gas companies within the study period is four (4), while the maximum is sixteen (16). This indicates a low variation in the number of directors on the board among the companies as depicted by the value of standard deviation of two (2) board members which is low compared with the mean value. Board meetings (BMET) from table 1 has an average value of 10 indicating that most of the companies had 10 meetings on the average. It also recorded a minimum value of 2 and a maximum value of 14 indicating that the lowest number of board meeting is 2 and the maximum is 14. The standard deviation of 9 indicate that a low variation from the mean.

Board independence recorded an average proportion of non-executive directors of about 66%, implying that, most of the sampled listed oil and gas companies have more non-executive directors on their board. It also recorded a minimum value of 0.4 and maximum value of 0.9, implying that the minimum percentage of non-executive directors on the board is 40% for the sampled listed oil and companies, while the maximum percentage is 90%. This indicates a low variation in the percentage of board members among the sampled listed oil and gas companies as depicted by the value of standard deviation of (12%) which is lower than the mean value. Board gender diversity recoded a mean value of 4.6, implying that, on average, the sampled listed oil and gas companies have 5% as the proportion of women on the board. It also recorded a minimum of 2 and a maximum value of 8, implying that within the sampled listed oil and gas companies for the study period, there were no companies that do not have any woman on their board, while there were companies with 8 women on their board. This indicates a low variation in the percentage of women on the board among the sampled listed companies as depicted by the value of standard deviation of 1.0025 which is low compared with the mean value. Board Ownership (MAOW) of the listed oil and gas companies has a mean value of 13 indicating that the average numbers of managers/directors who are shareholders are 13. The maximum number of directors who are shareholders is 6% while the maximum is 78.2%. This indicates a high variation of ownership among the companies as depicted by the value of standard deviation 21 which is higher than the mean value of 13.

Finally Table 1, the mean ROA for the sampled listed oil and gas companies in Nigeria is N3.2520, indicating that the average profit earned by the companies is 325.20% of their total assets with a maximum loss of 7136% of their total assets and maximum profit of about 17627% of their total assets. This indicates a high variation of performance among the companies as depicted by the value of standard deviation (1984%) which is higher than the mean value.

Correlation Analysis

Table 2: Correlation Matrix of the Dependent and Explanatory Variables

	endi	bods	bmet	bodi	bogd	maow	bodsroa	bmetroa	bodiroa	bogdroa	maowroa	fmsiz
endi	1.0000											
bods	-0.3856	1.0000										
bmet	0.0333	-0.0979	1.0000									
bodi	0.2043	0.0858	0.1226	1.0000								
bogd	-0.2233	0.2444	0.0898	0.0591	1.0000							
maow	0.0916	-0.1595	0.1222	-0.0649	0.0910	1.0000						
bodsroa	-0.0453	0.0156	-0.0213	-0.0397	-0.0280	-0.0787	1.0000					
bmetroa	0.0082	0.0026	0.0359	-0.0530	-0.0237	-0.0492	0.9372	1.0000				
bodiroa	-0.0264	-0.0149	-0.0366	-0.0327	-0.0450	-0.0716	0.9876	0.9566	1.0000			
bogdroa	-0.0415	-0.0186	-0.0301	-0.0644	0.0118	-0.0544	0.9886	0.9593	0.9912	1.0000		
maowroa	0.0474	-0.0308	-0.0464	-0.0543	0.0775	0.1340	0.6542	0.5915	0.6516	0.6477	1.0000	
fmsiz	-0.3769	0.5664	0.1339	0.0982	0.2540	0.0239	-0.0657	-0.0302	-0.0514	-0.0688	-0.0348	1.0000

Source: Correlation Matrix Results using STATA Version 14.0. Results based on study data

As shown on Table 2, the association between board meetings, board independence, board ownership, moderated board meetings with return on asset, moderated board ownership with return on asset are weak and positive with correlation coefficient values of 0.0333, 0.2043, 0.0916, 0.0082, and 0.0474 respectively. In contrast, a weak and negative relationship exist between ENDI and board size, board gender diversity, moderated board size with return on asset, moderated board independence with return on asset moderated board gender diversity with return on asset and firm size with the correlation coefficient values of -0.3856, -0.2233, -0.0453 -0.0264 -0.0415 and -0.3769 respectively.

Table 3: Result of Multicolinearity Test

Variable	VIF	1/VIF
bods	1.65	0.607718
fmsiz	1.60	0.625600
bogd	1.11	0.901388
bmet	1.10	0.911573
maow	1.07	0.932354
bodi	1.03	0.968572
Mean VIF	1.26	

Source: STATA 14 output Results based on study data

Table 3 shows the VIF and tolerance value of the independent variables, in each case, VIF is less than 10 and tolerance level is less than 1 respectively, showing that there was absence of Multicollinearity among the independent variables. The mean VIF of 1.26 also attests to the fact that there is no problem of Multicollinearity among the variables.

Table 4: Result of Heteroskedasticity Test

	Chibar ^{2}	Prob.> chi^2
Heteroskedasticity	56.74	0.0000

Source: STATA 14 output Results based on study data

The results as presented in table 5 above revealed that there is a presence of Heteroskedasticity in model as the probability chi-square value of 0.0000 is less than 0.05. This will be corrected using panel corrected standard error regression

Table : Post diagnostic test

	Chibar ^{2}	Prob.> chi^2
Breusch and Pagan LM test	278.65	0.0000
F test	31.44	0.0000
Hausman test	1. 30	0.9719

Source: STATA 16 output Results based on study data

The results of the LM test in table 5 above showed a chi bars^2 of 278.65 with a corresponding prob > chi bar of 0.0000 therefore the study rejected the null hypothesis and conclude that random effects is the most appropriate model because there is evidence of significant differences across the firms. As a result, pooled OLS should not be used. The result of the Hausman test in table 5 above with probability values of 0.9719 suggested that the random effect regression model is most appropriate. The F test was conducted to determine between pooled OLS and fixed effect which is most appropriate. The result of the F test showed a probability value of 0.0000 which is less than 5% indicating that fixed effect regression is most appropriate. However the post-diagnostic analysis showed that there is a problem of Heteroskedasticity in model. consequently, panel corrected standard error (PCSE) regression was used to correct the problem of Heteroskedasticity as presented in result Table 6 below therefore the interpretation was based on the results PCSE regression and not fixed effect regression.

Table 6: Panel Corrected Standard Error Results

endi	Coef.	Panel-corrected Std. Err.	z	P>|z|
bodsroa	-0.0001	0.0003	-0.27	0.783
bmetroa	0.0001	0.0001	1.53	0.126
bodiroa	0.0004	0.0003	1.19	0.233
bogdroa	-0.0009	0.0004	-2.20	0.028
maowroa	0.0003	0.0001	2.45	0.014
fmsiz	-0.0384	0.0065	-5.89	0.000
_cons	0.3161	0.0520	6.08	0.270
$\bar{R}^2$				0.2277
Wald Chi^2				39.60
Prob > chi2				0.0000

Source: STATA 14 output Results based on study data

The Wald Chi^2 value of 29.60 and a corresponding Prob.>F of 0.0000 indicated that the model is fit to explain the relationship expressed in the study. The nature and extent of the relationship between the dependent variable and each of the independent variables of the study in terms of coefficients, z- values, and p- values are explained further:

$H0_1$: Board size has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

This section analyzed the moderating effect of return on asset on relationship between board size and profitability of listed oil and gas companies in Nigeria. The result as presented in Table 6 above showed that return on asset has negative and insignificant moderating effect on the link between board size and environmental disclosure at 5% level of significance (ceff -0.0001, z=0.783). Based on the result, the first null hypothesis is not rejected. This implies that return on asset moderates the effect of board size on profitability negatively, and it is not statistically significant. This findings is consistent with those of Halil, (2016) who found that return on asset has negative moderating effect on the link between board size and environmental disclosure. However, it is not in agreement with the findings of Ala, (2019) who found that return on asset have positive moderating effect on the relationship between board size and profitability

$H0_2$: Frequency of Board meeting has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

The results in Table 6 revealed that return on asset has positive and insignificant moderating effect on the link between board ownership and environmental disclosure at 5% significance level (ceff 0.0001, t=0.126). Based on the result, the second null hypothesis is not rejected. This implies return on asset has a positive and insignificant moderating effect on the link between board ownership and environmental disclosure. This finding is consistent with those of Ala, (2019) who found that return on asset has positive moderating effect on the link between board ownership and environmental disclosure. However, the result contradicted the findings of Ndalu et al., (2021),who found that return on asset have negative moderating effect on the relationship between board ownership and environmental disclosure.

