

Moderating Effect of Research and Development (R&D) on the Relationship between Dividends Policy and Firm Performance of Consumer Goods Firms in Nigeria (2018 -2022)

By

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ABSTRACT

A company's success benefits all stakeholders, including customers, workers, and creditors. Nigeria's challenging business climate has led to many large corporations adopting low payout strategies, with high payouts causing slower growth and lower market prices. This study aims to examine the moderating effect of R&D expenditure on the relationship between dividend policy and firm performance in Nigerian consumer goods companies listed on the Nigerian Stock Exchange (2018 to 2022) using panel data. The sample size of the study is made up of nine (9) companies, which is determined using filtering sampling criteria. Dividend payout ratio (DPR), dividend yields (DY), and dividend coverage ratio (DCR) is used as proxies of dividend policy and ROE for firm financial performance. STATA version 17 is used in the study for both inferential and descriptive statistics. The study finds a significant positive relationship between dividend pay-out ratio, coverage ratio, and ROE, while a statistically insignificant relationship is found between dividend yield and ROE. It further reveals a negative significant moderating effect of R&D expenditure on the relationship between Dividend payout ratio (DPR), dividend coverage ratio (DCR) and ROE, but found no significant moderating effect of R&D expenditure on the relationship between dividend yield (DY) and ROE. The study concludes that R&D expenditure has a negative moderating effect on the relationship between dividend policy and financial performance of consumer goods companies in Nigeria. It is recommended that companies should balance short-term profitability with long-term growth potential when making R&D investment decisions. Capital structure and dividend policy decisions should also be considered, considering factors like industry characteristics, ownership structure, and macroeconomic conditions.

Keywords: R&D Expenditure, Dividends Policy, Firm Performance, Consumer Goods Companies, Nigeria.

Introduction

A company's ability to achieve a return on company ownership in the form of assets, capital, and debt is demonstrated by its performance, or work performance (Novriyani et al 2023). To achieve company performance, there needs to be

good control and synergy between the ownership and management functions. It's also claimed that strong business performance boosts firm performance. Good business performance will benefit communities, workers, suppliers of funds (creditors), and customers. (Christian &

Dewi, 2022). Several major corporations have recently left Nigeria due to the challenging business environment there; Unilever, GlaxoSmithKline (GSK), and other companies are just a few examples. The companies explained the effects of macroeconomic factors on dollar-denominated companies. (Iwayemi, 2023). Major multinationals have announced their 7th flight from Nigeria this year, with five leaving between August and December 2023, resulting in 6000 jobs. This follows a trend of divestment by oil and gas majors, including Shell, Exxon Mobil, Eni, and Equinor, who have divested £870 million from Nigeria since 2020. Over the past decade, they have sold 26 oil mining licenses, with Shell offloading £1.8 billion, Eni £4 billion, and ExxonMobil £11.9 billion (Punch Editorial Board, 2023). It is still challenging for most consumer goods companies in Nigeria to record profits at a steady, growing rate, and some are still having difficulty keeping their shareholders' interest in the business through dividend payments, despite the fact that the majority of them employ a low payout strategy. (Udoka et al., 2022).

However, dividend payout policies impact businesses differently (Burger 2013). High payout policies lead to higher current dividends and lower retained earnings, potentially causing slower growth and lower market price per share. Low payout

policies result in higher retained earnings, capital gains, and current dividends. Companies' investment decisions impact cash available for dividend payments. (Adeiza et al., 2020). In essence, any management wants to satisfy their investors and earn their trust by managing their funds. On the other hand, a corporate entity's capacity to distribute dividends to its stakeholders is contingent upon its profitability. It's interesting to note that a low dividend payout strategy is employed by the majority of publicly traded consumer goods companies in Nigeria that pay cash dividends. While some businesses use their shares as a means of paying dividends, others do not. All of these strategies aim to improve the company's performance by holding onto and protecting cash for growth and operations. (Udoka et al., 2022).

The change in how companies are assessed based on their financial performance has been attributed to dividends. Dividend pay-out is a crucial factor in the current business climate, especially when it comes to how companies are assessed for performance. The expectation of a return on investment is the main driver behind people's business investments. A dividend is a payment made by a company to its shareholders, usually in the form of a portion of its profits. When a business makes a profit or surplus, it can distribute

some of its profits as dividends to shareholders and reinvest the remainder as retained earnings. In the event that the business offers a dividend reinvestment plan, shareholders may receive the payout in cash (usually deposited into a bank account), additional shares, or share repurchasing. (Adeiza et al., 2020).

Conversely, R&D is defined as the result of creative activities (like those carried out within an organisation) over a specific time frame. (Zutter & Gitman 2012). It is anticipated that companies that invest more in R&D will make more profit than those that don't. (Wang 2011). Whereas a company's performance will always be greater than its R&D expenses. The benefits obtained from R&D will offset the costs after equilibrium is reached. Additionally, a company's performance level will depend on the resources it devotes to research and development. These are the ways to raise performance in this technological age (Siregar et al 2023).

However, the relationship between dividend policy and firm financial performance has garnered global attention, with a multitude of studies investigating this relationship in various contexts (Abeyasinghe & Kariyawasam 2023). Many theoretical frameworks provide insightful viewpoints on how decisions about dividend policy affect performance in both

developed and developing economies. These frameworks include agency, relevance, pecking order, bird-in-the-hand, residual, and signalling theory. (Adeiza et al., 2020; Nguyen et al., 2021; Perera, 2020; Udoka et al., 2022; Ugwu et al., 2020). However, the majority of research on the relationship between dividend policy and firm financial performance across nations was found to be inconsistent. (Jatoi et al., 2023; Nguyen et al., 2021; Perera, 2020; Shah, 2023; Theiri et al., 2023), likewise the developing economies (Adeiza et al., 2020; Bossman et al., 2022; Udoka et al., 2022; Ugwu et al., 2020; Ukpong & Ukpe, 2023). Furthermore, the researcher has not come across any study that combined the use of dividend pay-out ratio, dividend yield and dividend coverage ratio as proxies for dividend policy.

