

## Moderating Effect of Interest Rate on the Relationship between Investment Decision and Financial Performance of Listed Consumer Good Firms' in Nigeria

By

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### ABSTRACT

*The study examines the moderating effect of interest rate on the relationship between investment decision and financial performance of listed consumer goods companies in Nigeria. The data were extracted from the annual reports and accounts of the companies for a period of 14 years (2009-2022). Panel data was used and ex-post factor research design was employed. The inferential statistics were used to analyze the panel data using Stata (version 17). GLS poolability test was conducted to determine both direct and indirect relationship between interacting, endogenous and exogenous variables. Hausman specification test was conducted and the finding from the both models suggested for random effect and was confirmed using lagrangian multiplier test. The result shows that interest rate does not moderate the relationship between investment in tangible asset decision and investment in working capital decision which is statistically not significant on financial performance measure by ROA. However, the study findings reveal that interest rate moderate the relationship between leverage investment decision and financial performance of selected consumer goods companies in Nigeria. It is recommended that companies should pay more attention to leverage investment decision as it affects their performance significantly. Hence, interest rate moderates the relationship between firms' investments decision on leverage on their financial performance.*

### Introduction

Performance remains the most crucial mechanism used in gauging the efficiency and effectiveness of firms' management. It determines the profitability of the companies thereby enhance shareholders wealth. Globally manufacturing sector is experiencing changes that affect their operation adversely for many decades. These changes are ascribed to implementation of technological innovation, macroeconomic variables etc., which lead to an intense competition among other local

and international markets environment (Mbevi & Opuodho, 2022). Companies all over the globe have embarked to review and restructure their investments strategies in order to increase economic growth. Nigeria is not in exception; various economic sectors are persistently experiencing turbulence macroeconomic policy posing a great challenge to their profitability. Among the challenges and risk noted is the higher inflation rate, high tax rates, higher interest rate, higher exchange rate, rising labor costs,

expensive and unreliable source of energy among others (Omotayo, et al., 2020 & Okereke & Ikumariogbe, 2018). Firm performance in the Nigerian manufacturing sector has been deteriorating in recent years compared to the average regional and global productivity levels as indicated in firm's annual reports. Literature reveals that about 20% of manufacturing firms in Nigeria closed their businesses or scale down their production capacity due to poor performance while other firms relocated their operations to other countries; and it is in the dailies news that Mr. president had appealed to the companies proclaiming to leave Nigeria to stay. Some companies have opted to scale down their manufacturing capacity to fit their limits eg Unilever plc, (Nigerian Exchange Group, 2023). This deteriorating performance of the manufacturing sector requires to be monitored strategically and proper action need to be taken to avoid creating major problems in general economy of Nigeria, hence triggered the need for this study.

The metric's uses in measures performance play important role as it facilitates provision of information necessary for decision making and for future strategic plan. Firms' performance is measured using accounting measure. Financial performance statistics

are measured as good tool used in analyzing the well-being of a business in term of financial performance (Mbevi & Opuodho, 2022). The quantitative aspect of financial performance measures are noted to be good as they improve objectivity, consistency and rationality in the estimation of firm's performance. Some of the financial performance metrics used in measuring financial performance includes: Return on Equity (ROE), Return on Asset (ROA), Return on Investment (ROI), Return on Capital Employed (ROCE), Net Profit Margin (NPM) and financial leverage measured as (Equity/Total Assets) are mainly used (Chukwu, et al., 2022).

Investment decisions are argued as the process of sharing resources for major investment or capital expenditures in order to diversify sources of revenue at a point in time. It is a general plan used for the purpose of generating income for an organization, which generally results in acquiring an asset and other resources (Adelino & Robinson, 2017). Investment decisions involve provision of revenue generation sources or a strategy in which an organization sets up or acquires business outside its current products and markets. It involves generating income from many sources. It is the broadening of an area of

research and other scholarly interest in order to help managers and investors make rational investment decisions to enhance sources of revenue, as the main objective of diversification for an organization is to gain an extra market share to ascertain synergistic advantage (Salsabila & Diantimala, 2023).

