Hedging with Financial Derivatives and Firm Performance of Consumer Goods Companies Listed on Nigeria Exchange Group

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ABSTRACT

Hedging with derivatives is a common strategy to manage foreign currency risk, interest rate risk, commodity price risk and mitigating potential losses or gains that might arise from fluctuations in the market. This study was conducted to reveal findings on the impact of hedging activities using derivatives on the financial performance of consumer goods companies listed on Nigerian Exchange (NGX). The independent variables for the study are foreign currency hedge, interest rate hedge and commodity price hedge. Data were collected from Ten (20) consumer goods companies quoted on Nigerian Exchange covering 2018 to 2022 financial years.

The results of hypothesis testing reveal that hedging with derivatives has a significant effect on firm performance. This findings supports the findings of Alan and Gupta (2018) and Lenee and Oki (2017), who conclude that the use of hedging can minimize the volatility and has a positive effect on firm value. As a general recommendations, it is important to note that regulating the derivatives market is essential to ensure stability, transparency, prevent excessive speculation, manipulation, and enhance fair practices in the financial system.

Keywords: Risk, Hedging, Financial Derivatve, Consumer Goods Companies.

INTRODUCTION

Globalisation has created robust connections among financial markets, leading to rapid transmission of hazards. Organisations are currently confronted with hazards that pose a danger to their reputation and brand (Wen, Kang, Qin, & Kennedy, 2021). The business climate in Nigeria is considered to be unfavourable due to the economic conditions and uncertainty in the company's cash flows received in different foreign currencies. As stated by Chui (2012), variations in currency exchange rates can impact the cash flows when converting between different currencies.

Derivatives are contractual agreements that have payoffs contingent upon the value of an underlying asset. The underlying asset can encompass a wide range of entities, including commodities, currencies, interest rates, or any other item, without the requirement of it being a traditional asset. As to the Oxford Dictionary, a derivative is an entity that is derived from another, and hence lacks complete originality. In financial economics, a derivative is a financial contract that derives its value from the value of an underlying asset. Rao (2012) argues that derivatives facilitated the transfer of risk between parties, hence facilitating the trading of a wide range of hazards. They are hired to manage the financial risks caused by unforeseen fluctuations in the fair value of an asset or an obligation. Listed businesses often hire them to oversee company risk and their worth is derived on the performance of the underlying assets. Osayi and Kasimu

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(2018) argue that derivative instruments have become increasingly prevalent in today's business world due to their ability to capture corporate benefits and losses. Derivatives serve several purposes, such as mitigating risks associated with future price fluctuations of securities, protecting against speculative activities, and participating in market or asset trading. The purpose of financial derivatives is to mitigate the risks associated with volatility in currency rates, interest rates, and commodity prices that arise from changes in the external environment. Nevertheless, in practical use, derivatives possess a dual nature, functioning both as a speculative instrument and as a means to mitigate risk. Their impact on the economy may be unpredictable and volatile (Carbonneau & Economics, 2021). Derivatives transactions are now prevalent across entities, such as commercial banks, investment banks, central banks, fund managers, insurance firms, and other non-financial enterprises. Individuals engaged in derivative trading are commonly categorised as either "speculators" or "hedgers" according to their intention to safeguard against adverse fluctuations in the worth of their assets or obligations. (Jarrow & Turnbull, 2000) noted that hedging, risk reduction, speculation, and risk augmentation are interconnected concepts. Hence, financial derivatives have shown to be valuable in achieving risk management goals.

The derivatives regulatory landscape in Nigeria has consistently enhanced during the past decade. The Central Bank of Nigeria (CBN) released the Guidelines for FX Derivatives in the Nigerian Financial Markets (CBN FX Derivatives Guidelines) in 2011. In addition, the Nigerian Securities and Exchange Commission (SEC) has issued the SEC Rules on Derivatives Trading, which oversee the regulation of derivatives trading and central counterparties (Fadairo, 2019). This proactive measure reflects the securities regulators' aim to broaden this substantial financial sector and effectively oversee the activities occurring inside it. Furthermore, the Securities and Exchange Commission (SEC) expressed its aim to cultivate a highly effective market for derivatives. The aspiration to establish a proficient derivatives market is praiseworthy and necessitates the implementation of proactive regulation and market structures that will enhance efficiency inside the market. Fadairo (2019) further highlighted that, a rule book was created to govern derivative trading on the Nigerian Exchange. This Rulebook introduces regulations for trading derivative items on the exchange, therefore enhancing the trading experience. The procedure leading to the adoption of this rule was protracted and included several stakeholder consultations.

