RESEARCH ARTICLE

Responsibility Accounting and Corporate Sustainability Growth: Evidence from Listed Deposit Money Banks in Nigeria

Omaliko Emeka Leonard[1*] , Akwuobi Bridget. U[1], Sunday David[1]

[1]Department of Accountancy, Nnamdi Azikiwe University, P.M.B 5025 Awka, Anambra State, Nigeria

Corresponding Author: Omaliko Emeka Leonard: el.omaliko@unizik.edu.ng

Abstract
This study examined the relationship between responsibility accounting and corporate sustainability growth using listed deposit money banks as a reference point. Responsibility accounting was measured using Operating Expenses (OE), Net Income (NI), Interest Expense (IE) and Return on Investment (ROI) while corporate sustainability growth was measured using corporate sustainability growth rate (CSGR). *Ex post facto* design was adopted and data for this study was collected from the annual accounts and reports of all listed deposit money banks on the Nigerian Exchange Group (NGX) for the period ended; 2016-2022. The analysis was carried out using panel least squares regression model and the results of the study show a significant and positive association between operating expenses, net income, interest expense, return on investment and sustainability growth of banks in Nigeria at 1% to 5% level of significance. The study therefore comes to the conclusion that responsibility accounting ensures sustainability growth in the banking sector. The study recommends that managers should increase their asset base, as it has been observed that banks with large asset base control their operating and interest expense which significantly ensures banks sustainability. In addition, the managers of listed deposit money banks should use return on investment and net income as a metric to evaluate and assess the sustainability of their stewardship.

Keyword: Responsibility Accounting; Corporate Sustainability Growth; Operating Expense; Net Income; Interest Expense; Return on Investment

Introduction

Over the years, banks in Nigeria have collapsed without any indication. As a result, institutional and corporate investors suffered enormous financial losses. Akintoye (2019) in his study reported financial scandals among Nigerian banks as follows; Afribank (2006) N6.9 billion, Bank PHB (2011) N25.7 billion, Oceanic Bank (2010) N150 billion, Access Bank (2011) $19 million or N6. N84 billion, Skye Bank (2018) N126 billion and Intercontinental Bank (2012) N400 billion. Yisa, Ishola and Folajimi (2020) also noted that the federal government through the intervention of the Central Bank of Nigeria saved depositors' funds through the conversion of Skye Bank Plc to Polaris Bank Plc on September 24, 2018. The death of Mainstream Bank Plc, Oceanic Bank Plc, Intercontinental Banks Plc, Bank PHB Plc, Enterprise Bank and Savannah Bank Plc is still fresh in investors' minds. In 2019, Diamond Bank Plc and Access Bank Plc merged as one entity while the public were informed about the move to be a merger decision. Thus, investors conceded it to be an acquisition decision by Access Bank Plc management. This challenge stems from the fact that banks do not divide their organizational structures into responsibility centers but instead centralize authority at their headquarters and ultimately fail to take the advantage of divisionalization. Hence, the need to determine if responsibility accounting induces banks sustainability.

Also, literature reveals that responsibility accounting is an important measurement tool for assessing bank's business activities with regard to their planned goals. However, bank branch managers do not have full authority to create their own budget based on business reality. Thus, branch managers are therefore not authorized to reconcile the costs and income of their branches (Al-Hanini, 2013), Fowzia, 2011; Maimako, Kwatlan & Ishaya, 2020). In this context, responsibility accounting measurements means comparing actual performance of every section in the bank with what was planned for. This according to

available literature is not in practice in the banking sector in Nigeria. Hence the need to buttress on the relevance of responsibility in the banking sector and its effect on banks sustainability in Nigeria.

Banks also offer products and services to various customers across the board. This includes business services, other deposits and mobilization of savings which requires reasonable and effective management actions that support the business sustainability within the environment in which the business is located. In recent years, the banking industry in Nigeria faced a lot of economic challenges that borders on management's performance (Adegbie, Urewa & Owolabi, 2020). Likewise, economic growth has not been inclusive, and Nigeria's economy faced key challenges of lower productivity and the weak expansion of sectors with high employment elasticity as a result of challenges in the banking industry (Wilson, 2023). Addressing these challenges requires that responsibility accounting should be established within the banking industry.

Centralization centers on decision making at the top management level, without recourse to low level management. Centralized system amplifies and transmits the impact of decisions within the system in which they are practiced. This implies that whenever wrong decision is inevitably taking in the banking sector, it affects the whole system. Thus makes central-planning error-prone as it makes managers ineffective which affects organizational performance. Also, if bank managers' performance is not evaluated, it will be difficult to determine the shareholder expectations of wealth maximization and sustainable growth of the bank. There is also a tendency for biased judgments and wrong judgment when evaluating an organization's performance without recourse to the specific responsibility of the individual managers. Therefore, it becomes imperative to investigate if responsibility accounting ensures corporate sustainability.