$H0_3$: Board independence has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

The result presented in Table 6 also showed that return on asset has positive and insignificant moderating effect on the link between board independence and environmental disclosure at 5% significance level (ceff 0.0004, t=0.233). Based on the result, the third null hypothesis is not rejected. This implies return on asset moderates the link between board independence and profitability positively, but it is not statistically significant. This finding is consistent with those of Wisdom et al., (2021)**,** who found that return on asset has positive moderating effect on the link between board independence and environmental disclosure. However, the result contradicted the findings of Ndalu et al., (2021), who found that return on asset have negative moderating effect on the relationship between board independence and environmental disclosure.

$H0_4$: Board gender diversity has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

The result in Table 6 also showed that return on asset has negative and significant moderating effect on the relationship between board gender diversity and environmental disclosure at 5% level of significance (ceff -0.0009, z=0.028). Based on the result, the fourth null hypothesis is rejected. This implies that return on asset positively and significantly moderate the effect of board gender diversity on environmental disclosure. This finding is consistent with that of Salawu et al., (2021) who found that return on asset has a positive and significant moderating effect on the relationship between board gender diversity and environmental disclosure. The findings disagree with those of Halil, (2016) who found that return on asset have a negative moderating effect on the relationship between board gender diversity and environmental disclosure.

$H0_5$: Board ownership has no significant effect on environmental disclosure decision when it is moderated by profitability in listed oil and gas firms in Nigeria.

The result presented in Table 6 further showed that return on asset has positive and significant moderating effect on the link between board ownership and environmental disclosure at 5% significance level (ceff 0.0003, z=0.014). Based on the result, the fifth null hypothesis is rejected. This implies return on asset significantly and positively moderates the link between board ownership and profitability. This finding is

in agreement with those of Andrew et al., (2020) who found that return on asset has a significant positive moderating effect on the link between board ownership and environmental disclosure. However, the result contradicted the findings of Halil, who found that return on asset have negative and insignificant moderating effect on the relationship between board ownership and environmental disclosure.

Conclusion and Recommendations

Based on the results of the analyses, the study concluded that return on asset has a significant moderating on the relationship between board gender diversity, board ownership and environmental disclosure, while return on asset has an insignificant moderating effect on the relationship between board size, board meetings, board independence and environmental disclosure. Furthermore, it can be concluded that board gender diversity and board share ownership contribute creative thinking and new ideas about qualitative issues such as social responsibility and philanthropy and consequently leads to better profitability. This finding has practical implications on the users of financial statements towards strategizing effective ways of regulating and enhancing compliance with environmental disclosure. Based on the finding of this study, it was recommended among others that listed oil and gas companies adhere to the letters of the Global Reporting Index by making full disclosure on environmental value protection observed by the company. Furthermore, the study recommends that management of listed oil and gas companies in Nigeria should put machinery in place which would address the concerns of stakeholders regarding the environmental disclosure. The result of the analysis will help regulators and business managers make informed decision on how to improve corporate governance practices and environmental information disclosure.

References

Adams, C. A., Potter, B., Singh, P. J., & York, J. (2016). Exploring the implications of integrated reporting for social investment (disclosures). *British Accounting Review*, *48*(3), 283–296. https://doi.org/10.1016/j.bar.2016.05.002

Ajape, K. M. (2019). Environmental Sustainability Disclosure and Multidimensional Performance of Selected listed Firms in Nigeria. Unpublished PhD thesis, University of Lagos.

Ala, M.R., (2019). Board Characteristics and Environmental Disclosure: Evidence from Jordan *International Journal of Business and Management*; *14*(2).

Andrew, O.A., Kong, Y., Emmanuel C.A, Angelina K.T., Zhu C. & Ali, S. (2020). Impact of board characteristics on environmental disclosures for listed mining companies in China. *Environmental Science and Pollution Research*. https://doi.org/10.1007/s11356-020-08599-2

Ayasrah, M. M. S. (2018). The Effect of Stakeholder pressure on the level of environmental disclosure in the industrial public shareholder companies listed in Amman stock Exchange (Unpublished Master's thesis). Jerash University, Jordan.

Ben-Amar, W. & McIlkenny, P. (2015). Board effectiveness and the voluntary disclosure of climate change information. *Business Strategy and the Environment, 24* (8), 704-719.

Chen, C.J, Jaggi, B. (2000). Association between independent non-executive directors, family control and financial disclosures in Hong Kong. *J Account Public Policy*, *19*, 285–310

Christian, I., Osamagbe, A.U., Imuetinyan E., & Nelson, O.E., (2020). Moderating effect of Foreign-Domestic Ownership Ratio on Firm Attributes and Environmental Disclosure in Nigerian Oil and Gas Quoted Companies. *Gusau Journal of Accounting and Finance*, *I*(1).

Corporate Finance Institute (2022). Return on Assets & ROA Formula. The ability of a company to generate returns on its total assets. Updated January 30, 2022. https://corporatefinanceinstitute.com/resources/knowledge/finance/return-on-assets-roa-formular

Darwish, A. M. S. (2009). The impact of accounting disclosure on the environmental

performance of the Jordanian industrial companies on the rationalization of decisions and the quality of financial reports. *Egyptian Journal of Business Studies* - Mansoura University, *31*(1), 34-49. https://search.mandumah.com/Record/59871

Dowling, J. A., & Pfeffer, J. (1975). Organizational Legitimacy: Social Values and Organizational behavior. Retrieved May 16, 2019, from Pacific Sociological Review website: https://ssrn.com/organisational-legitimacy-social-values-pdf

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

Freeman, R. E. (2004). The stakeholder approach revisited. Zeitschrift für Wirtschafts- und Unternehmensethik, *5*(3), 228-254.

Gerged, A. M. (2021). Factors affecting corporate environmental disclosure in emerging markets: The role of corporate governance structures. *Business Strategy and the Environment*, *30*(1), 609-629.

Goron, C. (2018). Ecological civilisation and the political limits of a Chinese concept of sustainability. *China Perspectives*, 39–52

Gul, F. A. & Leung, S. (2004). Board leadership, outside directors' expertise and voluntary corporate disclosures. *Journal of Accounting and Public Policy*, *23* (5), 51-379.

Halil, E.A., (2016). The Relationship Between Board Characteristics and Environmental Disclosure: Evidence from Turkish Listed Companies. *South East European Journal of Economics and Business. 11* (2), 7-19. https/dpoi.org/10.1515/jeb-2016-0007

Harrison, J. S., Barney, J. B., Freeman, R. E., & Philips, R. A. (2019). *The Cambridge Handbook of Stakeholder Theory*. Cambridge University Press.