Multiple studies have examined the correlation between derivatives and company success in different nations, industries, and business sectors using sophisticated econometric methods. Nevertheless, there is a dearth of research that specifically examines the impact of derivatives on the individual components of well-established financial market indexes, which is considered to be a notable deficiency in the subject. Furthermore, it has been noted that several research have mostly concentrated on the utilisation of financial derivatives by financial institutions in Nigeria, possibly stemming from the belief that financial institutions are extensively engaged in speculative endeavours. There may be a consistent approach to risk management when it comes to using financial derivatives among large and well-established financial and nonfinancial firms. Therefore, the main objective of this study is to examine how the use of financial derivatives to mitigate risk has impacted the performance of companies in the Consumer Goods industry over the past 5 years.

Statement of the Problem

Due to the global financial crisis, several organisations were compelled to either embrace novel risk management practises or revert to conventional ones. Companies are reassessing the utilisation of foreign currency options in order to successfully manage the significant increase in currency risk, interest risk, and commodity risk (Lee, 2019). The global financial liberalisation has led to the introduction of diverse financial products in the financial markets, including financial derivatives that enable speculators to mitigate the risk associated with their investments (Chege, 2016). Extensive research has been conducted on global financial derivatives. In a study conducted by Nzuki (2010), it was found that the utilisation of financial

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derivatives by Kenyan oil firms and their resulting impact is significantly lower than the desired levels. The study revealed that the usage of financial derivatives ranged from 31% to 60%, whereas the ideal level is considered to be 93%. This finding has led to discussions regarding the sluggish adoption of these products in Kenya and the subsequent effects on the performance of firms. In contrast, Cherop (2016) examined the impact of currency rate fluctuations on tea exports, specifically focusing on small-scale tea processing facilities in Kenya. The study revealed that such fluctuations resulted in a decline in overall earnings. In addition, Defuy (2012) investigated the impact of exposure to variations in foreign currency rates on the overall financial performance of listed firms. The findings indicated that fluctuations in the currency exchange rates had a contrasting impact on firms. In his study on the relationship between hedging tactics and financial performance of non-financial firms listed at the NSE, Chege (2016) discovered a positive correlation between the utilised hedging strategy and the overall financial performance.

According to the findings of Gitogo et al. (2013), there is a correlation between the financial performance of commercial banks and the utilisation of financial derivatives. Multiple studies argue that the use of financial derivatives enhances business value by enhancing net cash flows (Allayannis & Weston, 2001; Carter, Rogers & Simkins, 2006). Research presents conflicting data indicating that management use derivatives for hedging purposes with the intention of maximising their own utility. The year 2006. Jin and Jorion. The study conducted by Correia, Holman, and Jahreskog (2012) found that 90% of the participants used derivatives for the purpose of hedging. The participants were significant non-financial firms listed in South Africa. Empirical evidence regarding the motives of firms in using financial derivatives for hedging purposes has shown contradictory findings. The empirical study on the impact of employing derivatives on a company's financial performance is a subject of ongoing controversy, particularly in developing countries. This is despite the widespread availability of information on firm derivative usage in affluent nations (Waswa & Wepukhulu, 2018).

However, there has been a scarcity of study on the impact of financial derivatives on the financial performances of firms listed on financial markets in developing nations, including Nigeria. Although it is categorised as one of the largest in Africa. Nigerian firms are becoming more susceptible to fluctuations in foreign exchange prices as the Nigerian economy progressively liberalises and global commerce expands. The competitive market position of firms is influenced by fluctuations in relative pricing, which in turn affect cash flows and eventually determine performance. Hence, the objective of this study is to ascertain the impact of derivatives on the financial performance of consumer goods companies listed on the Nigeria Exchange (NGX). Previous research has predominantly focused on financial corporations, neglecting non-financial companies, particularly those in the consumer goods industry. However, this study aims to address this gap by include non-financial enterprises, including those in the consumer goods industry.

While there have been studies conducted on exchange rate regimes, interest rate risk, commodity price risk, and their implications for industries and macroeconomics, there has been limited research on examining corporate exposure to exchange risk, interest rate risk, and commodity risk in Nigeria. This research seeks to address the subject of how hedging with derivatives for foreign currency risk, interest rate risk, and commodity risk affects the financial performance of the consumer goods industry.

LITERATURE REVIEW

Conceptual Issues

Companies have employed financial derivatives as a tactic to mitigate the financial risks associated with their business transactions, arising from unexpected market fluctuations, with the aim of capitalising on the potential advantages of derivatives in offering hedging possibilities (Ranasinghe & Sivaramakrishnan, 2022).