Previous studies reveal an inconsistency in their findings, some studies that found significant findings includes: (Morwabe & Muturi, 2019; Ringera and Maturi, 2019; Afsar & Karacayir, 2020; Mbevi & Opuodho, 2022; Quddus, et al., 2022; Abdulkareem, et al. 2023) and those that were found to be insignificant includes: (Musau, 2016; Santoso (2019; Sulastri, et al., 2019; Sherine, Wiyanto & Budiono, 2021; Suleiman & Sumani, 2021; Suteja, et al., 2022, Al-Slehat, 2020; Salsabila & Diantimala, 2023). As such findings can hardly be concluded because many were found to significant and many were found to be insignificant. Therefore, the study introduced a moderator as suggested by Baron and Kenny (1986). Abdul-quddus, et al., (2022) suggested that future research should consider the introduction of other macroeconomic variable (interest rate, tax rate) as moderator and interest rate is introduced to moderate the relationship between investment decision and financial

performance of listed consumer goods companies in Nigeria and also to extend the study period to 2022.

## **2. Literature Review**

### **Financial Performance**

The term financial performance is the companies' ability to generate new resources from their daily operations over a given time period and it is measured by profit after tax over total asset (Rajkumar & Hanithar, 2015). Financial performance is the ability of an organization to employ its available resources to increase shareholders wealth and generate sustainable profit to strengthen its capital base through retained earnings to ensure future profitability (Musamba, 2012).

### **Investment Decision**

Investment decision entails diversification and expansion of business activities, new assets acquisition; acquiring existing firms to expand its business through forms of mergers and acquisition strategy; incorporating technology to facilitate transformation of the firm and additional of the long-term assets. However, it includes the trade or renting of assets, variation of marketing strategies, or increase in publicity and promotion have long term impact on

financial performance of the firm (Machuki, 2014).

### **Interest Rate**

Ngugi, (2001) sees interest rate as a cost of capital that predicts the market condition on the future change in the purchasing power of money or potential price rises. It is macroeconomic variable that influence firm's capital structure and its investment decisions, a higher interest rate affect firm financial performance adversely, while low interest rate increase firm profitability.

### **Empirical Review**

#### **Tangible Asset Investment Decision and Financial performance**

Salsabila and Diantimala (2023) studied the role of investment decisions and financial performance on tax avoidance of sample 40 out of 97 top Australian, Indian, and Indonesian mining companies mining companies from 2017-2021 suing purposive sampling technique. Investment decision was measured by Fixed Asset (tangible asset) Growth, ROA was used to measured firm performance and effective tax rate measured Tax avoidance. Leverage, firm size, firm age and sale growth were used as control variables. Multiple linear regression analysis was employed for data analysis. The results show that both investment

decisions and corporate financial performance affect tax avoidance. Moderately, investment decisions have a significantly positive effect on tax avoidance, and corporate financial performance also has a significantly positive effect on tax avoidance. The results suggest that investment decisions and firm performance motivate managers to tax avoidance. The study fails to shows regression pre-estimation test. Mbevi and Opuodho (2022) examine the effect of some selected investment decisions on financial performance of listed manufacturing companies in Kenya from 2015-2019. Descriptive and inferential statistics were applied to analyze the data collected. Correlation and regressions analysis conducted as the analytical tools to enable interpretation of the relationship of the study selected variables. Renewal and expansion decision was used to proxies' investment decision and ROE as dependent variable. The result shows that expansion decision had a negative impact on ROE and renewal decision had positive effect on ROE of listed firms under study.

Al-Slehat (2020) investigates the effect of investment and financial decisions on stock prices and future profits in the presence of financial performance as mediating variable

of listed banking and insurance companies in Jordan from 2009 to 2018. SEM analysis was employed using AMOS 23 software to test the hypotheses. Financial decision shows insignificant effect on future profits and stock prices, whereas investment decision affects future profits and stock prices. Financial performance is considered a mediator in the effect between financing decision and future profits. Conversely, financial performance fails to mediate the impact of financial decision and stock prices. In addition, it cannot mediate the effect of investment decision on future profits and stock prices. Olatunji and Adegbite (2014) examine the impact of fixed asset investments on the profitability of DMB's in Nigeria. They found a significant influence between profitability and fixed asset investments (tangible Asset) of the banking sector in Nigeria. The study of Moon and Sharma (2014) shows a significant relationship between restaurants tangible investment and profitability and liquidity parameters. The study hypothesizes that:

**Ho1:** Tangible asset investment decision has no significant effect on financial performance of listed consumer goods firms in Nigeria.