However, little is known about how Nigeria's unique business environment, with its unique features and difficulties, influences this relationship. Given the complexity and rapid evolution of the Nigerian market. Furthermore, if dividend policy could lead to firm performance (Jatoi, et al. 2023; Perera, 2020) in like manner research and development (R&D) leads to firm performance (Eldawayaty, 2020; Erdogan & Yamaltdinova, 2019; Habtewold, 2023; Khan & Sultan, 2020; Ozkan, 2022; Pervan & Kramaric, 2020;

Tung & Binh, 2021). The majority of R&D research, especially that which examines how R&D investment affects firm performance, is typically carried out in developed or industrialised nations (Tung & Binh, 2021). However, this and the inconsistencies found in the results of the relationship between dividend policy and financial performance show that there is a gap in the experimental research in the literature review concerning firms' R&D expenditure, dividend policy, and performance in both developed and developing nations—pretty much none at all. Therefore, based on aforementioned and the recommendation by Theiri et al. (2023), this study establishes the need to look into how R&D expenditure moderates the relationship between dividend policy and firm performance of Nigerian consumer goods companies.

1.1 Objective of the Study

1. To examine the effect of dividend pay-out ratio on financial performance of consumer goods companies in Nigeria.
2. To evaluate the effect of dividend yield on financial performance of consumer goods companies in Nigeria.
3. To assess the effect of dividend coverage ratio on financial performance of consumer goods companies in Nigeria.
4. To examine the moderating effect of R&D expenditure on the relationship between dividend pay-out ratio and financial performance of consumer goods companies in Nigeria.
5. To examine the moderating effect of R&D expenditure on the relationship between dividend yield and financial performance of consumer goods companies in Nigeria.
6. To assess the effect of R&D expenditure on the relationship between dividend coverage ratio and financial performance of consumer goods companies in Nigeria.

2.0 Review of Related Literatures

Rahel and Serkalem (2010) define performance as profitability, which is the financial objective of any firm and is used to fund expansion as well as act as a buffer against future slow periods. They propose that a company's profitability also helps to guarantee its solvency, allowing owners to make investments in the future. Businesses can fail if they experience losses and become insolvent, and profit is typically only realized when a business runs smoothly and profitably. Likewise, a dividend policy is defined as an announcement that a shareholder will receive dividends (DP). A dividend is a payment made to owners from profits. Dividends are given to shareholders as payment for their risk. The amount of

return on investment that shareholders will receive is decided by management. Factors other than DP primarily impact the company's performance. One of the four most important factors in finance is the distribution of dividends. (Jatoi et al., 2023).

However, R&D investment refers to the creative work businesses undertake to discover new information and concepts, convert them into products and services, and develop new procedures and products to expand and grow their operational activities. (Chung 2020). Corporate innovative activities involve investing resources in Research & Development (R&D), which drives better firm performance by developing capabilities, absorbing new technologies, and matching technological possibilities. Successful innovative activities also benefit consumers by enabling companies to develop new products and manage production processes more efficiently, thereby sustaining their market position. (Prahmod et al., 2012). R&D expenditures are the most significant periodic expenses connected with information expansion. Basic analysis, applied analysis, and experimental development are all parts of research and development. (Seraina, 2013). However, this study views R&D expenditure as a critical factor that is used in shaping a company's long-term growth

and competitiveness. R&D activities can lead to the development of new products and services, the improvement of existing products and processes, and the acquisition of new knowledge and expertise. Therefore, investing in R&D helps companies stay ahead of competition, adapt to changing market conditions, and respond to evolving customer needs. It also helps companies reduce production costs, increase efficiency, and enhance quality, which can lead to higher profitability and long-term sustainability.

2.1 Relationship between Dividends Policy and Firm Performance

Jatoi et al. (2023), assess whether dividend policies affect the performance of publicly traded non-financial companies in Pakistan, by employing regression analysis and descriptive correlation. The dividend policy is proxied by the dividend payout ratio, dividend payout ratio, earnings per share, and financial leverage in the study. The firm performance is measured by ROA and ROE. The findings indicate a significant positive relationship between dividend policy and ROE. Furthermore, a strong positive correlation was discovered between ROA and Dividends Policy, which takes into account all of the variables FL, EPS, DPS, and DPOR. As a result, this study offers proof that dividend

policies significantly affect the company performance.

Similarly, Theiri et al. (2023), investigate the relationship between performance and financial constraints to ascertain how such a fit affected dividends policy during the French crisis using a sample size of 106 SBF-listed companies. They do this by using system generalized methods of moments (SGMM) and financial constraints theory to assess the impact of the Covid-19 pandemic crisis on dividends policy and performance. The study measures dividend policy, financial constraints, and performance using dividend payout per share, the KZ index, ROA, and ROE, respectively and debt, growth, firm size, and age as control variables. The findings demonstrated that the only variables that negatively correlated with dividend payment levels were the crisis and financial constraints. There is no consideration of performance at this dividend level. The only control variables that had a positive impact on dividend levels were debt, growth, and size. Furthermore, the DividPaid, KZindex, and Crisis variables had a negative impact on the performance of French companies. In a comparable vein, Shah (2023), investigates the moderating effect of the pandemic-related crisis period on the association between the dividend policy and the firm performance of 433

Indian companies. Dividend policy and firm performance are proxied by dividend pay-out, ROA, and EPS. The study offered evidence of the moderating influence of crises on the relationship between dividend policy and performance. Furthermore, liquidity and leverage have a positive and significant impact on the firm's financial performance, while firm size and dividend pay-out have no significant effect on the company's performance.

Moreover, Nguyen et al. (2021), examine the effects of dividend policies on the financial performance of 450 Vietnamese firms using signalling theory, pecking order, and relevance. The firm's financial performance and dividend payment were measured using the dividend rate, dividend decision, ROA, ROE, and Tobin's Q, respectively. The control variables include company size, leverage ratio, and growth rate (Growth). According to the results analysis, Vietnamese firms' accounting-based performance is negatively impacted by the dividend payment decision; however, this also raises market expectations for the firms. The study also discovers that low dividend rates are offered by Vietnamese companies, which has a significant effect on accounting-based performance but a negative effect on market expectations.