Htay, S. N. N., Rashid, H. M., Adnan, M. A. & Meera, A. K. M. (2012). Impact of corporate governance on social and environmental information disclosure of Malaysian listed banks: Panel data analysis. *Asian Journal of Finance and Accounting*, *4*(1), 1-24.

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. The Journal of Finance *48* (3): 831-880.

Khasharmeh, H. A., & Desoky, A. M. (2013). Online corporate social responsibility disclosures: The case of the gulf cooperation council (GCC) Countries. *Global Review of Accounting and Finance*, *4*(2), 39–64

Legendre, S., & Coderre, F. (2013). Determinants of GRI G3 application levels: the case of the Fortune Global 500. Corporate Social Responsibility and Environmental Management. *20*(3), 182-192.

Liao L, Luo L, Tang Q (2015) Gender diversity, board independence, environmental committee and greenhouse gas disclosure. *Br Account Rev 47*, 409–424

Marshall, H., Margaret, J. & Ryan, E., (2022). Return on Assets. *Corporate Finance Journal*. www.investopedia.com/terms/r/returnonassets.asp

Moruff, A.S., Salisu M., Muhammed T.D., Garba A. & Nasiru, Y., (2021). Firm-specific Attributes and Environmental Disclosure of Listed Oil and Gas Firms in Nigeria. *Global Journal of Accounting*

Naciti V (2019) Corporate governance and board of directors: the effect of a board composition on firm sustainability performance. *J Clean Prod 237*, 117727

Ndalu T.C., Ibanichuka E.L. & Ofuru m C.O., (2021). Board Characteristics and Environmental Disclosure of Quoted Oil and Gas Firms in Nigeria: The Moderating Role of Firm Size. *International Journal of Innovative Finance and Economics Research*. *9*(4):51-62.

Ntim, C. G., Lindop, S. & Thomas, D. A. (2013). Corporate governance and risk reporting in South Africa: A study of corporate risk disclosures in the pre-and post-2007/2008 global financial crisis periods. *International Review of Financial Analysis 30*, 363-383.

Okafor, O.O., Egbunike P.A., Amahalu, N.N., (2022). Determinants of Environmental Disclosure of Quoted Oil and Gas Firms in Nigeria. *International Journal of Management Studies and Social Science Research*. 4(1).

Okafor, T. G. (2018). Environmental costs accounting and reporting on firm financial

performance: A survey of quoted Nigerian oil companies. *International Journal of Finance and Accounting*, *7*(1), 1-6.

Okudo, A.G., & Ndubuisi, A.N. (2021). Corporate governance and carbon disclosure practices of quoted manufacturing firms in Nigeria. *International Journal of Contemporary Research and Review*, *12* (07), 20420- 20433.

Oware, K.M., & Mallikarjunappa, T., (2021). Financial Performance and Gender Diversity: The Moderating and Mediating Effect of CSR Disclosure and Expenditure of Listed Firms in India. https://in.sagepub.com/journals-permissions-india https://doi.org/10.1177/09722629211001985 journals.sagepub.com/home/vis

Price, N. J. (2018, Oct 18th). The Role of the Board of Directors in Corporate Governance. Diligent Insights. https://insights.diligent.com/corporate-governance/the-role-of-the-board-of-directors-incorporate-governance/

Rifai, M. (2012). The role of measurement and accounting disclosure in raising the efficiency of environmental performance, applied study in Syrian industrial companies. (Unpublished doctoral dissertaton) University of Damascus, Syria.

Rissy, Y. Y. W. (2021). The stakeholder model: its relevance, concept, and application in the Indonesian banking sector. Journal of Banking Regulation, *22*(9/10), 219-231.

Salawu, M.A., Muhammed, T.D., Garba A. and Salisu M. (2021). Effect of Board Characteristics on Social and Environmental Disclosure of Listed Environmentally Sensitive Firms in Nigeria. *Gusau Journal of Accounting and Finance*. *2*(3).

Sharif, M. & Rashid, K. (2014). Corporate governance and corporate social responsibility reporting: an empirical evidence from commercial banks of Pakistan. *Quality & Quantity*. *48* (5), 2501-2521

Shen L, Muduli K, Barve A (2015) Developing a sustainable development framework in the context of mining industries: AHP approach. *Resources Policy*. *46*, 15–26

Thi, H., & Pham, S. (2018). Board and corporate social responsibility disclosure of multinational corporations. *Journal of Multinational Business Review*, *5*(1), 1-23.

Tietenberg TH, Lewis L (2016) Environmental and natural resource economics. Routledge

Wisdom O., Oluwatobi R., Obiajulu C.O. and Josephine B.O., (2021). Board Characteristics and Environmental Information Disclosure of Listed Manufacturing Firms in Nigeria. Journal of Business and Entrepreneurship. *9*(2).

Liquidity Position and Performance of Commercial Banks in Nigeria

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Abstract

This paper examined the relationship between liquidity position and performance of commercial banks in Nigeria. Annual data were employed and sourced from Central Bank of Nigeria (CBN) Statistical Bulletin, the Nigerian Deposit and Insurance Company (NDIC) Annual Reports and Statement of Accounts various issues and Nigerian Bureau of Statistics (NBS) for the period 1981 -2020). An Autoregressive Distribution Lag Model (ARDL) model was employed. The empirical findings revealed that liquidity position has significant negative effect on profitability of commercial banks in Nigeria. Based on this finding, the study concludes that asset quality has significant effect on the performance of commercial banks in Nigeria. It is recommended that managers of banks should continue to practice prudent credit risk management to safeguard shareholders' funds. Also, commercial banks need to regularly review their credit policies to further reduce the incidence of illiquidity. Lastly, the financial sector regulatory agencies like Central Bank, NDIC, SEC and other should maintain high surveillance on banks' credit operations.

Keywords: Return on Asset, Liquidity Position, Commercial bank's performance and profitability

INTRODUCTION

General banking business involves the mobilization of funds from excess or surplus units of the economy and giving out to deficit units as loans and advances. This is called financial intermediation. The performance of these functions by banks opens them to several risks; prominent among these is liquidity risk. Liquidity risk is the risk of loss to a bank resulting from its inability to meet its needs for cash. The liquidity of a commercial bank is its ability to fund all contractual obligations as they fall due. These may include lending and investment commitments and deposit withdrawals and liability maturates, in the normal course of business (Amengor, 2010). In other words, bank liquidity refers to the ability to fund increases in assets and meet obligations as they fall due. Liquidity and profitability are crucial elements that organization keeps in mind while assessing their financial position. These are considered as one of the most important issues in corporate finance and are essential for the survival of any bank. Short-term survival of a bank is dependent on its liquidity while, its long-term growth and survival depends on its profitability. The basic function of commercial bank is to receive deposits and to lend money. At the same time, it has to maintain adequate liquidity. In case of negligence, the bank may face risk. At the same time, increased liquidity would reduce the profits. So, the banks must maintain a balance between the profitability and liquidity. Every stakeholder has its interest in the liquidity position of a bank. This paper analyzed how a bank's liquidity affects its profitability. Profitability is actually the return which a company earns from its operations. Basic purpose of a business is to earn profits and so does banks. Banks profit is calculated as the difference between the interest it charges on the loans it grants to its customers and the interest which it pays to its account holders. For determining the impact of liquidity on profitability of the banks, certain ratios are considered that would be further discussed in the methodology section. The contradictory nature of liquidity and profitability can be explained by the intuitive reasoning that a bank operating with high liquidity (and in the process tying down investable funds) may have a low insolvency risk, but with a trade-off of low profitability. Conversely, a bank operating at a low liquidity level (and thus freeing investible funds) may face high insolvency risk, but with a trade-off of higher profitability.