### **Leverage Investment Decision and Financial Performance**

Ghardallou (2023) examine firm's financial performance using ROA, Tobin's Q, and ROE, the findings show insignificant effect on firm's leverage from the quintile regression. This indicates that the influence of leverage changed, with higher-profit firms being more negatively affected than low-profit firms. Suleman and Sumani (2021) studied the impact of investment decisions, capital structure, profitability, and company size on the value of the firm, by using samples from the property, real estate, and construction companies listed in Indonesia stock exchange from 2014-2017. The findings showed that the investment decision, capital structure, and profitability show insignificant effect on firm value. Conversely, firm size has a significant negative effect on the firm value. From the results of the F test, investment decision, capital structure, profitability, company size in this study simultaneously influence the value of the firm. Kaluarachchi et al. (2021) investigate the effect of leverage on the performance of Sri Lankan firms. ROA and ROE were employed as financial performance measures. The finding shows a mixed relationship, with both positive and

negative association between leverage and financial performance.

Afsar and Karacayir (2020) investigate the effect of investment and financing decisions on firm value. Productivity and profitability ratio measures investment decisions, leverage and current ratio measures financial decisions and firm measure firm value respectively from 2003-2018. Fixed effects panel data method was employed in analyzing the data. The findings reveal that, asset turnover rate, return on assets, intangible assets, current ratio, stock turnover rate and profit per share variables positively and significantly affect firm value. Leverage ratio, debt turnover rate and crisis variable affect the firm value negatively and significantly. In addition, it was concluded that the effects of the receivable turnover rate and firm size variables on the firm value are insignificant. Danso et al. (2020) investigate the nexus between leverage and firm financial performance of 2403 Indian firms form 1995-2014. The result reveals that the relationship between (Tobin's Q) and financial leverage is negative significant. Lazăr (2016) studied the listed companies of Romanian from 2000 to 2011 to determine the variables affecting the performance of these firms from a resource-based

perspective. The result shows that variables such as tangibles, leverage, size, and labor intensity negatively affect the performance of the companies.

**Ho2:** Leverage investment decision has no significant effect on financial performance of listed consumer goods firms in Nigeria.

### **Working Capital Investment Decision and Financial Performance**

Abdul-quddus, et al., (2022) studied the moderating influence economic uncertainty on investment decision and firm performance of listed manufacturing sector of Pakistan 2015–2020. GMM estimation was employed for data analysis. The independent and dependent variable were proxies by investment in tangible assets, intangible assets, and financial leverage and firm performance (Tobin's Q) respectively. The study revealed that the moderating impact of uncertainty has significant impact on investment decision in both investment in tangible assets and financial leverage. The finding shows that investment decision and firm performance have negative and significant relationship with economic policy uncertainty. Suteja, et al., (2022) investigate the effect of investment decision and firm value moderating role of corporate social responsibility and profitability of

Non-financial sector firms on the Indonesia Stock Exchange from 2018 to 2020. The fixed effect result showed that there was a negative effect of investment decisions on firm value and the role of CSR and profitability moderate this effect, either when using other control variables or when using a different estimation model. Sherine, et al., (2021) examine the impact of investment decision, funding decision, and profitability on firm value of consumer goods companies in Indonesia Stock Exchange from 2017-2020. The research method used is multiple regression analysis on panel data with a fixed-effect model using the EViews 10.0 software. The findings reveal that all three variables affect the firm value simultaneously, investment decision, funding decision and profitability has a positive and significant effect on the firm value of listed consumer goods companies. Fernández-López et al. (2020) study the investment in working capital and SME's financial performance. The result shows negative relationship between WC on SME's financial performance. The findings of Aytac et al. (2020) also depicted that WC has a significant effect on firm financial performance. Based on the above the following hypothesis is formulated.

**Ho3:** Working capital investment decision has no significant effect on financial performance of listed consumer goods firms in Nigeria.

### **Interest Rate and Financial Performance**

Oluwayemisi and Samson (2022) investigate the effect of interest rates and the financial performance of listed deposit money banks in Nigeria. Specifically, the study investigated how the growth of domestic money supply, maximum bank lending rate and monetary policy affect financial performance of Nigerian deposit money banks; and how the rate of inflation affects the financial performance of Nigerian deposit money banks. The study's employed both descriptive and ex-post facto design. The findings show that there are positive significant effects between domestic money supply, maximum lending rate; monetary policy rate on financial performance; and inflation has a negative significant effect on financial performance. The study of Bemshima, et al. (2020) found that Interest rates had a significant impact on ROA, but insignificant effect on ROE of listed manufacturing firms in Nigeria. However, concluded that interest rates should be fixed on the value that would be favorably influence financial performance of listed manufacturing firms in Nigeria. Srifitri and

Berliana (2022) their findings show that interest rates have a negatively insignificant effect on investment and funding decisions, but positively moderate effect on dividend decisions of the study firms. The study Al-slehat (2022) on the effect of interest rate risk on financial performance through the banking security degree as a mediating variable in Jordan from 2011-2018. The finding reveals that the banking security degree had influence between interest rate risk and financial performance. The study recommended that policymakers and other stakeholders to provide efficient interest rate risk policies concurrently to support the monetary and financial policies of the banking industry. However, from the above review the study hypothesizes that:

**Ho4:** Interest rate has no significant moderating effect between investment decision and financial performance of listed consumer goods firms in Nigeria.