Furthermore, utilising the bird-in-the-hand, residual, irrelevance, and signalling, Pecking Order theory, Perera (2020), investigates how dividend policies affect the long-term financial performance of 305 Sri Lankan listed companies. DPR, ROA, debt-to-equity ratio, company growth, and EBITDA are used in the study as measures for dividend policy and the firm's financial performance respectively. The study's findings show a significant relationship between the dividend pay-out ratio and revenue growth, return on equity, total debt-to-equity, and net debt to EBITDA. The behaviour of the dividend policy and performance for both past and future forecasting years has been demonstrated by trend analysis. Ukpong and Ukpe (2023), also employ the bird-in-hand theory to examine the impact of dividend policy on the performance of 12 Nigerian firms from 2015 to 2019 based on ex post facto research design. The study uses EPS, ROA, timing of dividend payments (TDP), and forms of dividend payment (FDP), as proxies for firm performance and dividend policy, respectively. The results show a negative relationship between ROA and earnings per share (EPS) and timing of dividend payments (TDP), but a positive relationship between ROA and the type of dividend payment.

Equally, Bossman et al. (2022), investigate the relationship between the dividend

policy and financial performance of 29 Ghanaian listed companies using system generalised methods of moments (SGMM). The study uses free cash flow, dividend capacity, pay-out, and savings from free cash flow as proxies for dividend policy and ROA, ROE, stock price, and Tobin's Q for firm performance, while control variables include capital structure, firm size, age, governance, and financial sector clean-up. The result demonstrates that dividend capacity has had a significant effect on return on equity and return on assets. It is discovered that free cash flow savings had an indirect relationship with Tobin's Q and stock price, but a direct and significant effect on ROE and ROA. The results showed that clean-ups in the financial sector had a negative effect only on the performance of non-financial firms.

Udoka et al. (2022), evaluate the significance of dividend policy and recommend actions that could improve its efficacy on the performance of 26 consumer goods firms in Nigeria using an ex-post facto research design, dividends relevancy, and the bird-at-hand theory. Companies' dividend pay-out ratio (DPR), dividends per share (DPS), and dividend yield were used as proxies for dividend policy and ROE for firm performance along with the CG index as a moderating variable. The results of the analysis show that the dividend pay-out ratio is not

statistically significant over the long and short terms in the absence of the moderating variable, the corporate governance index. Comparably, Ugwu et al. (2020) use ex-post facto research, correlation, agency, signalling, and bird-in-hand theory to assess the impact of dividend policy on corporate financial performance using data from ten carefully chosen listed consumer goods companies in Nigeria between 2015 and 2019. DPR and DPS was used to proxy dividend policy while ROE and EPS was use for financial performance. The findings indicate a positive correlation between DPR, DPS and ROE and EPS. It also showed that, during the study period, DPS is statistically significant with ROE, but DPR were statistically insignificant with ROE and EPS.

Additionally, Adeiza et al. (2020), employ ratio analysis and residual theory to investigate the effect of the dividend pay-out ratio (DPR) on the net profit margin of quoted oil and gas companies, the effect of the DPR on the ROA (return on assets) of these companies, and the effect of the DPR on the ROE (return on equity) of two quoted oil and gas companies. NPM, ROE and ROA were used as proxies for firm performance. The study discovers that the DPR had a negative and insignificant effect on firm performance in 2017 and 2018, but the results also revealed that

performance had significant effects in 2015 but insignificant effects in 2016.

From the foregoing, previous studies use agency, irrelevance, pecking order, bird-in-the-hand, residual, signalling theory, financial constraints theory to test the impact of dividend policy decisions on performance and reveal inconsistent results (Adeiza et al., 2020; Nguyen et al., 2021; Perera, 2020; Udoka et al., 2022; Ugwu et al., 2020; Theiri et al. 2023). In measuring both dividend policy and financial performance, Jatoi et al. (2023) use DPR, EPS, financial leverage, ROA and ROE, Theiri et al. (2023) use dividend payout per share, the KZ index, ROA, and ROE, Shah (2023) employ dividend pay-out, ROA, and EPS, Nguyen et al. (2021) use dividend rate, dividend decision, ROA, ROE, and Tobin's Q, Perera (2020) employ DPR, ROA, debt-to-equity ratio, company growth, and EBITDA, Ukpong and Ukpe (2023), use timing of dividend payments (TDP), and forms of dividend payment (FDP), EPS and ROA, Bossman et al. (2022) employ free cash flow, dividend capacity, pay-out, savings, ROA, ROE, stock price, and Tobin's Q, Udoka et al. (2022) employ dividend pay-out ratio (DPR), dividends per share (DPS), and dividend yield and ROE, Ugwu et al. (2020) use DPR, DPS ROE and EPS, while Adeiza et al. (2020) employ DPR, NPM, ROA and ROE. Most of the studies

use secondary data and the duration of the use of the data ended in 2020. The choice for the proxies by the previous studies was obviously because of the research design and objectives of the studies.

In conclusion, from the empirical review above, it could be seen that the results of the findings between dividend policy and financial performance were mostly inconsistent and the proxies used in measuring the financial performance were also mostly accounting-based. Likewise, none of the studies had used any of the theories above to test the relationship between a moderator, dividend policy and financial performance. Therefore, this study sees the need to introduce a moderating variable that will either strengthen or weaken the relationship between the variables under study. Consequently, this study uses resource-based theory to test the relationship between R&D expenditure, DPR, DY, DCR and ROE.