It is also evident from the a priori expectations that not much have been done empirically in the banking sector using secondary data other than the use of questionnaires and just as in the case of studies in developing countries only accounting measures of firm performance have been used. For instance, the recent study of Van, Phat, Ngoc, Phuong and Van (2022) on responsibility accounting in Vietnam used primary data for assessing managers' responsibilities. Also Yisa, Ishola, and Folajimi (2020) used primary data for assessing managers' responsibilities in Nigeria while Adegbie and Olaoye (2018) used accounting based measure of return on assets for assessment of mangers' responsibilities. Market measures such as share price, net assets per share and Tobin Q measure are ignored and neglected. Neglecting market measures may not provide a comprehensive perspective on management performance and sustainability growth from the investors' perspective in the banking sector.

Also, there is no known study that have used these variables for responsibility accounting in the bank of industry in Nigeria ranging from interest expense (IE), net income (NI), operating expense (OE) to return on assets (ROA) to the best of our knowledge,. Hence, it becomes imperative for the present study to examine the relationship which exists between responsibility accounting and corporate sustainability using deposit money banks in Nigeria as a reference point.

To achieve this purpose, the following hypotheses were formulated to achieve the objectives of this study.

H$_{01}$: Operating expense has no significant relationship with sustainability growth of listed deposit money banks in Nigeria.

H$_{02}$: Net income has no significant relationship with sustainability growth of listed deposit money banks in Nigeria.

H$_{03}$: Interest expense has no significant relationship with sustainability growth of listed deposit money banks in Nigeria.

H$_{04}$: Return on investment does not significantly relate to sustainability growth of listed deposit money banks in Nigeria.

This study contains several sections. Hence, the remainder of this study is organized as follows; Section 2 provides an overview of the current state of the relevant literature. This is followed by Section 3, which deals with the methodology and data for the analysis. Section 4 presents the data analysis and discussion of the results while Section 5 concludes with remarks and recommendation.

Literature Review

Responsibility Accounting

Responsibility accounting systems are widely used by organizations to evaluate and reward management performance. Using accounting information to measure performance and reward purposes requires a clear definition of responsibilities, as well as precise and well-defined expectations and goals. Without such policies, employees may lack loyalty and motivation to perform well (Adegbie & Olaoye, 2018). According to Adegbie, Urewa and Owolabi (2020), responsibility accounting is a system of account that collects, reports and summarizes accounting data related to managers responsibility. It provide information used to assess each of the manager's income and expenses which the manager has an authority

and a control over. According to Van, Phat, Ngoc, Phuong and Van (2022), the target of responsibility accounting is to assess the connection between manager activities and their effects.

Tran (2017) sees responsibility accounting as a managerial accounting method that measures the performance of all the responsibility centers where the performance of the manager is assessed and evaluated. In general, there are various views on the responsibility accounting system, depending on the general objectives, researchers or administrators and professionals in different institutions.

For the purpose of this study, a model fit on responsibility accounting was developed using the following Index; Operating Expense (OE), Net Income (NI), Interest Expense (IE) and Return on Investment (ROI).

Determinants of Responsibility Accounting

Operational Expense

According to Akeju (2011), operating expense is broken down into direct costs and indirect costs. The study defines direct costs as cost which varies directly with the production level. This is to say that such cost could be traced back to the item produced. In addition, direct costs can be direct labor costs, which include wages paid to workers who work entirely and exclusively on the manufacturing enterprise's production line. Indirect costs on the other hand, are those costs that could not be simply traced to the units of production, e.g. such costs do not vary in proportion with production units. It's also known as overhead costs.

Net Income

In accounting and economics, net income (also net earnings, net profit, total comprehensive income, sales profit, or credit sales and bottom line) is a business's income less cost of sales, depreciation, expenses and amortization, taxes and interest in a particular period (Wikimedia Foundation, 2020). It is also known as net earnings. It reflects the revenue left over expenses in a particular period (Anurudikka, 2020). Hence, net income is often regarded as a measure of organizational bottom line. Net income is considered the best indicator of a company's performance over a given period of time. That is, the high or low performance of the firm is reflected in the large or small profits that firms can make over a period (Stice, Stice & Skousen, 2009).