#### **2.2.5 Theoretical Reviews**

The study is based on two theories resource-based view theory (RBV) and Keynesian theory of investment:

The Resource based view theory was developed by Pfeffer and Salancik (1978). The RBV theory applied cost-effective relationship to explain the strategic investment on resources available to a firm

for development. The theory is of the view that the competitive performance of a firm depends mainly on the firm valuable resources (investment decision). The prospect of the firm depends on the available investment decision on resource allocated during budgeting. To transform a short-run financial performance into a sustainable long run solution, it requires that these resources be varied in nature (eg tangible, leverage working capital investment) and not perfectly mobile. As such, this transforms into valuable organization investment that are neither perfectly limitable nor substitutable at ease (Hoopes, et al 2003). If successful, the firm's bundle of resources could assist the firm sustaining above average returns. The resource-based view suggested that a firm's unique resources and capabilities provide the basis for investment strategy (Hoopes, at al 2003). The investment strategy chosen should allow the firm to best exploits its core competencies relative to opportunities in the external environment

The Keynesian investment theory was developed by Maynard Keynes (1936). It posits that investment is driven by interest rate and Marginal efficiency of capital (MEC) (Arrow, 2017). MEC is the discount rate which could make the present value

from expected returns of a capital asset equal to the price of supply. It is used in placing tasks from the highest viable to the least. The MEC rule is to accept task if MEC is greater than interest rate. Low interest rates attract investments as firms can borrow at low rates since savings will only give low returns (Fuller, 2013). Firms strategic goal of maximizing financial performance; is possible by choosing best investments due to their irreversible nature (Arrow, 2017). Marginal efficiency of capital decrease with the level of investment; this is because most of the tasks or projects with great opportunities are considered first.

### 3. Research Methodology

The study is based on ex post facto research design because the data is historical in nature extracted from the annual reports and account of firms under study. The population of the study comprise of all (24) listed consumer goods firms in the floor of Nigerian Exchange Group as at 31<sup>st</sup> December, 2022. The sample was drawn from the population using filtering approach, three filters were applied as: first, firm must be listed in the floor of Nigerian exchange group for the entire period of study; Secondly, the annual reports of the firms must be available and thirdly, the data

required by the study must also be available throughout the period consider in this study. After application of these filters five companies were filtered out and nineteen consumer goods companies that meet the criteria were selected as sample of the study from 2009-2022. Panel multiple regressions were employed for data analysis after employing the assumptions of regression using STATA Version 17.

### Research Model

$$ROA_{it} = \alpha + \beta_1 TAS_{it} + \beta_2 WCD_{it} + \beta_3 LEVD_{it} + FSIZE_{it} + \beta_7 AGE_{it} + \mu \dots \dots \dots \text{Equation (I)}$$

$$ROA_{it} = \alpha + \beta_1 INTR_{it} + \beta_2 FSiz_{it} + \beta_3 FAGE_{it} + \mu \dots \dots \dots \text{Equation (II)}$$

$$ROA_{it} = \alpha + \beta_1 TAS_{it} + \beta_2 WCD_{it} + \beta_3 LEVD_{it} + \beta_4 TAS * INTR_{it} + \beta_5 WCD * INTR_{it} + \beta_6 LEVD * INTR_{it} + \beta_7 FSIZ_{it} + \beta_8 FAGE_{it} + \mu \dots \dots \dots \text{Equation (iii)}$$

The third model above, equation iii, explains the role of interest rate as a moderating variable in the relationship investment decision and firm's financial performance in this study, based on (Baron & Kenny, 1986).