Several studies have been undertaken to inquire the major determinants of a bank's profitability and liquidity has always remained one of the major determinants. (Bourke, 1989) found a positive relationship

among liquid assets and profitability of about 90 banks in Europe, North America and Australia for the period of 1972- 1981. On the contrary, opponents argue that keeping more liquid assets increases the opportunity cost of a bank and yields lower returns therefore have a negative effect on a bank's profitability. Molyneux and Thornton, (1992) also found a negative relationship between these two variables for the period 1980-1990. There is a common point that liquidity and profitability tradeoff theory create contradictory ends to a business. According to this statement chase off of liquidity means tradeoff of the profitability and vice versa (Dash & Hanuman, 2008). Hence, there exist contradictory results on the relationship between liquidity and profitability of commercial banks. This paper hence aims to find out the relationship and contribute to the existing literature.This study therefore, is divided into five sections. Following this introduction is section two which covers the literature review where conceptual, theoretical and empirical issues are discussed. Section three is the methodology section which discusses the empirical model. The analysis of results is presented in section four. Section five covers the conclusion and recommendations of the study.

LITERATURE REVIEW

Conceptual Issues

Bank liquidity shows the ability to meet up the financial obligations as they come due on the bank. Commercial bank's liquidity means to finance its contractual obligations when due. The bank's obligations include lending, investment, maturity of liabilities and withdrawal of deposits occurring in the ordinary course of the Bank actions (Amengor, 2010). Liquidity can be defined as the degree of convertibility to cash or how easily an asset can be liquidated into cash or sold at market price (Nwaezeaku, 2006). Liquidity is a measure of the ability and ease with which assets can be converted to cash. Liquid assets are those that can be converted to cash quickly if needed to meet financial obligations; examples of liquid assets generally include cash, central bank reserves, and government debt. To remain viable, a financial institution must have enough liquid assets to meet its near-term obligations, such as withdrawals by depositors. The main measures of liquidity is; current ratio, capital ratio, cash ratio, quick ratio, investment ratio. According to Ejoh, Okpa and Egbe (2014) when a bank is liquid, it simply means that such a bank has assets that can easily be converted to cash and possesses the ability to raise funds from various sources to meet its payment obligations to customers. Given the necessity of the banking institutions to always be liquid, there is need for adequate arrangement or mechanism by which their liquidity is managed. In the opinion of Ngwu (2006), liquidity management entails storing and raising sufficient funds to meet the cash demands or needs of loans applicants and cash depositors while maintaining public confidence.

Bank profitability is the ability of a bank to generate revenue in excess of cost, in relation to the bank's capital base. A sound and profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. (Brissimis, Athanasoglou, and Delis, 2005). Profitability in general is a relationship between the profits generated by the enterprise and investments that contributed to the achievement of these profits, and profitability ratios measure the efficiency with which a company turns business activity into profits. Profit margins assess the ability to turn revenue into profits. Return on assets measures the ability to use assets to produce net income. Return on equity compares the net income to shareholder equity.

Empirical Review

Plethora of studies has been conducted on liquidity and bank performance both in Nigeria and other foreign countries. In this section attempt is made to review some of this empirical works. Considering the number of studies that have been conducted in several other countries, Lartey, Antwi, and Boadi (2013) sought to find out the relationship between the liquidity and the profitability of banks listed on the Ghana Stock Exchange. Seven out of the nine listed banks were involved in the study. The study was descriptive in nature. It adopted the longitudinal time dimension, specifically, the panel method. Document analysis

was the main research procedure adopted to collect secondary data for the study. The financial reports of the seven listed banks were studied and relevant liquidity and profitability ratios were computed. The trend in liquidity and profitability were determined by the use of time series analysis. The main liquidity ratio was regressed on the profitability ratio. It was found that for the period 2005-2010, both the liquidity and the profitability of the listed banks were declining. Again, it was also found that there was a very weak positive relationship between the liquidity and the profitability of the listed banks in Ghana. The effect of liquidity management on profitability in the Jordanian commercial banks during the time period (2005–2012) was investigated by Alshatti, (2014). Thirteen banks were chosen from the whole Jordanian commercial banks. The liquidity indicators are investment ratio, Quick ratio, capital ratio, net credit facilities/total assets and liquid assets ratio, while return on equity (ROE) and return on assets (ROA) were the proxies for profitability. Augmented Dickey Fuller (ADF) stationary test model was used to test for a unit root in a time series of the research variables and then testing hypothesis by using regression analysis. The empirical results show that an increase in the quick ratio and the investment ratio of the available funds leads to an increase in the profitability, while an increase in the capital ratio and the liquid assets ratio leads to decrease in the profitability of the Jordanian commercial banks.

In order to find the relationship between liquidity and profitability of commercial banks in the Islamic Republic of Pakistan, Siddiqi, Qadri, Tahir, Rana, Iqbal, Qureshi, and Khanum (2017) randomly selected three banks i.e. Askari Bank Ltd, Allied Bank Ltd, and Faysal Bank Ltd from banks listed in Islamabad Stock Exchange (ISE). The Financial data was collected from the published annual reports available on the websites of these banks. The data was taken over a period of five years i.e. 2009 to 2013. The liquidity and profitability ratios namely quick ratio, current ratio and return on asset (ROA) of these banks were calculated. Liquidity ratios included current ratio and quick ratio which were taken as independent variable whereas, profitability ratio such as return on asset (ROA) was takes as dependent variable. Regression and correlation analysis were used to statistically analyze the data. It was found that there is no significant relationship between liquidity and profitability of banks. Shrestha, (2018) investigates the relationship between Liquidity management and profitability of commercial banksin Nepal. The objective of the study is to identify the relationship between the Liquidity management and profitability and itsimpact on profitability. The relation between the Liquidity management and profitability is examined using Pearsoncorrelation analyses. The effects liquidity on profitability is analyzed using the regression analyses. The data has found to becovering period 2012-2016 commercial Banks in Nepal. The Liquidity management represents the variables of the currentReserve ratio (CRR), Credit Deposit Ratio (CDR) and the profitability including return on equity (ROA). The result revealsthat liquidity does not have its significant impact on profitability in Nepalese commercial banks.

Öndeş, (2020) attempts to assess whether liquidity has any influence on the profitability of Turkish banks or not. the study was conducted using panel data collected from the website of the Association of Banks of Turkey. 10 biggest banks of Turkey were selected based on asset size as on 31.12.2017 and used 10 years' data ranging from 2008-2017. Loan Deposit, Deposit Asset, Liquid Asset to TA, Liquid Asset to Short- term Liability and Liquid Assets to Deposits and Non-Deposit Resources Ratio has been considered as a proxy of liquidity and average ROA and average ROE has been considered as a proxy of profitability. The data were analyzed based on correlations analysis. Random effect regression model was carried out. The results reveal that Loan Deposit Ratio and Liquid Asset to Total Asset ratio do have a significant negative influence on both ROE and ROA. Deposit Asset Ratio does have a significant and negative influence on ROA but an insignificant and negative influence on ROE. Moreover, Liquid Asset to Deposit and Non-Deposit Resources Ratio shows a statistically significant but negative influence on ROE; in contrast an insignificant but positive impact on ROA. A number of studies have also been conducted in Nigeria too. For example, a study by Adebayo, Adeyanju, and Olabode, (2011) revealed a significant association of liquidity with profitability in their study on Nigerian commercial banks. The researchers discovered a negative correlation between liquidity and profitability (if there is a rise in liquidity it causes a fall in profitability and vice versa). The authors used both primary and secondary data for their study and applied the Pearson correlation technique accordingly. Ibe (2013) also revealed the

influence of liquidity and profitability of Nigerian banks conducting a study on three randomly selected sample banks by regression analysis and concluded recognizing liquidity as a big issue for the banking industry of Nigeria. More recently, a study by Ikeora and Werigbelegha (2016) employing time series data from 1989 to 2013 and run the Ordinary Least Squares (ODL) method to make the analysis, also reveals a positive association between liquidity and profitability.