Net income may be distributed to the common stockholders as a dividend or an appropriation to retained earnings. Profit and revenue are used interchangeably with income. Thus, net profit and net income are often used as synonyms for net income (Wikimedia Foundation, 2020). Quite often, the term "income" is replaced by "net

income", but this is not preferred due to the potential for ambiguity. Net income is colloquially referred to as "bottom line" because it's usually the last line on a corporate's income statement which makes up the first line of the bank statement. It is an amount an individual or business makes after deducting costs, allowances and taxes (Adeh, 2023).

Interest Expenses

Interest expense is viewed as a non operating expense recognized in income statement. This is due on bonds, loans, lines of credit or convertible bonds. It is calculated by multiplying the firms' interest rate by the principal amount outstanding on the debt. According to the OECD (2015), interest expense is conceded as tax deductible expenses especially in the developed countries, though every country determines the expenses (interest) to be treated as deductible for the purposes of tax.

Interest expense is the cost of borrowed funds. It is recognized as a non-operating expense in the income statement and arises from credit agreements such as lines of credit, loans and bonds. Interest expense is typically a tax-deductible expense, making debt a more cost-effective form of financing than equity. However, excessive leverage also poses a risk of corporate failure if the borrower fails to meet its debt obligations. As a result, a prudent management team incurs little interest expense relative to a company's asset base and profitability (Department of the Treasury Internal Revenue Service, 2022).

Return on Investment

This is a performance measurement used to assess the efficiency of an investment and as well compare the efficiency of several investments. Return on investment (ROI) is a metric that examines the amount of additional profit generated by a specific investment. Businesses use this metric to compare different investment scenarios and find out which ones would bring the most profit and benefit to the business. However, this calculation can also be used to analyze the best case scenario for other types of investments (Dumitracu, 2014).

According to Zamfir, Manea and Ionescu (2016), return on investment is a performance concept for any type of investment. From the shareholders perspective, the company's goal is expressed in return on investment. Return on investment shows the extent a company generates profit through the use of capital. It exposits the amount invested in a particular portfolio over a period of time. Thus allows the evaluation of the efficiency of the amount invested. In other words, ROI allows the measurement of performance in relation to the source of the capital and the capital used in achieving it. The ROI is

determined as the ratio of operating profit and the total investment amount.

Corporate Sustainability Growth

This is an approach aimed at creating long term stakeholder value through the implementation of a business strategy with emphasis on the social, environmental, ethical, economic and cultural dimensions of the business. It could also be defined as a strategy in which a company provides its services and goods to enable economic and sustainable growth. Furthermore, it effectively prioritizes long-term development through environmentally friendly methods over short-term financial gains (Omaliko and Okpala, 2022). According to Kanyarat (2023), corporate sustainability growth is an
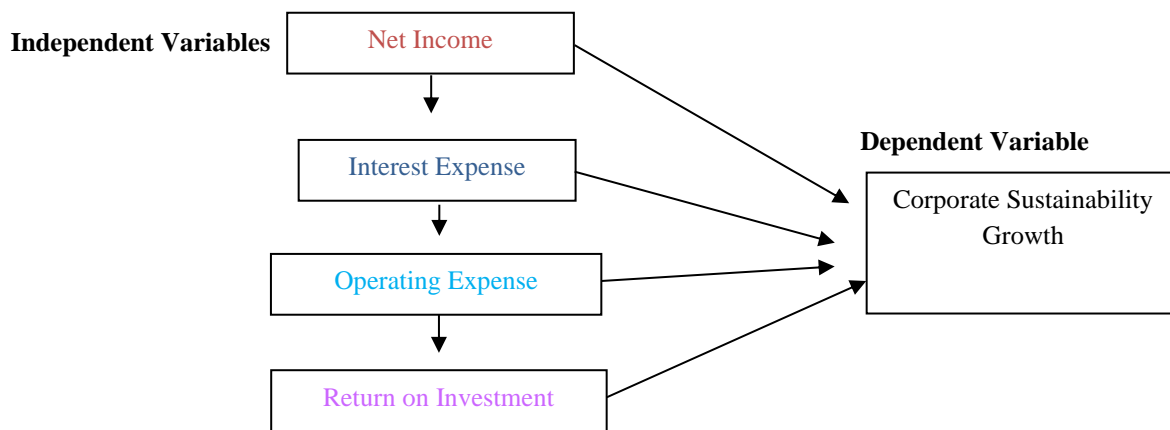
affordable growth that could be profitably maintained by corporate organizations for future benefit.
According to Omaliko and Onyeogubalu (2021), to be sustainable, organizations must concede the following:
i. Responsible for their social, environmental and economic impact.
ii. Being transparent in decisions and activities affecting its responsibilities.
iii. Respond to the interests of its stakeholders.
iv. Accept the fact that the rule of law is mandatory
A going concern firm will fall into the dilemma of unsustainable growth if deviated from sustainable growth (Buffa, Franch & Rizio, 2018). For the purpose of this study, corporate sustainability growth was measured as return on equity multiplied by retention ratio. This is expressed as ROE(1-DPR).