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The Concept of Hedging

From the literature, there have been at least four fundamental conceptualizations of hedging. Hedging is considered as a reaction to perceived risk, taking into account certain strategic and financial weaknesses (Haacke, 2019). For example, efforts related to ensuring the stability and availability of energy resources are encompassed within this classification. Energy security policy applications emphasise global-scale risks such as supply interruption, high prices, and market volatility. Hedging, in this context, refers to the deliberate decision made by an investor to sacrifice the maximum potential profit in order to effectively control and minimise risks (Tunsjo 2013, pp.26-27). Another perspective on hedging is that it is a strategic choice employed by small and middle powers to address security challenges posed by major powers in the industry. Additionally, hedging can be seen as a method to manage risks associated with specific choices. The most prevalent conceptualization of hedging, however, is the combination of engagement and deterrence strategies, where hedging is considered a balancing approach (Haacke, 2019).

(Adam & Dasgupta, 2007), affirmed that competition in an industry helps set an equilibrium output price and this price is a function of total corporate finance and hedging decisions in the industry. According to (Lenee & Oki, 2017), a firm's risk management decision therefore is determined by other firms' investment and risk management decisions in identical business spheres. Conversely, some firms will hedge to stabilise cash flow that may be needed for capital intensive investments, while some others will not hedge if the potential volatility of cash flows based on their risk assessment exposure will provide higher operating revenues. This automatically creates equilibrium across different business industries of hedgers and non-hedgers. There are other numerous studies that focus on hedging behaviour in different business industries. Therefore, derivatives can be used to obtain protection against exposure to the risk of an unfavourable movement in the market price of an item, such as the price of a commodity, an interest rate or a foreign exchange rate.

The concept of Financial Derivatives

Simply explained, derivatives are securities whose value is derived from the actions of their underlying counterparts. Although its roots may be found in ancient Egypt and the Roman Empire, the first commodities exchange was established in America in 1848, which is when derivative contracts first became well-known (Fadairo, 2019). Although farmers created the exchange as a central marketplace for exchanging their agricultural products, it also gained reputation for using futures contracts to lock in current prices for grains traded on the exchange. Later, these contracts attracted speculators who had no desire to buy the underlying asset but understood the utility of employing derivatives as tools for price prediction. Derivatives have several uses in the modern world. They continue to be used as they have in the past to lock in current commodity prices for the future. Beyond that, regardless of the asset class under consideration, they have become as popular mechanisms for hedging against price risk (Yusupova & Kodolova, 2019).

According to Osayi & Kasimu (2018), the term "derivatives" describes a large group of financial instruments, primarily options and futures. These instruments' value is derived from the underlying asset's price and other relevant variables. They lack inherent value and derive their worth from the claim they make on the ownership of other financial assets or securities on behalf of their owners. Deriving something from another item is the general definition of a derivative. It might also refer to a financial product whose value is derived from another security.

The financial market is currently witnessing a rise in the number of investment instruments. This offers investors who engage in various financial sectors a wide range of investment products to choose from. In addition to directly holding these assets, investors also have the option of purchasing derivatives or securities that are traded on the capital market and money market. Derivative securities, which derive their

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value from other securities, are among the options available. Examples of such derivative securities include forward contracts, futures contracts, and investment options. These instruments are commonly used by businesses and investors in the money market and capital market for hedging and speculative purposes (Saleh, 2023).

The Black-Scholes Option Pricing Model, developed by Lenee & Oki (2017), has been incorporated into the analysis of derivative products to ensure fair pricing, good outcomes, and pricing transparency in hedging contracts. Consequently, the derivatives market has experienced rapid growth, surpassing other major markets. The utilisation of computer and communication technologies has facilitated easy agreement between parties involved. Furthermore, globalisation has led to an increased significance of currency markets and a greater need to mitigate exchange rate risk in international transactions.

The Financial Market and Derivatives

A financial market is a marketplace where investors and financial entities are interconnected. It is a market where people trade financial securities, commodities, and other valuable goods with minimal transaction costs, taking into account supply and demand. Examples of market securities include bonds, stocks, and commodities such as metals or agricultural products (Carbonneau 2021). The value of these assets is determined through the price discovery process in the financial market, which involves the trading or exchange of financial instruments. Financial markets can be classified based on the types of claims (debt and equity markets), maturity (money market and capital market), trade (spot market and delivery market), and deals in financial claims (primary market and secondary market). Amadeo (2013) defines financial markets as the venues where various financial instruments, such as stocks, bonds, commodities, foreign exchange, and derivatives, are traded. These markets serve the purpose of raising funds for governments and corporations, mitigating business risks, and increasing investor wealth. Essentially, financial markets facilitate the creation, mobilisation, and efficient allocation of funds to those who need them.