Edem (2017) empirical finds evidence of the impact of liquidity management on the performance of deposit money banks. 24 banks were surveyed which constitute the entire deposit money banking industry in Nigeria between 1986 and 2011. Secondary data were collected and analysed using SPSS. The study uses descriptive, correlations and inferential statistics. Bank performance in terms of profitability is measured by its return on equity. Multiple Linear Regression Analysis was employed. Findings from the empirical analysis show that there is a significant relationship between liquidity management and the performance of Deposit Money Banks in Nigeria. The correlation results reveal positive impacts between return on equity and liquidity management variables: liquidity and cash reserve ratios, whereas loan to deposit ratio shows negative impact. However, the key results indicate that only the banks with optimum liquidity were able to maximize returns. The study concludes that illiquidity and excess liquidity pose problem to bank management operations and recommends that bank should adopt optimum liquidity model for efficiency and effectiveness. Oluwalaiye, Akintola and Banwo (2020) investigated effect of liquidity management on earnings per share (EPS) of selected deposit money banks (DMBs) in Nigeria from 2004 to 2017 with sample size of eleven (11) banks. Secondary data obtained from annual published financial statement of selected deposit money banks were used for the study. Ordinary Least Square (OLS) regression techniques were employed to analyze the data obtained. Results of the regression analysis shows that only current ratio has positive effects on earnings per share, while debt ratio and operating cashflow have negative effects. The study therefore concluded that liquidity management has significant effect on the earnings per share (EPS) of the selected deposit money banks in Nigeria

Bencharles and Abubaka (2020) investigates the impact of liquidity management on Islamic and conventional banks profitability in Nigeria for the period 2012-2019. First bank plc and Jaiz bank were both used to represent the conventional and Islamic banks in Nigeria respectively. Time series data were sourced from the quarterly bulletin of selected banks used for the study. Time series data were first subjected to preliminary analysis (descriptive statistics, unit root test & co-integration test) so as to ascertain the background characteristics of dataset. The ordinary least square estimation technique was used to capture the relationship between liquidity and profitability. Liquidity was measured by the liquid asset to total asset ratio (LATA), current ratio and cash ratio while bank size was used as a control variable. Profitability was measured using the return on asset. Empirical result indicated that profitability and liquidity have an inverse relationship in both conventional and Islamic banks; hence it was found to follow the risk return trade off. However, Islamic bank profitability was found to respond more significantly to changes in liquidity level than in conventional banks. The study concluded that liquidity and profitability relationship follow the risk return theory, although liquidity was found to be more significant in the Islamic banks.

Theoretical Review

Anticipated Income Theory

According to this theory banker again began to look at their loan portfolio as a source of liquidity. The anticipated income theory encouraged bankers to treat long-term loans as potential sources of liquidity. How can a banker consider a mortgage loan as a source of liquidity when, typically, it has such a long maturity? Using the anticipated income theory, these loans are typically paid off by the borrower in a series of installments. Viewed in this way, the bank's loan portfolio provides the bank with continuous flow of funds that adds to the bank's liquidity. Moreover, even though the loans are long term, in a liquidity crisis the bank can sell the loans to obtain needed cash in secondary markets.

Shiftability Theory

Shiftability is an approach to keep banks liquid by supporting the shifting of assets. When a bank is short of ready money, it is able to sell its assets to a more liquid bank. The approach lets the system of banks run more efficiently: with fewer reserves or investing in long-term assets. Under shiftability, the banking system tries to avoid liquidity crises by enabling banks to always sell or repurchase at good prices

Liability Management Theory

This theory states that there is no need to follow old liquidity norms like maintaining liquid assets, liquid investments etc., banks have focused on liabilities side of the balance sheet. According to this theory, banks can satisfy liquidity needs by borrowing in the money and capital markets. The fundamental contribution of this theory was to consider both sides of a bank's balance sheet as sources of liquidity (Emmanuel, 1997).

Commercial Loan Theory

This theory states that the liquidity of the commercial bank achieved automatically through self-liquidation of the loan, which being granted for short periods and to finance the working capital, where borrowers refund the borrowed funds after completion of their trade cycles successfully. According to this theory, the banks do not lend money for the purposes of purchasing real estate or consumer goods or for investing in stocks and bonds, due to the length of the expected payback period of these investments, where this theory is proper for traders who need to finance their specific trading transactions and for short periods (Emmanuel, 1997).

METHODOLOGY

The data used in this research work are secondary in nature. They were collected in various sources. This includes Central Bank of Nigeria (CBN) statistical bulletin, Nigerian Deposit and Insurance Corporation (NDIC) annual reports and statement of accounts Various Issues. The dependent variable is annual figure for all the deposit money banks combined on Return on Equity (ROE) as measure of banks' profitability. The explanatory variables employed are measure of liquidity which include Average Liquidity Ratio (ALR), Loan to Deposit Ratio (LDR) and Cash Reserve Ratio (CRR).

Model Specification

The model specified to suit the objectives of this current study is to satisfactorily capture the effect of liquidity on profitability of commercial banks in Nigeria. The model for this research study is specified in the following functional form:

$$ROE = f(LR, LDR, CRR) \quad \text{---} \quad (1)$$

Transforming this functional representation into a linear equation or explicit form:

$$ROE = \beta_0 + \beta_1 LR + \beta_2 LDR + \beta_3 CCR + \mu_t \quad \text{---} \quad (2)$$

Where:

ROE = Return on Equity of commercial banks in Nigeria a measure of profitability

LR = Liquidity Ratio of all the commercial banks in Nigeria

LDR = Loan to Deposit Ratio of all commercial banks in Nigeria

CRR = Cash Reserve Ratio of commercial banks in Nigeria

μ_t = is the error term that is assumed to be normally distributed with the mean of zero and constant variance;

β_0 = intercept parameter of the model;

$\beta_1 - \beta_3$ = coefficient of the independent variables.

RESULT AND DISCUSSION

Description Analysis

The method employed to analyse the behaviour of the data is the use of both descriptive and inferential statistics that is the *ex post facto* method as stated under the research design. It shows the mean, variance, standard deviation, skewness and also measures the normality or otherwise of the data used in the analysis.

Unit Root Test

This was done by standard unit root testing and Augmented Dickey-Fuller test. If the test reveal led that all the variables are I (1), vector error correction shall be utilized. Since series is combination of I (0) and I (1), the appropriate test was the ARDL co-integration approach. Also, the test was conducted to ensure that none of the variables are integrated of order 2, to avoid spurious results (Ahmed et al., 2013). Thus, the ADF test statistic:

$$\Delta Y_t = \beta_0 + \beta_1 t + \delta Y_{t-1} + \sum_{i=1}^{m} \delta \Delta Y_{t-i} + \mu_t \qquad 3$$

Where ΔY_{t-1} equals Y_{t-1}-Y_{t-2}, ΔY_{t-2} equals Y_{t-2}-Y_{t-3}, and so on, and m is the maximum lag length on the dependent variable to ensure that U_t is the stationary random error. The null hypothesis of a unit root is rejected if the t-statistic associated with the estimated coefficient exceeds the critical values of the test.