The Conceptual Model

Independent Variables

Net Income

Interest Expense

Operating Expense

Return on Investment

Dependent Variable

Corporate Sustainability Growth

Source: Researcher's Concept (2023)

Theoretical Framework

Agency Theory

The concept of agency theory was propounded by Jensen and Meckling in the year 1976. The theory argues that the control and ownership are becoming more separated as a result of dilution of the share capital of large firms. Jensen and Meckling (1976) suggested that this development provides an avenue for managers to pursue personal interests rather than those of shareholders'. The

responsibility for the management and administration of the company rests with the directors the shareholders' behalf. In every business contract where the owner is not responsible for the day to day management and direction of the business, there is always a chance that conflicts will arise. This could arise in a variety of ways: conflicts of interest, dividend policy issues, disagreements over payment terms and more. Agency theory assumes a relationship between the principal's representative (company manager) and the principal. From this perspective, the enterprise is a web of contracts between

resource owners. Panda and Leepsa (2017) reported that there is an agency relationship when one person(s) called agent is engaged by another person called principal to render some services. This study examines the relationship between responsibility accounting and sustainability growth of banks in Nigeria, considering the investors as the principal and the management as the agents.

Investors deliberately give the manager the authority over the management of their resources on their behalf. Therefore, this theory is relevant for the study because agency theory is very vital to the company's operations since managers are held accountable, responsible and been evaluated according to their responsibility centers performance. The managers are accountable to the shareholders based on the duties and resources of the centers under their control and the delegation of responsibilities (Diamond, 1984). Hence, the study was underpinned by the agency theory.

Empirical Review

Van, Phat, Ngoc, Phuong and Van (2022) examine the relationship between the performance of Vietnamese listed textile companies and the factors affecting the adoption of responsibility accounting. The results show that in addition to the measurement technique and the degree of competition, factors in the research model also had a certain impact ranging from skills of accounting staff, managers awareness at all levels, reward systems decentralization, and the forecasting of responsibility centers affect corporate performance.

Nguyen (2021) analyzed the impact of the responsibility accounting organizational performance of pharmaceutical companies and provides further empirical evidence of the impact. The study uses questionnaire distributed to pharmaceutical companies. The quantitative research was performed using SPSS 25 software. After excluding invalid copies of the questionnaire due to many empty fields, the author was able to use 306 questionnaires. The result of the study shows that seven elements of the Responsible Accounting model combined with the Balance Scorecard have a positive impact on the organizational performance of companies in the pharmaceutical industries.

Thinh (2021) examined the impact of profitability on responsibility accounting disclosures of banks in Vietnam. A time series data spanning from 2015 to 2019 was used; also OLS regression model was used. Profitability was proxy using 5 variables. The findings indicate that return on assets and return on equity have positive influence on responsibility accounting disclosures. Kubaje, Muda and Eklemet (2020) evaluated the effectiveness of responsibility accounting systems in determining segment performance of manufacturing firms in Ghana. The population of the study consists of heavy

and light industrial enclaves and the study found that for effective segment performance of a manufacturing company in Ghana, responsibility accountability system plays an important role. The study therefore suggests that management should make reasonable efforts to address the difficulties faced by the effectiveness responsibility accountability systems.

Tran, Dinh and Nguyen (2020) reported that accounting is an important part of management accounting. The study identified the impact of organization size and manager education level on responsibility accounting in Vietnamese cements companies. Data collection was carried out through the use of questionnaire. The research results have shown that in the Vietnamese cement companies, there are significant correlations between the size of the organization, the level of training of the managers and the responsibility accounting. As noted in Oladapo's (2020) study, responsibility accounting has been recognized as a tool to measure the responsibility and operational area performance within the organization. Descriptive research method was used to assess the impact of responsibility accounting, the impact of manager involvement in goal setting, and also the importance of organizational structure for performance assessment in the banking sector. To achieve the objectives of the study, a total of 240 copies of questionnaire were administered to the selected banks in Southwest Geopolitical Zone in five states in Nigeria. Using t-test and Pearson's correlation, the results of the study showed that responsibility accounting has significant impact on performance.