The Nigerian Exchange and Derivatives Market

For the authorities, the use of derivative contracts was cast in a negative light by the global financial crisis of 2008. Regulation has always been necessary to control investors' excesses in highly volatile financial markets, but after the crisis the necessity for strict regulation became more obvious (Pauletto, 2012). As a result, authorities from all over the world rushed to establish checks and balances to limit participants in the capital market's excessive speculative usage of derivative instruments. Although not too late to the game, the recent moves by Nigerian regulators point to the need for such actions to rein in the country's excessive derivative trading. A positive move in this area is the creation of a rule book to control derivative trading on the Nigerian Exchange (Olajide, 2020). The Securities and Exchange Commission (SEC) approved rulebook on derivatives regulation has been very significant on derivatives trading. The road to the approval of this regulation has been long and marked by extensive stakeholders' engagement. The rule book was developed to guarantee fairness in the derivatives market. Consequently, the rulebook would be binding on members of the exchange in the relationship with the exchange, other members and the general public at large (Faidaro, 2019). It is impossible to overstate the value of a regulated securities market to a country's financial health. Faidaro (2019) reaffirmed that the existence of a central governing authority that makes sure that each party acts fairly toward other market participants ensures the sanctity of securities transactions. For instance, a corporation must adhere to strict requirements in order to be listed on the Nigerian Exchange.

Empirical Review

Companies have different risk management objectives. Financial derivatives are effective tools for mitigating risks that organisations and individuals encounter in their day-to-day operations (Saleh, 2023). Derivatives intermediaries strive to strike a balance between risk and return while managing their own risks.

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They often make a deliberate decision to accept a certain level of risk. Most companies have an internal strategy and risk management policy that guides their chief financial officers on the appropriate types of hedges to use and any limitations that apply at a given time.

Empirical studies on hedging and its effect on firm value have attracted extensive attention in the corporate finance literature (including Lenee and Oki (2017); (Geyer-Klingeberg, Hang, & Rathgeber, 2021) ; Bessler et al., (2019); Panaretou (2014), and Lou and Wang (2018). A series of empirical evidence investigates firm-level data to determine whether firm hedging is a value-enhancing strategy. Most of the literature is in disagreement, mainly with regard to two matters; first, empirical estimates for the impact hedges that claim to have a positive effect have no effect to negative effect. In addition, the designs used in empirical studies vary in terms of the use of the econometric model applied, the measurement of the hedge, the firm value variable, the period of time of sampling, the country being the object of the test, other aspects of data and methods mismatch between empirical evidence and variability as in the study design makes this topic of hedging remains a challenge to be studied in order to enrich the literature review (Geyer- Klingeberg et al., 2020).

In their study, Broccardo, Mazzuca, and Yaldiz (2014) conducted empirical research on Italian banks to examine the usage and reasons for credit derivatives. The results did not provide strong support for the hedging theory in general. However, when analysing separate estimates for small and large banks, as well as for listed and unlisted banks, it was found that the likelihood of using credit derivatives varied across different subsamples. Additionally, the findings for larger and listed banks tended to confirm the results obtained from the overall sample regression analysis.

Shaofang and Matej (2014) examined the use of Financial Derivatives and Risks of U.S. Bank Holding Companies. The study looked at the impact of financial derivatives on systematic risk of publicly listed companies in U.S. The empirical investigation employed a two-stage time series cross-section regression model to determine the relationship between systematic risk and the use of financial derivatives. They found that, the use of financial derivatives is considerably and positively related to systematic risk exposures. Higher use of interest rate derivatives, exchange rate derivatives, and credit derivatives corresponds to bigger systematic interest rate risk, exchange rate risk, and credit risk. The positive connection between derivatives and risks continues for derivatives for trading as well as for derivatives for hedging. The study was conducted in a different macro-economic setting from those in Kenya hence limiting their application in the current study context.

A study conducted on large non-financial companies in the UK examined the impact of corporate risk management activities on firm value. The findings revealed that a majority of companies, specifically 86.88 percent in the research sample, utilised derivatives to mitigate price risks. The use of foreign currency derivatives was found to be significantly influenced by the hedging variable, both statistically and economically. Additionally, empirical evidence suggests a weak correlation between interest rate hedging and the increase in firm value (Panaretou, 2014).

Zhong, Han & Yeqin conducted a study using a sample of 1,369 cross-border acquisitions announced by Standard & Poor's 1500 firms from 2000 to 2014. The study found compelling evidence that companies using derivatives experience higher returns when announcing acquisitions compared to companies that do not use derivatives. Additionally, the study revealed that acquirers with hedging programmes have higher probabilities of completing deals, longer completion times, and better long-term performance after the deals are completed.