2.2 Research and Development (R&D) as a Moderator

Habtewold (2023) uses a combination of fixed-effect, propensity score matching, and endogenous treatment effect estimation techniques to investigate the effects of R&D investment on the performance and energy consumption of 476 Ethiopian enterprises. Tobin's Q,

annual sales and profit levels, R&D investment as the independent variable, and energy consumption and firm performance as the dependent variables are all measured using dummy variables in the study. It employs dummy variables as a proxy for credit, with business licencing and tax administration, being the moderating variables. Results show that R&D investments has a negative effect on energy consumption and short-term financial performance, a positive effect on innovation and long-term financial performance. Ozkan (2022) examines the relationship between the financial performance of the top 500 industrial enterprises in Turkey and their R&D expenditures across 25 industrial sub-sectors between 2013 and 2019. The dependent variable which is financial performance, is proxied by ROA, ROE, and ROS, while the independent variable was the ratio of R&D Expenditures to Net Sales. The study's conclusions show that the subsectors' current year R&D spending has a negative effect on their financial performance, but that effect eventually turns positive after a year. Nevertheless, over time, this beneficial effect reverses to a negative one and cannot be maintained. These empirical results are also supported by the robustness test.

Tung and Binh (2021), examine the effect of research and development (R&D)

investments on the performance of firms in emerging markets, focusing on 343 listed Vietnamese companies between 2010 and 2018. The study uses revenues, profits, ROA, and ROE as proxies for firm performance, with the ratio of R&D expenditure to total revenue of a firm serving as the dependent variable. The findings indicate that spending on research and development (R&D) boosts earnings, profits, return on equity (ROE), and returns on assets (ROA). Regression analysis also reveals that companies with high R&D do better in terms of profit, revenue, and ROA than those with low R&D.

Using survey data, Khan and Sultan (2020) investigate how R&D affects the performance of 1247 Pakistani manufacturing companies. Product and process innovation, absorptive capacity, firm age and size, networking, exports, and labour productivity as measured by Total Sales/Total Employees are among the study's variables. The findings show that age, networking, export-orientedness, absorptive capacity, and process innovation are all positively related to firm performance. This suggests that businesses that invest in new technology and innovation experience higher productivity growth. While product innovation, R&D, and firm size all have a negative effect on a company's performance. Ying (2020),

uses a large amount of data from Chinese companies from the years 2010 to 2018 to investigate the short- and long-term effects of R&D activities and internationalisation on firm performance. The study measures R&D activities and ROA, Tobin's Q for firm performance with internationalisation acting as a moderating variable, using the ratio of real R&D to one-period lagged real total assets. The study's findings indicate that: (1) internationalization and R&D activities have a short-term negative impact on firm performance, but a long-term positive influence; and (2) internationalization has a moderating effect on the relationship between R&D activities and firm performance. Eldawayaty (2020), investigates the relationship between R&D intensity, firm value and financial performance of thirteen pharmaceutical companies listed on the Egyptian Stock Exchange in Egypt from 2000 to 2019. The study measured R&D Intensity using the ratio of R&D expenditures to total revenues and ROA, ROE, ROS, Tobin's Q for financial performance and firm value, respectively. The results indicate a significant negative relationship between R&D intensity and current performance as determined by ROE and ROS. The results, however, indicated a negligible negative relationship with ROA. Conversely, the results showed a negligible positive relationship with

ROE and ROS and a significant positive relationship with future firm performance as determined by ROA alone and Tobin's Q.

Pervan and Kramaric (2020), examine the impact of research and development (R&D) expenditure on the performance of the top 50 manufacturing companies in Croatia in 2018. While ROA and NPM are used to measure firm performance, R&D expenditure was measured in relation to total revenues as well as total assets. The conducted analysis's results showed that R&D expenditure may have a positive or negative impact on a firm's performance, depending on the regress and variable used. However, neither of the regression analyses produced statistically significant results for this influence. It is discovered that the factors of firm size, age, and liquidity have a positive and statistically significant impact. Using panel data methods, Erdogan and Yamaltdinova (2019), examine the effect of R&D expenditures on the financial performance of 62 production companies listed in Borsa Istanbul between 2008 and 2017. While ROA and ROE are used to measure financial performance, R&D expenditures are measured using R&D intensity and R&D expenditures over total sales. The study's conclusions are consistent with the notion that financial performance and

R&D expenditure have a positive relationship.

However, previous studies have shown that dividend policy relates to financial performance, in like manner R&D activities relate to financial performance. However, the study does not come across any of the previous studies that used R&D activities to moderate between dividend policy and other variables rather Diéguez-Soto et al (2018) are found to have used R&D intensity to moderate between family management and firm performance in Spanish private manufacturing firms. Equally, Hung and Chou (2013) use both internal R&D and environmental turbulence to moderate between open innovation on firm performance. This shows that R&D expenditure could be a good moderator between dividend policy and financial performance of consumer goods companies in Nigeria.

2.3 Theoretical Framework

2.3.1 Resource-based Theory

The Resource-Based theory (RBT) is proposed by Jay Barney, also known as J. B. Barney, in 1986. According to the theory, a company may have a competitive advantage over its rivals due to its distinct resources and capabilities. RBT states that investing in R&D can result in the creation of new goods, technology, or procedures

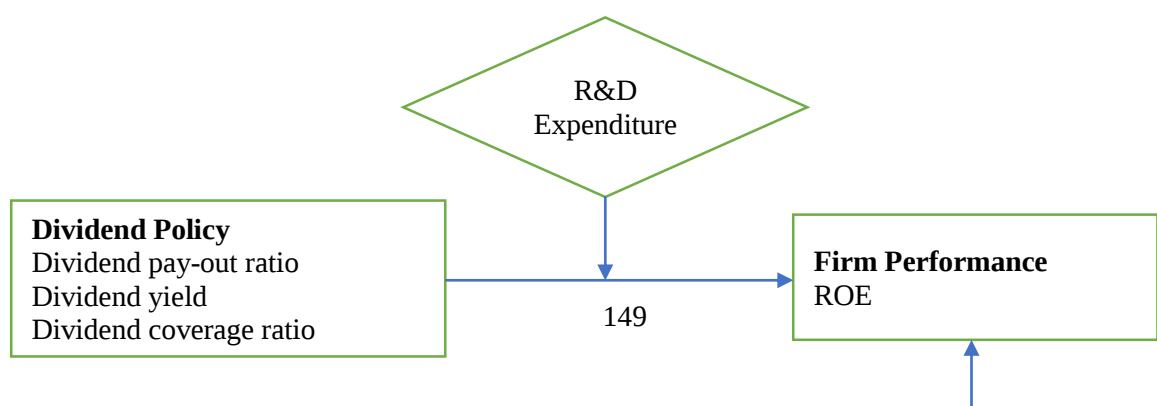
that can raise a company's profitability and competitiveness. On the other hand, a company that pays large dividends might not have as much funds available for R&D expenditures and might not be able to maintain its competitive advantage over time. A company may, however, create new goods or technology if it makes significant R&D investments, giving it a competitive edge over rivals. A higher stock price and better financial performance could result from this.