Yisa, Ishola, and Folajimi (2020) carried out a survey research designs with a population of 54 listed manufacturing firms in Nigeria. Using a targeted sampling technique, 510 respondents were selected from a sample frame of 34 firms; the study found that responsibility accounting had significant impact on companies' investment decision. The study therefore concludes that responsibility accounting ensures corporate investment decision of listed manufacturing firms in Nigeria. Adegbie, Urewa and Owolabi (2020) on the same vein, examined the impact of responsibility accounting on the profitability of firms in Nigeria. The study adopts ex post facto design and population of the study covers all the companies listed on Nigerian Stock Exchange for the year December 31, 2016. Ten firms were randomized and the study found that the profitability of firms in Nigeria is determined by responsibility accounting.

Methodology

The study used an *ex post facto design* based on the fact that the data for the study were secondary and pre-existed which cannot be controlled. The population is consists of all 14 listed deposit money banks on Nigerian Exchange Group (NGX) for the year ended December 31, 2022

spanning from 2016-2022. Thus, the study used the entire population of the study. On this base, 14 banks made up our sample size with 98 observations. Data was collected from the annual accounts and reports of the sampled banks in Nigeria. The panel least squares regression model was used to determine the relationship between responsibility accounting and corporate sustainability growth.

Measurement and Operationalization of Variables

Table 1: Variable Measurements

Variable	Measurement
Dependent	
Corporate Sustainability Growth	ROE(1-DPR)
Independent	
Operating Expense	Log OE
Net Income	Log NI
Interest Expense	Log IE
Return on Investment	NPAT/Capital Employed

Source: Empirical Survey (2023)

Model Specification and Justification

The researcher designed a model to examine the relationship between responsibility accounting and corporate sustainability growth. The functional model for the study is shown below as thus:

CSG = F(OE, NI, 1E, ROI)

The explicit form of the regression designed for the study is shown below as thus:

Model: $CSG = \beta_0 + \beta_1 OE_t + \beta_2 NI_t + \beta_3 1E_t + \beta_4 ROI_t + \varepsilon_t$
Where;
CSG = Corporate Sustainability Growth
OE = Operating Expense
NI = Net Income
IE = Interest Expense
ROI = Return on Investment
ε = Stochastic Error Term

Decision Rule: accept H_1 if P-value < 5% level of significance otherwise reject H_1

Results and Discussions

Table 2: Descriptive Statistics

	CSG	OE	NI	IE	ROI
Mean	4.24	5.09	3.47	2.98	1.89
Median	0.56	3.00	2.90	2.11	2.65
Maximum	76.2	4.50	4.10	3.50	3.10
Minimum	1.12	1.80	1.40	0.80	0.95
Std. Dev.	10.8	0.76	0.62	0.51	0.44
Skewness	4.33	0.47	0.56	0.23	0.11
Kurtosis	24.5	2.32	2.04	2.49	2.36
Jarque-Bera	2208	5.40	8.73	1.98	0.66
Probability	0.00	0.15	0.21	0.37	0.72
Sum	416	317	261	201	185
Sum Sq. Dev.	11317	45.3	43.4	32.7	19.06
Observations	98	98	98	98	98

Source: E-View 12 Computational Results (2023)

Table 2 above shows that the corporate sustainability growth (CSG) value for the sampled banks was 4.24. This implies that corporate sustainability is determined by responsibility accounting practices. The maximum and minimum points for the study were 76.2 and 1.12

respectively. The variation in the minimum and maximum CSG points for the sampled banks justify the study that corporate sustainability growth is a determinant of responsibility accounting practices. The distribution is leptokurtic because the kurtosis is greater than 3, which means the outliers are large. The Jarque-Bera probability of 0.00 is below 0.05, which means that the distribution of corporate sustainability growth deviates significantly from a normal distribution.

The average value of operating expense (OE) for the sample banks was 5.09. This means that banks with an OE value of 5.09 and above are sustainable at a risk level of 0.76%. The maximum and minimum points for the study were 4.50 and 1.80 respectively. The variation in minimum and maximum OE points for the sampled banks justify the study that banks with such variability demonstrate high sustainability growth. The distribution is platykurtic since the kurtosis is less than 3, which means there are few outliers. The Jarque-Bera probability of 0.15 is more than 0.05 which means that the distribution of operating expense does not deviate significantly from a normal distribution.