Bael., et al. (2018), using company data in Korea, found that companies that export more have more foreign currency debt and have higher exchange rate exposure tend to use more currency derivatives for hedging, it revealed that companies that use more currency derivatives do not reduce the company's risk, but

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specifically for selling transactions, it results in a higher company value. Furthermore, currency derivatives used by companies with high exposure are able to produce lower corporate risk but lower firm value as well. These findings suggest that currency derivatives can function as risk hedges and hedge firms with low and manageable exposure. This is in line with the research results of Alam and Gupta (2017) that companies involved in hedging experience less volatility in their firm value compared to companies that do not hedge. The use of hedging during the financial crisis has been shown to increase the value of the hedge. The results also found that some companies did not clearly disclose the notional value of derivatives, which prompted the need for clear regulations to disclose derivative activities in the company's annual reports.

In their study, Lenee and Oki (2017) investigate the impact of hedging on returns on assets and capital. They specifically analyse the effectiveness of different financial derivatives during their research period. The researchers employ regression analysis with a panel of least squares using a balanced panel data set of 100 observations. The findings indicate the following: (1) financial companies tend to hedge against interest rate risk, while non-financial companies hedge against foreign exchange risk; (2) both groups benefit from hedging interest rate risk using a combination of forward and futures derivatives, as it positively and significantly affects the rate of return on assets, thereby improving company performance. However, the use of only swap derivatives has the opposite effect.

Otsyula (2014) investigated the obstacles faced by commercial banks in Kenya when using financial derivatives to hedge against interest rate risk. The study focused on five commercial banks, including two major banks, one medium-sized bank, and two small banks, as classified by the Central Bank of Kenya. The research revealed that the ability of commercial banks in Kenya to effectively utilise financial derivatives for hedging purposes is hindered by both financial institution policies and the lack of innovation in market trading platforms. Furthermore, the study found that although the Central Bank of Kenya had sufficient resources to hedge interest rate risk using financial derivatives among commercial banks, the banks' own policies and trading platforms impeded the use of financial derivatives for hedging against interest rate risks.

In a separate investigation, Samuel (2015) analysed the impact of credit risk on the operational efficiency of commercial banks in Nigeria. By assessing the ratio of loans and advances to total deposits, the findings indicate a noteworthy correlation between bank profitability and the management of credit risk, specifically loan performance.

In a study conducted by Olusanmi and Uwuigbe (2015), the impact of risk management on the financial performance of banks in Nigeria was examined. The researchers utilised the Ordinary Least Square (OLS) regression technique to analyse the formulated hypothesis. The results indicated a non-significant negative correlation between risk management and a bank's performance, as measured by return on equity. In addition, Tijani and Mathias (2013) conducted a study on the utilisation of derivatives and financial risk management by non-financial firms in Nigeria. The research employed multivariate analysis and logistic regression tests using SPSS version 18. The results indicated a significantly low level of derivative usage, which was attributed to a lack of understanding regarding derivatives and the underdeveloped state of the financial market in Nigeria.

THEORETICAL REVIEW

There exist five primary theories that explain the occurrence of exchange rate fluctuations on firm value, collectively referred to as financial risk management theories.

Agency Theory

The theory is based on four distinct groups of individuals with divergent interests: the principal-manager, current and potential stock investors, and other debt holders. According to this theory, agency conflicts arise

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when the value of the underlying asset decreases compared to its value in the absence of such conflicts. This theory exemplifies the inherent conflict of interest between the manager (agent) and the owner (principal) of a company. Consequently, the manager's decision-making process is not primarily focused on maximising shareholder value, which has traditionally been the primary objective in financial management. In other words, managers tend to prioritise short-term goals, such as generating profits to secure bonuses in their salaries. Despite efforts to align the interests of managers with those of shareholders, conflicts of interest persist (Lenee and Oki, 2017).

Financial Economic Theory

The Modigliani and Miller (1958) theory proposes that hedging is irrelevant. According to this theory, a company's capital structure, which includes equity, debt, and preferred stock, is not influenced by the performance of its underlying assets. Therefore, in an efficient market, financial risk hedging strategies, rules, and guidelines are unnecessary. The theory argues that regardless of how a company chooses to finance its operations, it will not impact the company's value or financial performance, assuming certain strong assumptions such as no government intervention, equal quantity and quality of information, absence of taxes, and no additional fees. Essentially, this theory aligns with the principles of a 'laissez-faire' economic system.

This theory posits that investors, being knowledgeable shareholders, possess the necessary skills to mitigate their own investment risks at costs that are comparable to those calculated in their investments. However, critics of this theory question the possibility of achieving perfection in financial markets, given that they are influenced by imperfect human beings. (Leenee & Oki, 2017).

New Institutional Economics Theory

The theory integrates neoclassical thinking and heterodox economists, as proposed by Lenee and Oki (2017). It posits that risk management is influenced by institutional factors within the same business and industry segments, or by commonly accepted practises between parties involved in a transaction.

One of the institutional factors is the impact of covert government intervention. In simpler terms, company managers engage in hedging as a common practise to enhance security measures when investing in securities or acquiring assets.