### 4. Diagnostics tests

#### Normality Test

The study adopted the Shapiro Wilk test to find statistical evidence as to whether the data of the study is normally distributed or not. The results of the data normality test of the variables are presented in Table 1 below:

Shapiro–Wilk W test for normal data

| Variable   | Obs. | W       | V       | Z     | Prob>z         |
|------------|------|---------|---------|-------|----------------|
| ROA        | 224  | 0.28819 | 117.236 |       | 11.024 0.00000 |
| TASSET     | 224  | 0.72785 | 44.823  |       | 8.799 0.00000  |
| WCD        | 224  | 0.95905 | 6.744   | 4.417 | 0.00001        |
| LEVVD      | 224  | 0.95034 | 8.178   | 4.863 | 0.00000        |
| INTR       | 224  | 0.80682 | 31.817  | 8.006 | 0.00000        |
| TASSETINTR | 224  | 0.95136 | 8.011   | 4.185 | 0.00000        |
| WCDINTR    | 224  | 0.95711 | 7.063   | 4.524 | 0.00000        |
| LEVVDINTR  | 224  | 0.95611 | 7.229   | 4.577 | 0.00000        |
| FSIZ       | 224  | 0.97491 | 4.132   | 3.283 | 0.00051        |
| FAGE       | 224  | 0.95767 | 6.971   | 4.493 | 0.00000        |

**Source:** Stata Output, 2023 Version (17)

According to the Shapiro-Wilk (W) test, the null hypothesis is that the dataset is not normally distributed. It is evident from the above table that the data shows the p-value of the entire variables, are significant at 1% level of acceptance. Therefore, the null hypothesis which a state that the data is not normally distributed is hereby rejected.

### Heteroskedasticity Test

The heteroskedasticity test was conducted to check whether the variability of the error

term in the regression function is homoscedastic (same variance). The Breusch-Pagans test for heteroskedastic was conducted. The result shows value of  $\chi^2$  of 841.27 with probabilities of 0.0000, which is significant at 1%, indicating that the data is not homeskedastic. This means the original OLS could not suit the study. Hence, robustness was run and shows that the model can be relied upon for drawing statistical inferences.

### Multicollinearity

| Variables   | Tolerance | VIF  |
|-------------|-----------|------|
| LEVVDINTR   | 0.182389  | 5.48 |
| WCD         | 0.195678  | 5.11 |
| WCDINTR     | 0.199387  | 5.02 |
| TASSETDINTR | 0.240132  | 4.16 |
| LEVVD       | 0.260388  | 3.84 |
| INTR        | 0.307155  | 3.26 |
| TASSET      | 0.355075  | 2.82 |
| FSIZ        | 0.858876  | 1.16 |
| FAGE        | 0.910298  | 1.10 |
| MEAN VIF    | 3.55      |      |

**Source:** Stata output 2023, Version (17)

It can be seen from Table 2 that the variables of the study do not pose a threat to the reliability and validity of the result, showing the absence of a multicollinearity

problem. This is evident from their VIF values being less than 10 and Tolerance Values being greater than 0.1 as a rule of thumb (Gujarati & Portar, 2009).

### Descriptive Statistics

| Variable | Obs. | Mean      | Std. Deviation | Minimum   | Maximum   |
|----------|------|-----------|----------------|-----------|-----------|
| ROA      | 224  | 0.0852407 | 0.476531       | -2.359907 | 6.17431   |
| TASSETD  | 224  | 0.4617308 | 0.2780736      | 0.0814063 | 3.191745  |
| WCD      | 224  | 0.6827484 | 0.4101667      | 0.0726364 | 1.469333  |
| LEVD     | 224  | 0.643619  | 0.1776092      | 0.3846714 | 0.9798336 |
| FSIZ     | 224  | 7.655427  | 0.6015313      | 6.559118  | 8.49701   |
| FAGE     | 224  | 45.58929  | 18.818968      | 12        | 71        |

**Source:** Stata Output 2023, Version (17).

The above table shows the result of descriptive statistic that describe the mean, standard deviation minimum and maximum of the variables used in this study. The average ROA is 0.085 with std. div. of 0.4765, meaning that the data deviate from the mean by 47.65%, indication of no wide range of dispersion between the mean and std. div. As such the mean value shows that the performance of listed consumer goods companies is 8.52%, an indication of large percentage of listed firms under study performance is weak. The companies recorded a minimum of -2.36 and maximum of 6.17. However, the tangible asset has a mean of 0.4617 indications that tangible asset investment decision of firms recorded 46.17% in a particular year with the minimum of 0.0814 and maximum of 3.192. The std. div. recorded of 0.278 an indication of lower level of dispersion between the

mean and std. div. of investment in tangible asset of listed consumer goods companies. The mean value of working capital decision is 0.683 with a std. div. of 0.410 indication of no wide range of dispersion between the mean value and std. div. of working capital decision of listed firms under study; it recorded a minimum 0.073 and a maximum of 1.469. Furthermore, the means value of leverage decision is 0.646 with a std. div. of 0.178 shows a no wide range of dispersion, it recorded a minimum leverage decision of 0.387 and a maximum of 0.979. The mean value of firm size is 7.655 and a std. div. of 0.602, with a minimum value of 6.656 and maximum of 8.497. The descriptive statistics of firm age recorded the mean of 45.589 and a std. div. of 18.820; with a minimum of 12 years and maximum of 72 years on listing of consumer goods companies in Nigeria.