The average net income (NI) for the sampled banks was 3.47. This means that banks with NI value of 3.47 and above are sustainable. The maximum and minimum points for the study were 4.10 and 1.40 respectively. The variation in minimum and maximum NI points for the sampled banks justify the study that banks with such variability are more sustainable. The distribution is platykurtic since the kurtosis is less than 3, which means there are few outliers. The Jarque-Bera probability of 0.21 is greater than 0.05, which means that the distribution of net income comes from a normal distribution.

The mean value of interest expense (IE) for the sampled banks was 2.98. This means that banks with IE of 2.98 and above are sustainable with a risk level of 0.51%. The maximum and minimum points for the study were 3.50 and 0.80 respectively. The variation in the minimum and maximum IE values for the sampled banks justify the study that banks with such variability have sustained growth. The distribution is platykurtic since the kurtosis is less than 3 which means there are few outliers. The Jarque-Bera probability of 0.37 is greater than 0.05, which means that the distribution of interest expense does not deviate from a normal distribution.

The average return on investment (ROI) for the banks examined was 1.89. This means that banks with ROI of 1.89 and above are sustainable at a degree of risk of 0.44%. The maximum and minimum points for the study were 3.10 and 0.95 respectively. The variation in minimum and maximum ROI points for the sampled banks necessitates this study, as the study assumes that banks with such variability demonstrates sustainability growth. The distribution is platykurtic since the kurtosis is less than 3, which means there are few outliers. The Jarque-Bera probability of 0.72 is greater than 0.05, which means that the return on investment distribution is normal.

Table 3: Correlation Matrix

Variables	CSG	OE	NI	IE	ROI
CSG	1.00				
OE	0.05	1.00			
NI	0.01	0.52	1.00		
IE	0.20	0.05	0.50	1.00	
ROI	0.12	0.23	0.35	0.49	1.00

Source: Result Output from E-Views 12 (2023)

Table 3 above shows that all independent variables are positively related to the dependent variable (corporate sustainability growth) and to each other. When testing for multi-collinearity feature, we found no two exogenous variables to be perfectly correlated. Thus, implies non multi-collinearity existence.

Test of Hypothesis

Table 4: Panel Least Squares Result on the Relationship between Responsibility Accounting and Corporate Sustainability Growth

Dependent Variable: CSG

Method: Panel Least Squares

Date: 06/18/23   Time: 15:16

Sample: 2016 2022

Periods included: 7

Cross-sections included: 14

Total panel (balanced) observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OE	0.892475	0.129455	6.894094	0.0001
NI	2.341885	0.327482	7.151187	0.0000
IE	0.940390	0.249812	3.764391	0.0162
ROI	1.506147	0.478538	3.147393	0.0487
C	11.84957	2.647026	4.476559	0.0039

R-squared	0.453322	Mean dependent var		4.242551
Adjusted R-squared	0.427153	S.D. dependent var		10.80164
S.E. of regression	10.77855	Akaike info criterion		7.642665
Sum squared resid	10804.47	Schwarz criterion		7.774552
Log likelihood	369.4906	Hannan-Quinn criter.		7.696011
F-statistic	4.104015	Durbin-Watson stat		2.122531
Prob(F-statistic)	0.000000			

Source: Result Output from E-Views 12 (2023)

The R-squared for the model as shown in Table 4 above, was 0.45%, indicates that the variables included in the model accounted for 45% of variation in dependent variable of corporate sustainability growth (CSG) while about 55% was not covered by the model. The F-statistic value of 4.104 and its P-value of 0.0000 indicates that the panel least-squares model is statistically significant at 1% significant level. This implies that the model is appropriate for the study.

Autocorrelation Test: The DW statistic is 2.122 which is approximately 2 agrees with Durbin Watson's rule of thumb. This means that the data is free from autocorrelation and is suitable for the interpretation of the result. The Schwarz Criterion and the Akike Info Criterion of 7.775 and 7.643 respectively further

strengthens the reliability of our result as it confirms the validity of the model.

In addition, the specific results for each explanatory variable from the least squares panel model as shown in Table 4 are provided below as follows:

Discussion of Findings

Operating expense has no significant relationship with sustainability growth of listed deposit money banks in Nigeria. This was tested using panel least squares model as shown in Table 4 and the result shows that the relationship between operating expenses (OE) and corporate sustainability growth (CSG) is significant and positive with a P-value of 0.0001 for the model, which is below the assumed significance level of 1%. The result of the positive coefficient of 0.89 for the model also implies

that an increase in operating expense increases the bank's sustainability growth by 89%. We therefore accepted the alternate hypothesis that operating costs are significantly related to the sustainability growth of banks in Nigeria. This finding is consistent with the findings of Nguyen (2021) and Van, Phat, Ngoc, Phuong, and Van (2022) who found that responsibility accountability ensures firm performance.