Debt securitization, as a financial product, is associated with asset-backed securities (ABS), collateralized debt obligations (CDO), collateralized mortgage obligations (CMO), collateralized loan obligations (CLO), collateralized bond obligations (CBO), collateralized insurance obligations (CIO), credit linked notes (CLN), credit default swaps (CDS), and other synthetic products.

The Stakeholder Theory

This theory, proposed by Freeman (1984), asserts that corporate entities should be regarded as the primary social institutions due to their increasing influence on economic activities. As a manager, Freeman emphasises the importance of effectively managing various stakeholders, including government agencies, political groups, trade associations, unions, customers, suppliers, employees, communities, and investors. To enhance the company's value, managers must prioritise serving the diverse interests of these stakeholders.

The financial crisis has highlighted the importance of corporate governance. It is crucial to strike a balance between meeting the needs of stakeholders and aligning them with the company's objectives. Consumer behaviour assumes consistent satisfaction with certain products or services, making it challenging and costly

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to maintain this standard. Failure to do so can result in financial difficulties, necessitating the use of hedging strategies (Lenee and Oki, 2017).

The Stewardship Theory

Stewardship theory is based on the idea that senior executives should act as responsible caretakers for the organisation, prioritising the best interests of the owner. This theory was developed as an alternative to the agency theory and emphasises a relationship of trust between the owner (principal) and the manager (steward). The effectiveness of the steward is demonstrated when the Chief Executive Officer is able to prioritise the organization's objectives over their own personal goals.

Theoretical Framework

The theory of agency is the central framework for this study as it serves as a fundamental theory of corporate governance and pertains to mechanisms of risk management. This theory is of utmost importance because it focuses on the interests of both the agents and the principals, and seeks to align the objectives of the agents with those of the firm. Managers, who have a financial incentive to ensure the firm's success, are particularly concerned about any negative shocks that could potentially lead to financial distress for the company. Such shocks may result in their replacement or job loss. These problems can be either adverse or related to moral hazard. However, managers employ various strategies to ensure that their objectives align with those of the organisation, thereby ensuring the firm's well-being.

Literature on control variables

Several control variables were included in the model of the study to improve the quality of model, as suggested by previous studies.

Firm size

The firm size can be an important variable to describe the variation in corporate disclosure on derivatives. More specifically, a larger firm has more information to be disclosed as well as complex operations and more stockholders than a small firm. Previous studies have demonstrated a relationship between company size and level of disclosure (Giannarakis, 2014; Habbash, 2016).

Firm age

It is commonly agreed that a firm that has been in business for a longer length of time will have a competitive edge over a firm that has been operating for a shorter amount of time. Several past studies have reported that firm age play important role in disclosing voluntary information.

Leverage

A firm with a high level of leverage is more likely to face a large agency cost, thus they must provide more information to their creditors and hedge against impending risks. Prior studies have demonstrated that leverage could lead to improving the hedging activities.

METHODOLOGY

The study adopted ex-post facto. Ex post facto is a non-experimental research technique in which pre-existing group are compared on some dependent variables. The firm performance of each selected consumer goods companies for (5) Five years form dependent variable and based on review of related literature the study identified three independent variables namely Foreign currency risk hedging, Interest rate risk hedging

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and Commodity price risk hedging are the independent variables. The population for the study is Twenty (20) consumer goods companies, quoted on Nigerian exchange, therefore the population size is 20. For a company to be selected as a sample, it must have engaged in hedging activities for at least 4 (Four) years as evidenced in the annual reports. The critical look at the annual reports of all the listed companies indicated that all the listed companies met the requirements for selection. The annual reports and accounts of the selected companies were analysed covering a period of 5 years starting from 2018 to 2022.

The model in the study is structured using generalized regression analysis. The study classified the implementation of hedging into three risk groups of foreign currency rate, interest rate, and commodity price. Therefore, this study refers to the research by (Allayannis & Weston, 2001) research models and developed by (Ahmed, Azevedo, & Guney, 2013) and is adapted for this work. The mathematical and conceptual framework is expressed below:

$Perf = \beta 0 + \beta Fit + eit$ ————(i)

Where: Perf = dependent variable (firm performance measure)

$\beta 0$ = constant

β = is coefficient of the explanatory variable (Foreign currency hedge, Interest rate hedge, Commodity price hedge)

Fit = explanatory variable in the estimation model

eit = error term

Sum up as thus: $Perf = \beta 0 + \beta 1\ FCH + \beta 2IRH + \beta 3CPH + eit$————————————————-(ii)

Equation two (2) reflects the model to be used in the study.