However, the company may not have as much funds available for R&D investments if it pays large dividends, which could make it more difficult for it to maintain its competitive advantage. Furthermore, RBT contends that the uniqueness, and non-substitutability of a firm's assets and competencies determine their value. In general, resource-based theory indicates that firms can leverage both dividend policy and R&D spending as significant strategic tools to improve their financial performance and competitive edge. It is important to consider these relationships in the context of other strategic resources and capabilities because the precise nature of these

relationships may vary depending on a number of underlying factors, including the industry context, firm size, and other strategic resources and capabilities.

2.4 Conceptual Framework

This study analyses the moderating effect of R&D expenditure on the relationship between dividend policy and financial performance of consumer goods companies in Nigeria. This study uses DPR, DY, DCR, and ROE as proxies to analyse a company's dividend policy and financial health. These measures help investors understand dividend pay-out behaviour, expected return on investment, and earnings generation. ROE captures a company's growth potential, and future profitability, and helps managers evaluate performance and identify improvement areas. For the purpose of either strengthening or weakening the relationship between variables, R&D expenditure is used as a moderating variable. The research concept, which is a logical relationship derived from the theoretical foundation and empirical study, is compiled based on the explanation provided. It can be summarised as follows:



Independent Variable

Dependent Variable

Figure 1 Research Model

The following research hypotheses are based on the conceptual framework:

Hypothesis

H₀₁: Dividend pay-out ratio affects financial performance of consumer goods companies in Nigeria.

H₀₂: Dividend yield affects financial performance of consumer goods companies in Nigeria.

H₀₃: Dividend coverage ratio affects financial performance of consumer goods companies in Nigeria.

H₀₄: R&D expenditure moderates the relationship between dividend pay-out ratio and financial performance of consumer goods companies in Nigeria.

H₀₅: R&D expenditure moderates the relationship between dividend yield and financial performance of consumer goods companies in Nigeria.

H₀₆: R&D expenditure moderates the relationship between dividend coverage ratio and financial

performance of consumer goods companies in Nigeria.

3.0 Research Method

The study is based on ex-post facto research design, while the population includes 21 consumer goods firms listed on the Nigerian Stock Exchange during the 2018-2022 period. These years were chosen because there was no study of the same nature that was conducted during the period. The category of data used in the study is secondary with a quantitative approach. The secondary data collection method is done by observing the data sources from consumer goods firms in Nigeria that have adequate R&D expenditure obtained from (<https://ngxgroup.com/>), and company websites. The research sample size consists of nine (9) firms and is obtained by using filtering sampling criteria, namely the method of selecting samples based on predetermined criteria. Criteria used for sampled manufacturing companies obtained from ngxgroup.com include: the company must have been listed on NSE as of 2018, there should be no change in the

fiscal year during the period, there should be no transaction cease for more than six months, the required data should be available.

3.1 Model Specification

The paper discovers that the majority of studies have examined the effect of dividend policy on the financial performance of the companies through a review of the literature on earlier research models. The following research model (Figure 1) is built on ROE as a measurement of the firms' financial performance and dividend payout ratio (DPR), dividend yield (DY), and dividend

coverage ratio (DCR) as proxies for dividends policy. This measure is consistent with other researches like Bossman et al. (2022), Jatoi, et al. (2023), Udoka, et al. (2022), Ugwu, et al. (2020). The R&D being the moderating variable was measured by ratio of R&D expenditure to the total revenue of a firm. This also is consistent with Tung and Binh (2021), Pervan and Kramaric (2020) and Eldawayaty (2020). While firm size, firm age and financial leverage was used as control variables. The study employs STATA version 17 to run both the descriptive and inferential statistics.

$$ROE = \alpha + \beta_1 DPR_{it} + \beta_2 DY_{it} + \beta_3 DCR_{it} + \beta_4 FS_{it} + \beta_5 FA_{it} + \beta_6 FL_{it} + \varepsilon_{it} \dots \dots \dots (i)$$

$$ROE = \alpha + \beta_1 DPR_{it} + \beta_2 DY_{it} + \beta_3 DCR_{it} + \beta_4 R\&D_{it} + \beta_5 DPR * R\&D_{it} + \beta_6 DY * R\&D_{it} + \beta_7 DCR * R\&D_{it} + \beta_8 FS_{it} + \beta_9 FA_{it} + \beta_{10} FL_{it} + \varepsilon_{it} \dots \dots \dots (ii)$$

Where:

ROE = Return on equity (the ratio of net income to shareholder's equity).

α = Constant.

β = Regression Coefficient.

DPR = Dividend payout ratio (the ratio of dividend per share to earnings per share).

DY = Dividend yield (the ratio of annual dividend per share to stock price per share).

DCR = Dividend coverage ratio (the ratio of earnings per share to dividend per share).

R&D = Research and development (R&D expenditure to the total revenue of a firm).

FS = Firm size proxied by the natural logarithm of total assets of the selected companies.

FA = Firm age of the selected firms.

ε = error term.