**Correlation Matric**

|        | ROA     | TASSET  | WCD     | LEVD    | FSIZ   | FAGE   |
|--------|---------|---------|---------|---------|--------|--------|
| ROA    | 1.0000  |         |         |         |        |        |
| TASSET | 0.0016  | 1.0000  |         |         |        |        |
| WCD    | -0.0165 | -0.4148 | 1.0000  |         |        |        |
| LEVD   | 0.0617  | 0.2268  | -0.5442 | 1.0000  |        |        |
| FSIZ   | -0.0591 | -0.1130 | 0.1439  | -0.2421 | 1.0000 |        |
| FAGE   | -0.0165 | 0.0024  | 0.0065  | -0.0808 | 0.2049 | 1.0000 |

**Source:** Stata Output 2023, Version (17).

The above table presents a correlation matrix, which shows the level and direction of relationship between the dependent variable and independent variables and also among independent variables. The financial performance as measure by (ROA) recorded weak positive relationship with tangible asset of 0.0016, but recorded a negative weak of value of -0.0165 with working capital. However, the leverage decision shows a weak positive relationship with

ROA of 0.0617; but recorded a negative weak relationship of firm size and firm age with ROA with the values of -0.0591 and -0.0165 respectively. The relationship among independent variables recorded weak, moderate and strong positive/negative relationship. Despite these relationships no evidence of multicollinearity exists among the variables as no one exceeded a threshold of 0.8 (Hair, et al., 2010).

**Summary of Regression Results**

| Variable  | GLS (Random Effect Unmoderated) |        |         |         | GLS (Random Effect Moderate) |         |         |         |
|-----------|---------------------------------|--------|---------|---------|------------------------------|---------|---------|---------|
|           | Std. Error                      | coeff. | T-value | P-value | Std. Error                   | Coeff.  | T-value | P-value |
| Cons.     | 0.4977                          | 0.2554 | 0.51    | 0.608   | 0.871825                     | 1.4258  | 1.64    | 0.102   |
| Tasset    | 0.1274                          | 0.0163 | -0.13   | 0.898   | 0.192887                     | 0.1602  | -0.83   | 0.406   |
| Wcd       | 0.1002                          | 0.0245 | 0.24    | 0.807   | 0.823820                     | -0.2863 | -0.35   | 0.728   |
| Levd.     | 0.2206                          | 0.1709 | 0.78    | 0.438   | 1.04656                      | -1.7245 | -1.65   | 0.099   |
| Intr.     | -----                           | -----  | -----   | -----   | 0.024917                     | -0.0465 | -1.86   | 0.062   |
| Tasstintr | -----                           | -----  | -----   | -----   | 0.201079                     | -0.1989 | -0.99   | 0.329   |
| Wcdintr   | -----                           | -----  | -----   | -----   | 0.062491                     | 0.0217  | 0.35    | 0.729   |
| Levdintr. | -----                           | -----  | -----   | -----   | 0.046388                     | 0.0987  | 2.13    | 0.033   |
| Fsiz.     | 0.0563                          | 0.0375 | -0.67   | 0.505   | 0.057332                     | -0.0527 | -0.92   | 0.358   |
| Fage      | 0.0018                          | 0.0005 | -0.03   | 0.979   | 0.001178                     | -0.0006 | -0.32   | 0.752   |

Hausman Specification Test:

|              |          |         |
|--------------|----------|---------|
| Hausman Chi2 | = 4.78   | =5.63   |
| Prob>Chi2    | = 0.4431 | =0.7766 |
| Wald Chi2    | =1.40    | =8.30   |
| Prob>Chi2    | = 0.9239 | =0.0045 |
| R- Square    | = 0.2653 | =0.1693 |