Table 1. Measurement of the Variables

Variables	Measurement	Author
Perf = Dependent Variable. (Return on Assets (ROA)	Profit after tax divided by total Assets of the company	Haniffa and Hudaib (2006) Kamardin and Haron (2011), (O ̋Connell and Cramer, 2009).
β1 FEH=Foreign Exchange Hedging	Proxy as 1 for presence and 0 otherwise	Allayannis and Weston (2001) Ahmed, Azevedo, and Guney (2013)
β2 IRH= Interest Rate Hedging	Proxy as 1 for presence and 0 otherwise	Allayannis and Weston (2001) Ahmed, Azevedo, and Guney (2013)
β3CPH=Commodity Price Hedging	Proxy as 1 for presence and 0 otherwise	Allayannis and Weston (2001) Ahmed, Azevedo, and Guney (2013)

Control variables

Firm Size	Book value of total assets
Firm Age	Years of the company; starting from year of incorporation
Leverage	Debt /book value of total assets

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DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDING

Descriptive Statistic

The table 2 below shows summary of descriptive statistics of all the variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
roa	100	4.51497	13.39215	-0.94356	107.1441
feh	100	0.68	0.140705	0	1
irh	100	0.76	0.348735	0	1
cph	100	0.694	0.292264	0	1
fze	100	5.15	0.998737	3	8
fge	100	51	20.10076	13	99
lev	100	4.97187	19.87979	-2.75938	108.8943

Source: Stata Output, 2023

**ROA= Return on Asset. *FCH=Foreign exchange hedge. *IRH=Interest Rate Hedge, *CPH=Commodity Price Hedge, *FZE=Firm Size, *FGE=Firm Age, *LEV=Leverage*

Table 1 provides basic descriptive statistics of the variables. Return on assets shows a mean value of 4.5%. This is not too different from Lenee (2017) finding of 5.88 mean value. The 68% of companies implemented foreign exchange hedging while 22% do not. However, this might due to the fact that some company's exposure to foreign exchange risk is insignificant. The implementation of the hedging with derivative for interest rate risk, measured by the dummy variables, shows mean value of 76%. This is an indication that 35% of the company do not implement hedging activities. The mean value for commodity price risk hedging reflects 0.694. This implies that 69.7% of the companies engage in commodity price hedging.

Diagnostic Analysis

Diagnostic test are carried out in order to establish the validity of all statistical inferences for the study.

Test for Multicolinearity

The absence of multicolinearity is established when the value of variance inflation (VIF) factor is greater than 1 and below the benchmark of 10. To determine the absence of muticolinearity, the test is hereby performed using VIF.

Table 3: *Results of the Variance Inflation Factor Test (Model Diagnostic Checking)*

Minimum possible value = 1.0			
Values > 10 may indicate a collinearity problem			
Variables	**Observations**	**Coefficient**	**VIF**
		Variance	
FEH	100	0.9234910	1.01
IRH	100	0.8930500	1.02
CPH	100	0.9527170	1.05

FZE	100	*0.947509*	1.06
FGE	100	*0.906553*	1.10
LEV	100	*0.991410*	1.01
Mean VIF	**100**		**1.40**

Source: Stata Output, 2023

The result of the variance inflation factor shows that all the explanatory variables are relevant to the study, with value greater than minimum possible value of variance inflation factor (VIF) 1 and below the benchmark of 10, which is an indicative of the absence of multicollinearity. This shows that all the variables are appropriate and fit well into the model.

Correlation Analysis

In order to examine the linear relationship between variables, the test for multicollinearity is hereby carried out. The essence of this test is that if multicollinearity exist, it may lead to misleading regression result.

Table 4:*Test for Multicollinearity (Correlation Matrix)*

	ROA	**FCH**	**IRH**	**CPH**	**FZE**	**FGE**	**LEV**
ROA	1						
FCH	0.1325	1					
1RH	0.1299	0.0284	1				
CPH	0.1511	0.1038	0.1574	1			
FZE	0.1061	0.0984	0.0844	0.0219	1		
FGE	0.1118	0.0903	0.1016	0.1919	0.1992	1	
LEV	0.0023	-0.001	-0.0064	0.0046	0.0705	0.0429	1

From table above, there appears to be no incidence of multicollinearity among the independent variables. The degree of correlation between foreign currency hedging and return on asset is 0.1325 (positively low correlated) and significant, which implies that as foreign currency activities increase, return on asset increases and vice versa. The degree of correlation between commodity price hedging and foreign currency hedging is 0.1038 which implies that as commodity price hedging increases foreign currency increases and vice versa. The coefficient of correlation between interest rate hedging and return on assets is 0.1299 (positively correlated) that is, they move in the same direction. This certifies that the independent variables are fit to be estimated together on the same regression model. The correlation result also shows the relationship between the performance and hedging activities

Normality Test

Normality test is a statistical process used to determine if a sample or any group of data fits a standard normal distribution. The technique is used to test whether the data used in research are normally distributed or not

Table 5: Result of Normality Test

Variables	**Obs**	**Prob>z**
ROA	100	0.002255
FCH	100	0.000257

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IRH	100	0.000346
CPR	100	0.000346
FZE	100	0.000542
FGE	100	0.002427
LEV	100	0.040457

In the above table, it shows that all the variables are normally distributed simply because the probability value is significant. Therefore, the null hypothesis is rejected.