There is no significant relationship between net income and sustainability growth of listed deposit money banks in Nigeria. This was tested using panel least squares model as shown in Table 4 and the result shows that the relationship between net income (NI) and corporate sustainability growth (CSG) is significant and positive with a P-value of 0.0000 for the model which is less than 1% level of significance adopted. Additionally, the positive coefficient of 2.34 for the model suggests that net income ensures the banks sustainability growth by 2.34%. We therefore accepted the alternate hypothesis that the relationship between net income and sustainability growth of the banks in Nigeria is significant. This result is in consonance with the a priori expectations of Thinh (2021) and Nguyen (2021), who reported that responsibility accounting has a significant impact on firm performance.

H₀₃: Interest expense has no significant relationship with sustainability growth of listed deposit money banks in Nigeria. This was tested using panel least squares model, as shown in Table 4 and the result shows that the relationship between interest expense (IE) and the corporate sustainability growth is significant and positive with a P-value of 0.0162 for the model. This is below the assumed level of significance of 5% adopted in the study. In addition, the positive coefficient of 0.940 for the model shows that an increase in bank interest expense increases corporate sustainability by 94%. We therefore accepted the alternate hypothesis that interest expense is significantly related to the sustainability growth of the banks in Nigeria. The finding seems agreeable with the findings of Adegbie, Urewa, and Owolabi (2020), Yisa, Ishola, and Folajimi (2020), who reported that the accountability account determines firm performance.

H₀₄: Return on investment does not significantly relate to sustainability growth of listed deposit money banks in Nigeria. This was tested using panel least squares model presented in Table 4 and the result shows that the relationship between return on investment (ROI) and corporate sustainability growth is significant and positive with a P-value of 0.0487 for the model which is below the assumed 5% level of significance adopted. Furthermore, the positive coefficient of 1.506 for the model shows that an increase in return on investment ensures corporate sustainability growth by 1.506%. We therefore accepted the alternate hypothesis that the return on investment has

a significant association with sustainability growth of the banks in Nigeria. The result is in tandem with the findings of Oladapo (2020), Tran, Dinh and Nguyen (2020), Kubaje, Muda and Eklemet (2020) who reported a positive and significant association between responsibility accounting and organizational performance.

Conclusion

The study concludes that responsibility accounting has significant effect on sustainability growth of listed deposit money banks in Nigeria. Thus, responsibility accounting ensures corporate sustainability.

Recommendation

1. The management of banks in Nigeria should increase their asset base as it has been observed that banks with large asset base control their operating expense which greatly ensures the banks sustainability.
2. Managers should also implement responsibility accounting with a focus on profit center for wealth maximization.
3. Also, interest expense was found to ensure banks sustainability. Hence, the study recommends that managers should match interest expense with interest income and ensure a positive match or correlation between the variables.
4. Management should use return on investment as a metric to evaluate sustainability of responsibility accountability.

Conflict of Interest: Authors have declared that no competing interests exist.

Data availability: Data used will be made available on request.

Authors contribution: Akwuobi and David made a significant contribution through problem identification. Every other aspect of this work was handled by Dr. Omaliko, E

References

Adegbie, F. F., & Olaoye, A. S. (2018). Application of responsibility accounting to productivity

evaluation in the Nigerian quoted companies. *Journal of Advance Research in Business Management and Accounting, 4* (6), 1-24.

Adegbie, F., Urewa, O., & Owolabi, B. (2020). Responsibility accounting and profitability of listed companies in Nigeria. *International Journal of Accounting, Finance and Risk Management,* *5*(2), 101-117. http://dx.doi.org/10.11648/j.ijafrm.20200502.15

Akeju, J. O. (2011). *Financial accounting for beginners*. (1st ed). Lagos: Shomolu, JBA Associates Ltd. Shomolu

Akintoye, I. R. (2019). Accounting: A mismanaged concept requiring urgent re-definition. *28th Inaugural Lecture, Babcock University.*

Al-Hanini, A. (2013). The extent of implementing responsibility accounting features in the Jordanian Banks. *European Journal of Business and Management, 5*(1), 217–229.

Anuruddika, K. (2020). Operating profit and net profit: Measurements of profitability. Open Access Library, *7*: e7011. https://doi.org/10.4236/oalib.1107011

Buffa, F., Franch, M., & Rizio, D. (2018). Environmental management practices for sustainable business models in small and medium sized hotel enterprises. *Journal of Cleaner Production 19*(4), 656–664. https://doi.org/10.1016/j.jclepro.2018.05.143

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *Review of Economic Studies 51* (166), 393

Dumitraşcu, V. (2014) *Managementul investiţiilor*, Bucureşti: Ed. Universitară

Fowzia, R. (2011). Use of responsibility accounting and measure of the satisfaction level in service organizations in Bangladesh. *International Reviews of Business Research, 7* (2), 53–67.