**Source:** Stata Output 2023, Version (17)

Above table is the summary of the panel data regression results of the model used by the study. The Hausman specification test result of both direct and moderated reveals a Chi2 of 4.78 and 5.63 with respective p-value of chi2 0.4431 and 0.7766 which is not significant at all level of acceptance therefore, the null hypothesis of hausman specification test stated that if null hypothesis is accepted random will be preferred and if the null hypothesis is rejected the fixed effect will be preferred. From the result in the above regression table the null hypothesis is accepted because the p-value of hausman specification tests are not significant at all level of acceptance as such random effect within model was used and it is confirm using lagrangian multiplier test with chi2 of 0.000 and 0.000 the probability of the chi2 1.000 and 1.000 respectively. The  $R^2$  is the multiple coefficients that give the proportion of complete variation in the dependent variable, which is simultaneously explained by the independent variable. From the random effect result, the coefficient of  $R^2$  within of both direct and moderated results of 0.2653 and 0.1693 respectively implies that 26.53% of direct relationship and 16.93% of moderated effect of the complete variation of ROA of listed consumer goods

companies in Nigeria is explained by tangible asset decision, working capital decision, Leverage decision and Interest rate (moderator) while the remaining 73.47% and 83.07% are explain by other factors not captured in this model. However, the result shows the value of the wald chi2 of 8.30 is significant at 5%. This implies that the model fitted the study variables. It further signifies that the selected variables are among the investment decision that influenced the financial performance of listed consumer goods companies in Nigeria.

### **Test of Hypotheses**

In this study, six (6) hypotheses were formulated and tested on the moderating role of interest rate on the relationship between investment decision and financial performance of listed consumer goods firms in Nigeria. However, to reject or accept the null hypothesis at 0.05 (5%) acceptance level, the rejection point is use which states that. (1) If the p value is equal to or less than 5%, the null hypotheses is rejected and the alternate hypotheses is accepted; (2) If the p value is more than 5%, the null hypotheses is accepted and the alternate hypotheses is rejected.

**Tangible asset investment decision and Performance of Listed Consumer goods Firms in Nigeria.**

The t-test of tangible asset investment decision is -0.83 with p value of 0.406 which is greater than 0.05. Therefore; the null hypothesis one which states that tangible asset investment decision has no significant effect on the financial performance of listed consumer goods firms in Nigeria is hereby accepted.

**Working capital investment decision and Performance of Listed Consumer goods Firms in Nigeria.**

The t-test of working capital investment decision is negative -0.35 with p value of 0.782 which is greater than 0.05. Therefore; the null hypothesis two which states that working capital investment decision has no significant effect on the performance of listed consumer goods firms in Nigeria is hereby accepted.

**Leverage investment decision and financial Performance of Listed Consumer goods Firms in Nigeria.**

From the findings the leverage investment decision produces a negative t-test of -1.65 with p value of 0.099 which is greater than 0.05. Therefore; the null hypothesis three which states that leverage investment decision has no significant effect on the

financial performance of listed consumer goods firms in Nigeria is hereby accepted.

**Moderating Role of interest rate on the relationship between tangible asset investment decision and Performance of Listed Consumer goods Firms in Nigeria.**

The t-test of  $t_{asset*intr.}$  is -0.99 with p value of 0.329 which is greater than 0.05. Therefore; the null hypothesis four which states that the interest rate does not moderates the relationship between tangible asset investment decision and financial performance of listed consumer goods firms in Nigeria is therefore accepted, because it did not indicate that interest rate strengthen the relationship between tangible asset decision and performance of listed consumer goods firms in Nigeria as t-value increases from -0.83 to -0.99 and the p-value weaken from 0.406 to 0.329.

**Moderating Role of interest rate on the relationship between working capital investment decision and Performance of Listed Consumer goods Firms in Nigeria.**

The t-test of  $wcd*intr.$  is 0.35 with p value of 0.729 which is greater than 0.05. Therefore; the null hypothesis five which states that the interest rate does not moderates the relationship between working capital investment decision and financial performance of listed consumer goods firms in Nigeria is therefore accepted. Despite

insignificant relationship from both the direct and moderated result indicate that interest rate increases the relationship between working capital investment decision and performance of listed consumer goods firms in Nigeria as t-value increases from -0.35 to 0.35 and the p-value decreases from 0.782 to 0.729.

**Moderating Role of interest rate on the relationship between leverage investment decision and Performance of Listed Consumer goods Firms in Nigeria.**

The t-test of  $\text{levd} \times \text{intr.}$  is 2.13 with p value of 0.033 which is less than 0.05. Therefore; the null hypothesis six which states that the interest rate does not moderates the relationship between leverage investment decision and financial performance of listed consumer goods firms in Nigeria is hereby rejected, because it proved that interest rate strengthen the relationship between leverage investment decision and financial performance of listed consumer goods firms in Nigeria as t-value increases from -0.165 to 2.13 and the p-value reduces from 0.099 to 0.033.