Heteroscedasticity Test

The existence of heteroscedasticity in regression analysis can invalidate statistical test. The test is necessary to check whether the variability of error is constant or not, because one of the assumptions of regression is that the variance of errors is constant across observations. Therefore, this study employs Breusch-Pagan test to test for the heteroscedasticity existence.

Table 6: Result of the heteroscedasticity test.

Test	Chi Square	Prob >chi2
Breusch-Pagan / Cook-Weisberg	1.32	0.2787

Based on the results on table 5 above, there is no problem of heteroscedasticity because the probability value is significant (greater than 0.05).

Table 7: Result of Regression Analysis.

Summary of the Result						
No of observation	100					
R. squared	0.2022					
Adj. R- squared	0.2522					
Variables	Coef.	Std. Err	T	p>|t|	95% Conf.	Interval
FCH	0.12558	0.054342	2.08	0.0221	0.2369	0.24355
IRH	0.189226	0.091267	4.06	0.003	0.21252	0.580352
CPH	0.080934	0.217683	0.55	0.56	0.024451	0.052134
FZE	0.142727	0.168102	.0.85	0.007	0.064411	0.0257088
FGE	0.04325	0.008544	0.51	0	0.007512	0.0206442
LEV	0.028581	0.08253	0.85	0.1	0.49129	-0.0667668
Const	-0.27903	0.106678	-2.8	0.1	-0.42129	-0.056712

Source: Stata output, 2023

DISCUSSION.

The research objective is to provide answer whether hedging of foreign currency risk, interest rate risk, and commodity price risk using derivative instruments presents significant differences to company's financial performance or not. The finding shows that hedging activities using derivatives instruments could enhance the performance of firms in the consumer goods sector of the Nigerian economy. The coefficient of multiple

determinations shows the explanatory power of the independent variables to be 20% with adjusted R-square showing 25%. This means that, over 20% of the variation in ROA is accounted for by the explanatory variables. In addition, variables such as foreign currency hedging, interest rate hedging is significant. The study predicted a relationship between foreign currency hedge and firm performance. The result is positive (0.12) and significant with p value < 0.05. Hence, this indicates a direct relationship between foreign currency hedge and firm performance and implies positive variation on ROA. It means that increase in the effectiveness of foreign currency hedge leads to increase in firm performance, thus initiating hedging in other companies which do not implement. The relationship between interest rate hedge and return on assets is positive and significant at 5% which means interest rate hedge increases the performance of the organisation. This finding contradicts the null hypothesis that predicts a negative significant relationship. Implementing interest rate hedge may make the companies to be more productive. The parameter of commodity price hedge was found to be positive (0.080) and not significant at 5% with probability value of 0.56. Hence will reject the null hypothesis that there is no significant relationship between existence of chief risk officer and firm performance.

The use of derivative contracts was cast in a negative light by the global financial crisis of 2008. Regulation has always been necessary to control investors' excesses in highly volatile financial markets, therefore companies can leverage this finding to make informed decisions by regularly analysing and interpreting key metrics. This involves assessing the effectiveness of their hedging strategies and understanding possible impact on financial performance. Additionally, maintaining open communication with relevant stakeholders and staying informed about market trends can contribute to a more comprehensive decision making process.

CONCLUSION

The underlying premise of hedging activities is that every entity exists to provide value for its stakeholders. The future cannot be predicted, therefore all entities face uncertainty, and the challenge for management is to determine how much uncertainty the entity is prepared to accept as it strives to grow stakeholder value. Uncertainty presents both risk and opportunity, with the potential to erode or enhance value. Hedging with derivatives is allowed in financial markets in dealing with uncertainty and create opportunity and thereby enhance its capacity to create acceptable firm value and optimize risk and return profile. Based on the extant literature, the hedging with derivatives will improve performance and enhance shareholder value by identifying, evaluating, monitoring and controlling all risks that can hinder the organization from achieving its set objectives. The results of hypothesis testing reveal that hedging with derivatives has a significant effect on firm performance. This findings supports the findings of Alan and Gupta (2018) and Lenee and Oki (2017), who conclude that the use of hedging can minimize the volatility and has a positive effect on firm value. As a general recommendations, it is important to note that regulating the derivatives market is essential to ensure stability, transparency, prevent excessive speculation, manipulation, and enhance fair practices in the financial system.

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