Jensen, C., & Meckling, H., (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.

Kanyarat, S. (2023). Corporate sustainability and sustainable growth: The role of industry sensitivity, *Finance Research Letters, 53*(3), 25-38. https://doi.org/10.1016/j.frl.2022.103596

Kubaje, T., Muda, P., & Eklemet, I. (2020). The effectiveness of responsibility accounting systems in evaluating segment performance of manufacturing firms in Ghana Sub-Saharan Africa. *Researchjournali's Journal of Accounting,* *8*(2), 1-24. *www.researchjournali.com*

Maimako, L., Kwatmen, M., & Ishaya, D. (2020). Impact of responsibility accounting on bank management performance in Nigeria. *IJMSR, 4*(1), 146-152

Nguyen, T. (2021). The impact of responsible accounting on organizational performance: A case study of pharmaceutical enterprises in Vietnam. *Journal of Asian Finance, Economics and Business, 8*(3), 1065–1071. https://doi:10.13106/jafeb.2021.vol8.no3.1065

OECD. (2015). Limiting base erosion involving interest deductions and other financial payments, action 4 - final report. https://www.oecd.org/tax/limiting-base-erosion-involving-interest-deductions-and-other-financial-payments-action-4-2015-final-report-9789264241176-en.htm

Oladapo, J. (2020). The performance of responsibility accounting in some selected banks in Southwest Nigeria. *International Journal of Research and Development,* *5*(10), 213-221. https://doi.org/10.36713/epra2016

Omaliko, E., & Okpala, E. (2022). Tax aggressiveness and sustainability of listed oil and gas firms in Nigeria: Does firm size matter? *International Journal of Economics and Business Management, 8*(2), 48-60. https://doi.org/10.56201/ijebm.v8.no2.2022.pg48.60

Omaliko, E., & Onyeogubalu, O. (2021). Voluntary risk management disclosures and organizational sustainability; Nigerian experience. *University-Led Knowledge and Innovation for Sustainable Development, Nnamdi Azikiwe University Book Series on Sustainable Development*

Panda, B., & Leepsa, N. M. (2017). Agency theory: Review of theory and evidence on problems and perspectives. *Indian Journal of Corporate Governance*, *10*(1), 74–95.

Stice, E. K., Stice, J. D., Skousen, K. F. (2009). *Intermediate accounting*. (19th ed). Cincinati, Ohio: South-Western Publishing, Co.

Thinh, T. (2021). Influence of profitability on responsibility accounting disclosure – Empirical study of Vietnamese listed commercial banks. *Banks and Bank Systems, 16*(2), 119-126. https://doi:10.21511/bbs.16(2).2021.11

Tran, T. T. (2017). Impact of responsibility accounting on the performance of Vietnam enterprisesto sustainable development: An empirical study. *International Journal of Economic Research, 14*(12), 51-64. http: www.serialsjournal.com

Tran, T., Dinh, H., & Nguyen, H. (2020). The effects of organization size and manager's educational background on responsibility accounting: Evidences from Vietnamese cement enterprises. *Accounting 6*, 611–618. https://GrowingScience.com/ac/ac.html

Van, T., Phat, C., Ngoc, N., Phuong, H., & Van, C. (2022) Factor affecting the implementation of responsibility accounting on firm performance: Empirical analysis of listed textile firms, *Cogent Business & Management, 9*(1), 1-32, https://doi.org/10.1080/23311975.2022.2032912

Wikimedia Foundation (2020) Interest Expense. https://en.wikipedia.org/wiki/Interest_expense

Wilson, E. (2023). Bridging the productivity gap and building economic resilience. *Brookings.* https://www.brookings.edu/articles/nigeria-in-2023-bridging-the-productivity-gap-and-building-economic-resilience/

Yisa, A., Ishola, A., & Folajimi, F. (2020). Responsibility accounting and corporate investment decisions among listed manufacturing firms in Nigeria. *European Journal of Accounting, Auditing and Finance Research, 8*(4), 89-111

Zamfir, M., & Manea, M., & Ionescu, L. (2016). Return on investment – indicator for measuring the profitability of invested capital. *Valahian Journal of Economic Studies, Sciendo, 7*(2), 79-86.