Analytical Technique

In order to investigate the relationship between commercial bank performance measured by (ROE) and the liquidity variables (LR, LDR, and CRR), the explanatory variables, the Autoregressive Distributed Lag Model (ARDL) Bounds testing approach to cointegration proposed by Pesaran, Shin and Smith (2001) was employed.

The Bounds Test for Cointegration Model

To perform the bounds test for cointegration a semi-log conditional ARDL(p_1, q_1, . . ., q_3) (since there are 3 explanatory variables in our model) the is as specified in equation 3.

$$\Delta ROE_t = \delta_0 + \beta_{1i} ROE_{t-1} + \beta_{2i} \log\text{LR}_{t-1} + \beta_{3i} \log\text{LDR}_{t-1} + \beta_{4i} \log CRR_{t-1} + \sum_{i=1}^{p} \alpha_{1i} \Delta \log ROE_{t-i}$$

$$+ \sum_{i=1}^{q} \alpha_{2i} \Delta \log\text{LR}_{t-i} + \sum_{i=1}^{q} \alpha_{3i} \Delta LDR_{t-1} + \sum_{i=1}^{q} \varepsilon_{4i} \log\text{CRR}_{t-1} + \varepsilon_t \qquad \textbf{.................. 4}$$

The Hypotheses of the bounds test for cointegration are that

H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ -- **5**

H_1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$ -- 6

Implying the coefficients of all the long-run relationship are all equal to zero as against the alternative that they are not equal to zero. If the null hypothesis is accepted it implies that there is no cointegration as against the alternative there is cointegration. If the null hypothesis cannot be rejected, then there is need to specify only the short-run modelwhich denotes no cointegration. However, if the null hypothesis is rejected in favour of the alternative then there is a need to specify an Error Correction Model (ECM).

Short-Run Model: ARDL Model when there is No Cointegration

Now the short-run models that is, ARDL model when there is no cointegration is as specified in equation 6.

$$\Delta ROE_t = \delta_0 + \sum_{i=1}^{p} \beta_{1i} \Delta ROE_{t-i} + \sum_{i=1}^{q} \beta_{2i} \Delta \log\text{LR}_{t-i} + \sum_{i=1}^{q} \beta_{3i} \Delta \log LDR_{t-1}$$

$$+ \sum_{i=1}^{q} \beta_{4i} \log CRR_{t-1} + \varepsilon_t \qquad \textbf{...............7}$$

ARDL Model when there is Cointegration: The Error Correction Model (ECM)

Now with cointegration the ECM model that incorporate both long-run and short-run information is specified for the model as in equation 8.

$$\Delta ROE_t = \delta_0 + \sum_{i=1}^{p} \beta_{1i} \Delta ROE_{t-i} + \sum_{i=1}^{p} \beta_{2i} \Delta \log LR_{t-i} + \sum_{i=1}^{q} \beta_{3i} \Delta \log LDR_{t-i} + \sum_{i=1}^{q} \beta_{4i} \Delta \log CRR_{t-1} + \lambda ECT_{t-1} + \varepsilon_t \quad \text{………....... 8}$$

The difference operator (Δ) represents the short-run and the ECT represents the long-run. The λ is the speed of adjustment parameter with expected negative sign which show there is convergence. However, if λ comes out with a positive sign it means the model is explosive that is no convergence. The ECT parameter shows how much of the disequilibrium is being corrected, that is the extent to which any disequilibrium in the previous period is being adjusted. If λ = 1 then 100 percent of the adjustment takes place within the period, or simply put, the adjustment is instantaneous and full. If λ = 0.5, then 50 percent of the adjustment takes place each period. If λ = 0 it shows that there is no adjustment, and to claim that there is a long-run relationship does not make sense any more. The reparameterized ECM gives the short-run dynamics and long-run relationship of the underlying variables, ((Nkoro and Uko 2016).

Discussion of Findings

This section deals with model estimation and interpretation. The estimation starts from unit root analysis and regression analysis were carried out thereafter.

Unit Root Test Results

Table 1 presented the results of the time series properties of the variables using the Augmented Dickey-Fuller (ADF) unit root test.

Table 1: Summary Results of Augmented Dickey-Fuller Unit Root Tests

Variables	**ADF Test Statistics and MacKinnon (1996) one-sided P-values for the Variables in bracket**	**MacKinnon Critical Value at 5%**	**Order of Integration**
ROE	-8.029986 **(0.0000)***	-2.938987	I(0)
LR	-3.440313 **(0.0154)***	-2.938987	I(0)
LDR	-4.231596 **(0.0020)***	-2.945842	I(0)
CRR	-5.522942 **(0.0000)****	-2.941145	I(1)

Note: * Significant at level while ** is significant at 1st difference
Source: Author computation (2022) using E-views 12

From the summary of unit test results presented in table 1 it is obvious that save for CRR that is stationary at first difference all other variables (ROE, LR, and LDR) are level stationary at 1 percent level of significance. The ADF test statistics of -8.029986, -3.440313 and -4.231596 for ROE, LR, and LDR respectively are greater than their respective MacKinnon critical values of -2.938987. In addition, the MacKinnon (1996) one-sided P-values as shown in the bracket are all less than 5 percent.

Trend and Descriptive Statistics Analysis

The analysis continues in this section with the trend and descriptive statistics analysis. The nature and trends of the variables are presented in figure 1 and 2. A visual plot of the data is usually the first step in the analysis of time series (Gujarati and Porter 2009). The trend indicates the movements of the variables overtime; are they moving upward or downward or constant? It clearly shows the pattern and the degree of volatility of the variables.

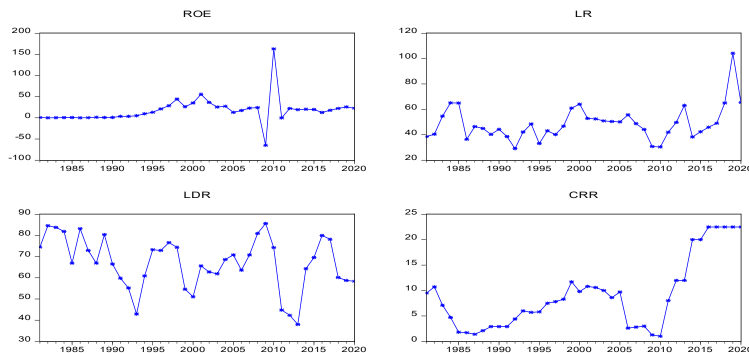

Figure 1 Trends of the Variables Multiple Graph

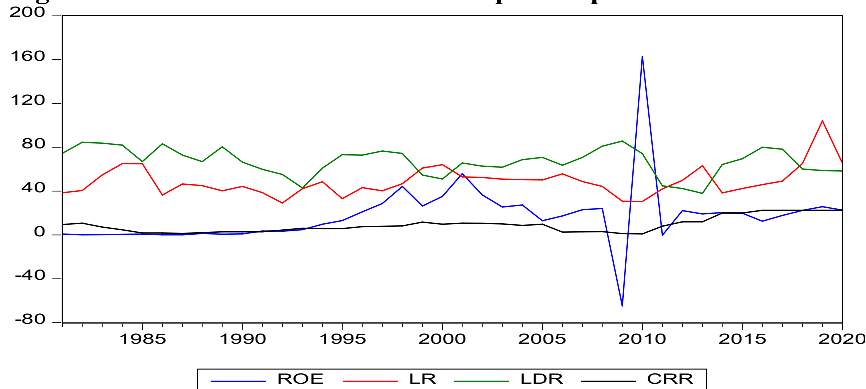

Figure 2 Trends of the Variables Combine Graph

From plots 1 and 2 it is evident that return on equity maintain a stable variation from 1981 to 1999 thereafter an upward variability occurred. In year 2009 through 2010 to 2013 there was a sharp downward and upward spike respectively followed by the stable variability in the ROE trend. The other variables (LR, LDR and CRR) all have high volatility throughout the period of the study and they all follow a similar pattern of downward and upward movement.

Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. Some measures that are commonly used to describe a data set are measures of central tendency and measures of variability or dispersion. Measures of central tendency include the mean, median and mode, while measures of variability include the standard deviation (or variance), the minimum and maximum values of the variables, kurtosis and skewness. Hence, the descriptive statistics of the data are as presented in table 2.

Table 2: Descriptive Statistics Results

Sample: 1981 2020

	ROE	LR	LDR	CRR
Mean	17.48475	48.87575	67.05800	8.988750
Median	17.58000	46.65000	67.76500	7.900000
Maximum	162.9800	104.2000	85.66000	22.50000
Minimum	-64.72000	29.10000	37.97000	1.000000
Std. Dev.	30.06626	13.47025	12.31493	6.849906
Skewness	2.441431	1.731215	-0.552945	0.882721

Kurtosis	16.01908	8.222523	2.686293	2.683411
Jarque-Bera	322.2311	65.43861	2.202339	5.361688
Probability	0.000000	0.000000	0.332482	0.068505
Observations	40	40	40	40

Source: Computed by the Researcher (2022) Employing E-views 12

As may be observed from the table, the mean, median, standard deviation as well as the skewness and kurtosis measures of the variables of interest are given. The mean values indicate that on the average return on equity (ROE) in Nigeria commercial bank. Liquidity ratio **(**LR**)** loan to deposit ratio (LDR) and cash reserve ratio (CRR) are 48.87, 67.058 and 8.98875 percent respectively. The highest values for return on equity (ROE is 162.98 percent during the period of the study. These occurred in year 2010. The liquidity variable measures of LR LDR and CRR also have their highest values as 104.2, 85.66 and 25.5 percent respectively. However, the lowest value for return on equity (ROE) is a negative value of -64.72 in year 2009 a year before the peak value. LR, LDR and CRR also recorded lowest values of 29.1, 37.97 and 1.00 percent respectively.

A distribution is positively skewed if the right tail is longer. Then, mean > median > mode. A distribution is negatively skewed if the left tail is longer. Then, mode > median > mean. Hence, the distributions of ROE and LDR the variables are moderately negatively skewed since their mean are slightly less than their median, while LD and CRR are moderately positively skewed because their mean are slightly greater than the median. From the descriptive statistic, given the Jarque-Bera statistic and the associated*P*-value of 0.000000, 0.0000, 0.332482 and 0.0685 for ROE, LR, LDR and CRR respectively,we cannot reject the normality assumption for only LDR. Hence, only LDR is normally distributed while the others are not.

ARDL Regression Analysis Results

The main objectives of this study are to examine the impact of liquidity on commercial banks' performance measured byprofitability in Nigeria. To carry out these objectives an ARDL regression analysis was conducted and the result is as presented in table3.

Table 3: Summary of ARDL Long-Run Model Estimation

Dependent Variable: ROE
Method: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ROE(-2)	0.630155	0.221521	2.844671	0.0087
LOG(LR(-1))	-53.10834	23.69170	-2.241643	0.0341
LOG(LDR)	-12.92326	35.87934	-0.360187	0.7217
LOG(CRR(-1))	-58.29071	17.74506	-3.284898	0.0030
LOG(CRR(-4))	-19.78405	11.53364	-1.715335	0.0987
C	117.0764	219.7842	0.532688	0.5990
R-squared	0.516258	Durbin-Watson stat		2.109487
F-statistic	2.668045			
Prob(F-statistic)	0.022647			

Source: Computed by the Researcher (2022) Employing E-views 12

The regression results in Table 3 revealed that measure of liquidity variables is mainly statistically significant after the first period lag at 1, 5 and 10 per cent, respectively, suggesting that liquidity contributed to changes in the profitability of commercial banks in Nigeria. The liquidity variable LR, LDR, and CRR all also returned with a negative sign which is in tandem with the *a priori* expectation of the model. The implication of this result is that increase in liquidity will lead to decrease in the

profitability of commercial banks in Nigeria. Simply put, keeping high liquidity by commercial banks in Nigeria reduces their profitability. The R-squared of 0.516, implied that the independent variables accounted for over 52 percent of changes in the dependent variable. Meaning the model has a "good fit". The F-statistics reveals information about the joint statistical significance of the model. As presented in the table, the p-value for the F-statistic gives evidence for the rejection of the null hypothesis, implying that the explanatory variables determined the profitability of commercial banks in Nigeria. In essence, the explanatory variables were jointly significant in explaining the dependent variable. The Durbin-Watson statistic (2.109) reported in the model indicated the absence of serial correlation in the residuals of the estimated equation as is in the neighbourhood of two.

ARDL Long-Run Form and Bounds Test for Cointegration

Table 4. ARDL Bond Test Results

Dependent Variable: ROE **Functions:** (logLR, logLDR, logCRR) **F-statistics:** 5.0131053		
K	**3**	
Critical Value Bounds		
Significant	**Lower Bound**	**Upper Bound**
5%	2.77	3.77

Source: Computed by the Researcher (2022) Employing E-views 12

The ARDL bound test results presented above show that F-statistics value of 5.01 is greater than I (1) bound test value of 3.87 at 5 percent significant level. Therefore, the null hypothesis of no co-integration was rejected and the conclusion is that there exist long run relationship among the variables in the model.

ARDL Error Correction Model Regression

The bounds test results indicated that there is cointegration in the model, hence an Error Correction Model Regression was estimated. Since cointegrating is identified, the ARDL model of the cointegrating equation is re-parameterized into ECM. The re-parameterized result gives short-run dynamics (i.e. traditional ARDL) and long run relationship of the variables of a single model. The summary results of the ECM are as presented in table 7.

Table 5: ARDL Error Correction Model Regression Results

Dependent Variable: D(ROE)

Independent Variables	Coefficient	Std. Error	t-Statistic	Prob.
D(ROE(-1))	-0.833937	0.253988	-3.283373	0.0031
D(ROE(-2))	-0.400505	0.186279	-2.150030	0.0418
D(LDR)	-0.709052	0.416838	-1.701028	0.1019
D(CRR)	2.242911	2.439618	0.919370	0.3671
D(CRR(-1))	-3.726303	2.041602	-1.825186	0.0804
D(CRR(-2))	-0.604112	2.270487	-0.266072	0.7925
D(CRR(-3))	5.147516	1.880325	2.737567	0.0115
ECM(-1)*	-0.569150	0.248068	-2.294333	0.0308

R-squared	0.778548	Mean dependent var	0.614167
Adjusted R-squared	0.723185	S.D. dependent var	50.43014
S.E. of regression	26.53290	Akaike info criterion	9.587778
Sum squared resid	19711.85	Schwarz criterion	9.939671
Log likelihood	-164.5800	Hannan-Quinn criter.	9.710598

Durbin-Watson stat 1.924450

Source: Computed by the Researcher (2022) Employing E-views 12

Clearly, the dynamic process in the model revealed that the ECM lagged one period is significant and carries the expected negative sign and therefore provided evidence for equilibrium to be restored after short-run disturbances as indicated by the coefficients of the error correction terms of -0.569150. In fact, the ECM shows that about 56.92 percent disequilibrium in the previous year (since the data are annual) is corrected in the current year. These adjustments imply that errors are corrected within one year.