4.0 Discussions and Findings.

4.1 Descriptive Statistics.

Table 1 Descriptive Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
ROE	45	.301	.338	-.112	.992
DPR	45	1.025	.508	.366	2.087
DY	45	.118	.216	.004	.711

DCR	45	1.261	.689	.22	2.75
R&D	45	.026	.02	.002	.089
FS	45	7.571	1.046	4.764	8.59
FA	45	44.889	4.432	39	57
FL	45	.214	.437	-.872	.701

Source: STATA OUTPUT

The companies' average mean of ROE, as shown in Table 1, is 0.301, which indicates that the companies are profiting 30.1% on their equity investment. The standard deviation of 33.8% shows that the ROE values are relatively dispersed around the mean value. The minimum and maximum ROE values of -11.2% and 99.2%, respectively, show that some among the companies are losing on their equity investment, while other companies are significantly profitable, demonstrated by their high ROE of 99.2%. Similarly, the standard deviation of DPR is 50.8%, and its mean is 102.5%. Some companies pay a low dividend, as indicated by the minimum DPR value of 36.6%, and some pay very high dividends, as indicated by the maximum DPR value of 208.7%. The average mean of DY is 11.8%, and the standard deviation is 21.6%. While some companies have a very high dividends yield, as indicated by the maximum DY value of 71.1%, and some companies have a very low dividend yield, as indicated by the minimum DY value of 0.4%. Also, the average mean of DCR is 126.1%, and its standard deviation is 68.9%. While some companies have a high ability to cover

their dividend payments, as indicated by a maximum DCR value of 275%, some have a low dividend coverage, as indicated by a minimum DCR value of 22%. Likewise, on the moderating variable, the mean of R&D is found to be 2.6%, while the standard deviation is 2%. The R&D value ranges from 0.2% as the minimum, indicating low R&D activities in some companies, to 8.9% as the maximum, indicating the level of R&D activities in some companies. However, on the control variables, the mean of the firm size is 757.1%, and the standard deviation is 104.6%, with 476.4% as the minimum and 859% as the maximum value. This indicates that the companies are moderately sized on average, with a narrow range of variation. The mean for firm age is 4488.9%, and the standard deviation is 443.2%, with a minimum of 39 and a maximum of 57 years. This shows that there is a significant range in the companies' ages, with an average age that is moderate. Likewise, financial leverage has a mean of 21.4%, and a standard deviation of 43.7% with minimum and maximum of -87.2% and 70.1% respectively which shows the debt

financing capacity of the companies is very high. This implies that the companies are capable of securing an adequate amount of debt financing from a range of sources, including bond markets, banks, and other financial organisations.

Companies can benefit from having a high debt financing capacity because it enables them to finance operations and investments without losing control or diluting ownership.

4.2 Correlations Analysis

Table 2 Matrix of correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) ROE	1.000							
(2) DPR	-0.078	1.000						
(3) DY	-0.281	0.306	1.000					
(4) DCR	0.125	-0.905	-0.195	1.000				
(5) R&D	-0.091	0.397	0.132	-0.383	1.000			
(6) FS	0.070	0.112	0.164	-0.036	-0.292	1.000		
(7) FA	-0.307	0.443	0.722	-0.355	0.139	0.302	1.000	
(8) FL	-0.062	0.066	0.430	-0.015	-0.449	0.803	0.400	1.000

Source: STATA OUTPUT

The study establishes the correlation coefficient to discover the influence of R&D on the relationship between dividends payout ratio, dividends yield, dividends coverage ratio and ROE together with firm size, firm age and financial leverage as control variables. The correlation test is highly significant because it establishes the presence or absence of a correlation between the research variables before undergoing regression analysis. The fundamental parameters of the correlation coefficient matrix are as follows: coefficient values of 0.70 and above indicate high correlations, 0.40 to below 0.50 indicate low correlations and 0.00 to below 0.40 of the

variables indicate poor correlations (Chen & Popovich, 2002). Subsequently, from Table 4 DPR has a low but negative correlation with ROE, with a $r = -0.078$. This means that there is a slight tendency for companies that pay higher dividends to have lower ROE, but the relationship is not very strong. DY has a low and negative correlation with ROE, with a correlation coefficient of -0.281 . This suggests that there is a tendency for companies with higher dividend yields to have lower ROE, and though the relationship between the two variables is not weak, but also not very strong. Similarly, DCR has a poor positive correlation with ROE, with $r = 0.125$, which suggests that there is a slight

tendency for companies with higher DCR to have higher ROE, but the relationship between the two variables is also not very strong. R&D has a poor and negative correlation with ROE, with $r = -0.091$, which suggests that there is a slight tendency for companies that spend more on R&D to have lower ROE.

Firm size has a positive but poor correlation with ROE, with $r = 0.070$, which also shows that larger companies tend to have higher ROE. Firm age also has a poor and negative correlation with ROE, with $r = -0.307$, which indicates that older companies tend to have lower ROE. While financial leverage has a poor but

negative correlation with ROE, with $r = -0.062$. This means that as financial leverage increases, ROE tends to decrease, but the relationship between the two variables is not very strong. The negative correlation between FL and ROE is not surprising, as higher levels of debt financing (which increase financial leverage) can increase the cost of capital and reduce profitability, which in turn can lower ROE. However, the correlation results reveal that variables such as DPR, DY, R&D, firm age and financial leverage are negatively related to ROE, while DCR and firm size are positively related to ROE.

4.3 Diagnostic Tests.

4.3.1 Normality Test.

Table 3 Skewness/Kurtosis tests for Normality.

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj_chi2(2)	Prob>chi2
ei	45	0.014	0.475	6.070	0.048

Source: STATA OUTPUT

The data has an approximately normal distribution, as shown by the skewness value of 0.014 and kurtosis value of 0.475 in Table 2, and the data of the independent variables relates linearly to the dependent variable. Brown (2006) suggests that, the measured values of skewness and kurtosis less than 3 are generally acceptable in

most cases. Similarly, the probability of chi-square (Prob>chi2) and adjusted chi-square (adj_chi2) values indicate a significant normal distribution based on 0.05 level of significance. This suggests that, the normality assumptions are met and the skewness and kurtosis values are within acceptable limits.