**Discussion of Findings**

The first objective of this study is to examine the effect of tangible asset investment decision on the financial performance of consumer goods firms in

Nigeria. The result reveals that there is no significant relationship between tangible asset investment decision and the performance of listed consumer goods firms in Nigeria, with the coefficient value of 0.160221 and p value of 0.406 which is greater than 0.05. The positive insignificance relationship, mean a unit increase in investment in tangible asset will not leads to an increase in the performance of consumer goods firm in Nigeria and vice versa. The findings is in line with the study findings of (Suleman & Sumani 2021 & Musau , 2016).

The second objective of this study is to examine the effect of working capital investment decision on the financial performance of consumer goods firms in Nigeria. The result reveals that there is negative insignificant relationship between working capital investment decision and the performance of listed consumer goods firms in Nigeria, with the coefficient value of -0.28637 and p value of 0.782 which is greater than 0.05. The negative insignificance relationship, mean a unit increase in investment on working capital will leads to a decrease in the performance of consumer goods firm in Nigeria and vice versa. The findings is in the same direction

with that of (Sulastri, Hamdan & Hanafi 2019; Salsabila & Diantimala 2023).

The third objective of this study is to examine the effect of leverage investment decision on the financial performance of consumer goods firms in Nigeria. The result reveals that there is negative insignificant relationship between leverage investment decision and the performance of listed consumer goods firms in Nigeria, with the coefficient value of -1.7245 and p value of 0.099 which is greater than 0.05. The negative insignificance relationship, mean a unit increase in investment on leverage will leads to a decrease in the performance of consumer goods firm in Nigeria and vice versa. The findings are in support of (Al-Slehat, 2020; Abdulkareem, et al., 2023)

The fourth objective of this study is to examine the moderating role of interest rate on the relationship between tangible asset investment decision and performance of consumer goods firms in Nigeria. The result reveals that there is weak moderating effect of tasset\*intr. and the performance of listed consumer goods firms in Nigeria, with the negative coefficient value of -0.01989 and p value of 0.329 which is greater than 0.05. The t value increases from -0.83 to -0.99 and the p value decreases from 0.406 to 0.329,

this indicated that interest rate weaken the relationship between tangible asset investment decision and the performance of listed consumer goods firms in Nigeria.

The fifth objective of this study is to examine the moderating role of interest rate on the relationship between working capital investment decision and performance of consumer goods firms in Nigeria. The result reveals that there is weak moderating effect of interest rate on working capital investment decision and the performance of listed consumer goods firms in Nigeria, with the positive coefficient value of 0.02166 and p value of 0.729 which is greater than 0.05. The t value increases from -0.35 to 0.35 and the p value decreases from 0.782 to 0.729, this indicated that interest rate strengthens the relationship between working capital investment decision and the performance of listed consumer goods firms in Nigeria.

The sixth objective of this study is to examine the moderating role of interest rate on the relationship between leverage investment decision and performance of consumer goods firms in Nigeria. The result reveals that there is strong moderating effect of interest rate on the relationship between leverage investment decision and the performance of listed consumer goods firms

in Nigeria, with the coefficient value of 0.09867 and p value of 0.033 which is less than 0.05. The t value increases from -1.65 to 2.13 and the p value decreases from 0.099 to 0.033, this indicated that interest rate strengthens the relationship between leverage investment decision and the performance of listed consumer goods firms in Nigeria.

### **5. Conclusion and Recommendation**

The study provides empirical and statistical evidence on the significance of explanatory variables that constitute investment decision in explaining the performance of listed consumer goods firms in Nigeria moderating role macroeconomic variable (interest rate). On one hand, only leverage investment decision moderate by interest rate was found to have positive and significant influence on the firms' performance. This signifies that higher investment in leverage increases the

firm financial performance. On the other hand, the all other variables show both negative/positive insignificant relationships with the firm financial performance of the companies under study respectively, implying that they insignificantly influence investment decision on the financial performance of listed consumer goods firm in Nigeria. However, the moderator has statistically moderated the relationship with other explanatory variables despite insignificant influence on the firm performance compare to direct relationship. Therefore, the managements are recommended optimal investment decision on leverage while making investment decision as it provide higher profit to the companies. Further study can be done using other macroeconomic variables e.g. exchange rate, inflation in other economic sectors.

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