Post-Diagnostics Tests

A set of residual diagnostic views are provided in this section. These views help to check the appropriateness of the estimated ARDL models. The test includes: autocorrelation LM test, Heteroscedasticity test, and residual normality test. The summary statistics of the post-diagnostic test conducted were presented in simple tabular form in table 7 for clarity of presentation.

. **Table 7: Summary of Post-Diagnostic Test**

Test	F-Stat/Coefficient	Prob.
Normality[a]	2.865887	0.2386
Autocorrelation[b](LM stat)	1.912019	0.1648
Heteroskedasticity[c]	0.976874	0.3871

Source: Authors Computation, 2019.

From the table it is shown that, the residual is normally distributed; there is no serial correlation and no heteroscedasticity.

Stability Test

To determine the stability of the estimated coefficients the cumulative sum of recursive (CUSUM) test, developed by Brown et al. (1975), was adopted. The CUSUM test is as shown in figure 3.

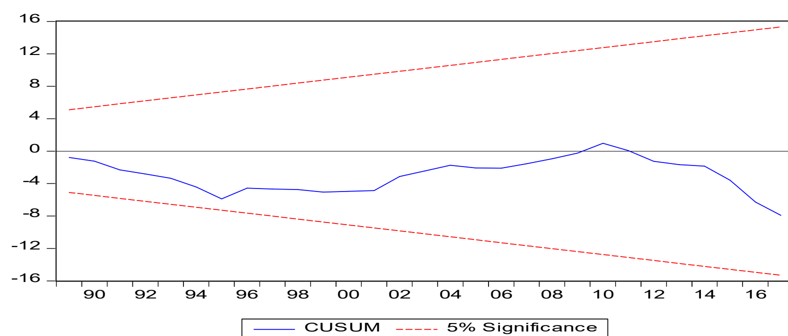

Figure 3. CUSUM Test of Stability

From the figure 3 the CUSUM plot do not cross the 5% critical lines, implying that over the entire sample period of investigation, the stability of the estimated coefficients exist, so that the regression coefficients are reliable and suitable for policy making.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the paper, it can be concluded that liquidity has significant effect on the profitability of commercial banks in Nigeria. Given that high liquidity has a significant negative relationship with the profitability of commercial banks in Nigeria; if liquidity is not properly managed it can result in reduction of the profitability of the commercial banks. Based on the findings of this paper, the researcher makes the following policy recommendations:

i. There is a need for an optimum utilization of the available liquidity in a various aspect of investments in order to increase the banks' profitability.
ii. Banks should adopt a general framework of liquidity management to assure sufficient liquidity for executing their operations more efficiently, and they should initiate an analytical study of the evolution rates of liquidity and their ability to achieve a balance between sources and uses of funds.
iii. The study recommends that there should be implementation of policies to improve on the existing liquidity risk management policies of commercial banks in Nigeria.
iv. Added to the recommendation above is that commercial banks must engage in a creative search for liquidity investment opportunities not only for themselves, but also for their corporate customers.

References

Adebayo, M., Adeyanju, D. & Olabode, S. (2011), Liquidity management and commercial banks' profitability in Nigeria. *Research Journal of Finance and Accounting,* 2(7/8), 24-38

Alshatti, A. S. (2014). The effect of the liquidity management on profitability in the Jordanian commercial banks *International Journal of Business and Management; Vol. 10,* No. 1; 2015. doi:10.5539/ijbm.v10n1p62 URL: http://dx.doi.org/10.5539/ijbm.v10n1p62

Amengor, E. C. (2010). Importance of liquidity and capital adequacy to commercial banks. *A Paper Presented at Induction Ceremony of ACCE, UCC Campus.*

Bencharles, O. &Abubaka, B (2020). Liquidity management and its impacts on Islamic and conventional bank's profitability in Nigeria: A comparative study. *IOSR Journal of Economics and Finance (IOSR-JEF) Volume 11,* Issue 4 Ser. I (Jul. – Aug. 2020), PP 10-20 www.iosrjournals.org.DOI: 10.9790/5933-1104011020 www.iosrjournals.org

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America, and Australia. Jo3urnal of Banking & Finance, 13, 65–79. http://dx.doi.org/10.1016/0378-4266(89)90020-4

Brissimis, S., Athanasoglou, P., & Delis, M. (2005). Bank-specific, Industry-specific and Macroeconomic determinants of bank profitability. *Working Paper-Bank of Greece, 25*. Retrieved from http://www.bankofgreece.gr.

Dash, M. and Hanuman R. (2008). A Liquidity-Profitability Trade-Off Model for Working Capital Management. Retrieved from http://ssrn.com/abstract=1408722

Ejoh, N.O, Okpa, I.B. & Egbe, A.A. (2014). The impact of creditand liquidity risk management on the profitability of depositmoney banks in Nigeria. *International Journal of Economics,Commerce and Management United Kingdom 2*(9).

Emmanuel, N.R, (1997), *Commercial Banking in an Era of Deregulation*, Greenwood Publishing Group, 3rd Ed.

Ibe, S. O. (2013). The impact of liquidity management on the profitability of banks in Nigeria. *Journal of Finance and Bank Management*, *1*(1), 37-48.

Ikeora, J. J. E., &Werigbelegha, A. P. (2016). Liquidity management and banks profitability In Nigeria (1989-2013): An empirical analysis. *Journal of Business Management and Economics*, *4*(7), 01–05

Lartey, V. C., Antwi, S. and Boadi, E. K. (2013). The relationship between liquidity and profitability of listed banks in Ghana. *International Journal of Business and Social Science Vol. 4* No. 3; March 2013 48

Molyneux, P. and Thornton, J. (1992). 'Determinants of European Bank Profitability: a Note', Journal of Banking and Finance, Vol. 16, No. 6, pp. 1173–1178.

Ngwu, T.C. (2006).*Bank Management*. Owerri, Bob publisher

Nwaezeaku, N. C. (2006). *Theories and practice of financial management*. Owerri: Ever Standard Publishing.

Oluwalaiye, O. B., Akintola, A. F., &Banwo, I. G. (2020). Effect of liquidity management on earnings per share of selected deposit money banks in Nigeria (2004-2017). *International Journal of Research and Scientific Innovation (IJRSI) | Volume VII,* Issue V, May 2020. www.rsisinternational.org

Öndeş, T. (2020). Is liquidity an influencing factor for profitability of banks? An empirical study. *IBAD Journal of Social Sciences, (7),*Yaz/Summer 2020. *IBAD, 2020; (7):* 393-402, DOI: 10.21733/ibad.686734

Pesaran, M.H., Shin, Y., 1998. An autoregressive distributed-lag modelling approach tocointegration analysis. In: Strom, S. (Ed.), In *Econometrics and Economic Theory in the Twentieth Century: the Ragnar-Frisch Centennial Symposium.* CambridgeUniversity Press, Cambridge, UK, 371 413.

Pesaran, M.H., Shin, Y., Smith, R.P., 2001. Bounds testing approaches to the analysis oflevel relationship. *J. Appl. Econom. 16* (1), 289–326.

Shrestha, B. (2018). Liquidity management and profitability of commercial banks in Nepal. *International Journal of Management and Applied Science,Volume-4*, Issue-7, Jul.-2018

Siddiqi, H., Qadri, A., Tahir, H., Rana, M. A., Iqbal, R., Qureshi, S., & Khanum, Z. (2017). Liquidity and profitability of commercial banks in the Islamic Republic of Pakistan. *Research issues in social sciences 2*(2017) 104-116, www.sienajournals.com.

Effect of Financial Control on Educational Sector Project Development: Evidence from Federal Polytechnic, Nasarawa

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