4.3.2 Heteroskedasticity Test.

Table 4 Heteroskedasticity Test.

chi2(1)	Prob > chi2
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Variables: fitted values of
roe

Breusch-Pagan / Cook-Weisberg	5.99	0.0144
Ho: Constant variance	Do not reject	Reject

Source: STATA OUTPUT

The Breusch-Pagan and Cook-Weisberg tests are used in this investigation to identify the heteroskedasticity problem. Table 3 shows that the chi-square 5.99 from the Cook-Weisberg and Breusch-4.3.3 Multicollinearity Test

Pagan tests for heteroskedasticity which has a p-value of 0.0144 which is less than 0.05 (5%) level of significance in the ROE model and indicates the presence of heteroscedasticity on the model's residuals.

Table 5 Variance inflation factor

	VIF	1/VIF
DPR	6.666	.15
DCR	6.055	.165
FL	4.143	.241
R&D	1.513	.661
FS	3.673	.272
DY	2.832	.353
FA	2.556	.391
Mean	3.920	.
VIF		

The theoretical demarcation of the VIF ranges from 1 to 9 as suggested by some scholars and 1 to 5 by other scholars. However, this study adopts the range of 1 to 9 for the VIF of each explanatory variable. Therefore, any variable with a VIF greater than 9 indicates the existence of Multicollinearity, this is in line with Gujarati (2004). On the assumption of Multicollinearity among the explanatory variables, the result in Table 5 shows no evidence of Multicollinearity among the independent variables of the study because

none of them has a VIF greater than 10. This is in line with Hair et al (2010), that the means VIF should not exceed 10. This implies if the VIF exceeds ten, then the problem of Multicollinearity exists and it has to be addressed. The mean VIF presented in Table 5 above indicates that each explanatory variable has a coefficient of 3.9, the overall average (3.9) is far less than 10. The study concludes that there is no Multicollinearity among the independent, moderating and control variables which include dividend pay-out

ratio (DPR), dividend coverage ratio (DCR), dividend yield (DY), research and development (R&D), firm size (FS), firm

age (FA) and financial leverage (FL), therefore the condition for using the regression analysis is satisfied.

4.4 Regression Result

Table 6 Multiple Linear regression

ROE	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
DPR	.853	.413	2.07	.047	.014	1.692	**
DY	-.519	.766	-0.68	.503	-2.075	1.038	
DCR	.58	.241	2.41	.022	.09	1.069	**
R&D	38.538	16.381	2.35	.025	5.247	71.828	**
DPR*R&D	-20.354	8.911	-2.28	.029	-38.463	-2.244	**
DY*R&D	24.357	26.93	0.90	.372	-30.372	79.086	
DCR*R&D	-19.232	8.051	-2.39	.023	-35.593	-2.871	**
FS	.11	.096	1.15	.256	-.084	.304	
FA	-.044	.023	-1.95	.06	-.09	.002	*
FL	-.186	.283	-0.66	.516	-.762	.39	
Constant	.006	1.061	0.01	.995	-2.151	2.163	
Mean dependent var		0.301	SD dependent var		0.338		
R-squared		0.298	Number of obs		45		
F-test		1.445	Prob > F		0.203		
Akaike crit. (AIC)		35.255	Bayesian crit. (BIC)		55.128		

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: STATA OUTPUT

4.4.1 Hypothesis Testing:

Based on Table 6 results, the coefficient of determination (R^2), which measures the model's fitness, is 0.298. This indicates that explanatory variables account for approximately 29.8% of the variation in the dependent variable, while unspecified variables, like the error term, account for approximately 70.2% of the variation in the manufacturing companies' firm return on equity (ROE) during the period. The F-test value shows that the model is fit.

H₀₁: Dividend pay-out ratio affects financial performance of consumer goods companies in Nigeria.

The coefficient value of DPR = 0.853, which suggests that for every unit increase in DPR, the ROE of consumer goods companies in Nigeria increases by 85.3%. The test result reveals a t-value = 2.07 and p-value = 0.047 < 0.05 level of significance. This shows that the relationship is positive and statistically significant. This means DPR affects the

ROE of consumer goods companies in Nigeria. Therefore, this study accepts the first hypothesis. This result is in line with the findings of Jatoi et al. (2023), Bossman et al. (2022) and contradicts Udoka et al., (2022), Ugwu et al., (2020), and Adeiza et al., (2020).

H₀₂: Dividend yield affects financial performance of consumer goods companies in Nigeria

The test result between DY and ROE reveals a coefficient value of $DY = -.519$ with a t-value = -0.68 and p-value = 0.503 > 0.05 level of significance, which suggests that the relationship between DY and ROE is statistically insignificant. Therefore, this study fails to accept the second hypothesis. This depicts that DY does not affect ROE. This result is not in line with the findings of Udoka et al. (2022) and Nguyen et al. (2021).

H₀₃: Dividend coverage ratio affects financial performance of consumer goods companies in Nigeria.

The coefficient value of $DCR = 0.58$, which suggests that for every unit increase in DCR, ROE increases by 58%. The test result reveals a t-value = 2.41 and p-value = 0.022 < 0.05 level of significance. This depicts that the relationship is positive and statistically significant which also means that DCR affects the ROE of consumer goods companies in Nigeria. Therefore,

this study accepts the third hypothesis as valid. This result is in line with Bossman et al. (2022). The findings of the tests of the first, and third hypotheses demonstrate that the dividend policy affects the performance of the consumer goods companies under study, while the second hypothesis reveals a contrary result.

H₀₄: R&D expenditure moderates the relationship between dividend pay-out ratio and financial performance of consumer goods companies in Nigeria.

The coefficient value of $DPR \times R\&D = -20.354$, this suggests that for every unit decrease in $DPR \times R\&D$, ROE decreases by -2035.4%. The test result reveals a t-value = -2.28 and p-value = 0.029 < 0.05 level of significance. This shows that the relationship is negative and statistically significant. This means that R&D expenditure moderates the relationship between DPR and ROE of consumer goods companies in Nigeria. Therefore, this study accepts the fourth hypothesis.

H₀₅: R&D expenditure moderates the relationship between dividend yield and financial performance of consumer goods companies in Nigeria

The test result between $DY \times R\&D$ reveals a coefficient = 24.357 with a t-value = 0.90 and p-value = 0.372 > 0.05 level of significance. This means the relationship is

statistically insignificant, which indicates that R&D expenditure does not moderate the relationship between DY and ROE. Therefore, this study failed to accept the fifth hypothesis.

H₀₆ R&D expenditure moderates the relationship between dividend coverage ratio and financial performance of consumer goods companies in Nigeria.

The coefficient value of $DCR \times R\&D = -19.232$, this means that for every unit decrease in $DCR \times R\&D$, ROE decreases by -1923.2%. The test result reveals a t-value = -2.39 and p-value = $0.023 < 0.05$ level of significance. This shows that the relationship is negative and statistically significant. This suggests that R&D expenditure moderates the relationship between DCR and ROE of consumer goods companies in Nigeria. Therefore, the study accepts the sixth hypothesis as valid. The results of the fourth, and sixth hypotheses tests prove that R&D expenditure was able to strengthen or weaken the relationship between dividend policy and firm financial performance, while the result of the sixth hypothesis proves otherwise. The findings no 5 and se7th hypotheses support the Resource-based theory put forward by Jay Barney (1986) that if a firm invests heavily in

R&D, it could lead to improved financial performance and a higher stock price.

The test result between firm size and ROE, the coefficient value = 0.11 with a t-value of 1.15 and p-value = $0.256 > 0.05$ level of significance which is statistically insignificant, meaning that the firm size does affect ROE. This suggests that when investors make investments, they do not take into account the size of the company, as determined by the natural log of total assets. Moreover, management's asset management has not been optimised, which prevents the companies from reaching their target of high ROE. Therefore, there is no certainty that businesses with substantial assets will turn a profit greater than those with smaller total assets. Thus, ROE is unaffected by firm size. The test result between firm age and ROE, the coefficient value = -0.044 with a t-value = -1.95 and p-value of $0.06 > 0.05$ level of significance, this suggests the relationship is statistically insignificant. This may indicate that older companies have lower ROE. This means that the financial performance of a company is not significantly influenced by how long the company has been in operation. This could be due to several factors, such as the ability of the company to adapt to changes in the market, the efficiency of its operations, or its ability to innovate and stay competitive. The test

result between financial leverage and ROE, the coefficient value = -0.186 with a t-value = -0.66 and p-value of $0.516 > 0.05$ level of significance, which suggests that the relationship is statistically insignificant. This means that there is a 51.6% chance that the observed relationship between financial leverage and ROE is due to random chance, rather than a real relationship between the two variables.

5.0 Conclusion

The results of the analysis discovered positive and statistically significant relationship between dividend pay-out ratio (DPR), dividend coverage ratio (DCR) and ROE, in the same vein found a statistically insignificant relationship between dividend yield (DY) and ROE. Therefore, this study concluded that dividend policy affects firm financial performance of consumer goods companies in Nigeria. Moreover, the study also discovered a negative significant interaction effect between R&D expenditure, DPR, DCR, and ROE. Therefore, this study concluded that R&D expenditure has a negative significant moderating effect on the relationship between DPR, DCR, and ROE. Similarly, the study does not find a significant moderating effect of R&D expenditure on the relationship between DY and ROE. Therefore, it can be concluded that R&D

expenditure does not have a significant moderating effect on the relationship between DY and ROE. The findings of the interaction between R&D expenditure, DPR, DCR, and ROE further affirmed the assertion of the resource-based theory that if a firm invests heavily in R&D, it will develop new products or technologies that give it a competitive advantage over its rivals. This could lead to improved financial performance and a higher stock price. Therefore, this study concludes that investing in R&D activities improves the relationship between dividend policy and firm financial performance. However, if the firm pays high dividends, it may have fewer resources available for R&D investments, which may hinder its ability to sustain its competitive advantage.

5.1 Recommendations

Based on the findings, it is recommended that companies should carefully consider the impact of R&D investment on their financial performance. While R&D investment can be important for long-term growth and competitiveness, it may also reduce profitability in the short term, as the outcomes of R&D projects can be uncertain and may not lead to successful innovations.

Therefore, companies should carefully balance the trade-offs between short-term profitability and long-term growth potential when making R&D investment

decisions. Companies should also evaluate their capital structure decisions in light of their R&D investment strategy, as high levels of debt or dividend pay-outs may limit their ability to invest in R&D and innovation.

This study also suggests that dividend policy decisions may be less affected by R&D investment and more influenced by other factors, such as industry characteristics, ownership structure, and macroeconomic conditions. However, it's worth noting that the optimal dividend policy for a given company depends on its specific circumstances, and companies should carefully consider their dividend policy decisions in light of their overall business strategy and financial goals.

5.2 Theoretical Implication

The resource-based theory (RBT) suggests that a firm's resources, including R&D, can provide a competitive advantage and superior financial performance. In Nigeria, R&D expenditure moderates the relationship between dividend policy and financial performance. Factors like ownership structure, industry characteristics, and macroeconomic conditions may also play a role. RBT emphasizes the importance of R&D expenditure for consumer goods companies and the need to balance short-term pay-outs with long-term growth

potential for optimal financial performance and shareholder value.

5.3 Policy Implication

The study suggests that Nigerian consumer goods companies should balance dividend policy decision with R&D investment to optimize financial performance and shareholder value. It also emphasizes the need for strategic and context-specific management of the relationship between R&D expenditure, dividend policy, and financial performance measures. Factors like industry characteristics, ownership structure, and macroeconomic conditions should also be considered.

5.4 Suggestions for Future Research

Future studies could examine the effect of R&D investment on other financial performance measure, such as earnings per share (EPS) or market value. This could help companies better understand the trade-offs between R&D investment, dividend policy, and other financial measures, and make more informed investment decisions. Future studies could also explore the effect of other moderating factors on the relationship between R&D investment, dividend policy, and financial performance measures. For example, industry characteristics, ownership structure, and macroeconomic conditions may all play a role in shaping the relationship between these variables.

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