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Risk Management and Financial Performance of Firms in Nigeria: Firm Size as a Moderator

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ABSTRACT
This study examines risk management and financial performance of firms in Nigeria: Using firm size as a moderator, from 2012 to 2019. The population comprises all the quoted financial firms in Nigeria while filtering technique was used to arrive at a sample size of forty-four (44) financial firms in Nigeria. The hypotheses were tested using robust random effect regression model after conducting some diagnostics tests. The results showed that interest rate risk has a significant positive effect on return on asset of quoted financial firms in Nigeria. The results also showed that financial leverage risk with the interaction of firm size has an insignificant statistical effect in explaining the return on assets of quoted financial firms in Nigeria. The study further reveals that interest rate risk without moderation is significant at 1% while the indirect relationship of interest rate risk as moderated by firm size has a positive significant effect on return on assets of quoted financial firms in Nigeria. The study recommends among others, that the management of financial firms in Nigeria should use a high leverage level of ratio 60:40 to enhance their profitability level. The highly levered firms will bring checks and balances to the organisations and resolves some agency problems which in turn enhance their profitability level in Nigeria. Also, the management of financial firms in Nigeria should sustain the management of their interest rate risk by ensuring that the interest rate charge is gauged by the prevailing inflation rate in Nigeria to enhance their profitability level.
Keywords: Risk Management, Financial Performance, Nigeria, Firm Size as a Moderator

INTRODUCTION

In today's dynamic world, business managers must be able to cope with the increasing volatility and turbulence of the environment due to globalization (Fiedler, 1996; Mgbere, 2009). Changes in the environment, therefore, can pose risks to the performance reliability of the organization (Oloyede, 2011). The objective of risk management in firms is to maximize the potential of success and minimize the probability of future losses because the risk that becomes problematic can negatively affect the cost, time, quality and profitability of firms.

Financial leverage reflects the debt amount used in the capital structure of the firm. Debt carries a fixed service obligation of payments of interest. Financial leverage measures a firm's exposure to financial risk. Sachchidanand and Totala (2012) asserted that financial leverage can accelerate the profitability of firms under favourable economic conditions but depresses profitability when the economic goings are not robust in the economy and for the firms. Financial leverage plays a major role in corporate financial performance. Some researchers e.g. Vadiee*et al*. (2012) assert that there is a relationship between financial leverage and other financial performance indicators like return on assets.

Interest rate risk management by financial firms is also a serious factor that makes or mar their profitability. Firms that offer low saving rates to their customers below the prevailing inflation rate may be facing low customers deposit which will affect their loanable capital and hence profitability. Also, financial firms that offer high lending rates to their customers far above the prevailing inflation rate are equally affected with low credit accessibility by their customers and invariably profitability, therefore, the need for interest risk management by financial firms to enhance the financial performance (Afzal *et al*., 2018). Khawaja and Musleh (2007) assert that an increase in interest rate depresses borrowers but increases performance.

The firm size is one of the determinants of risk exposure as large firms are more exposed to risks than their small firms' counterparts. In this study, firm size is used as a moderating variable as a result of the relationships it has with the risk management and financial performance of firms while firm age will be used as a control variable. This study becomes necessary considering the importance of the financial sector to the development of the economy and the implementation of International Financial Reporting Standards (IFRS) in Nigeria since 2012 which has changed the way companies present their financial statements.

In the 2000s, a series of large corporate downfalls including Intercontinental Bank Plc, Oceanic International Bank Plc, Afri Bank Plc among others shook investors' confidence and heightened their concerns about overall risk management practices. This widespread unrest among investors forced regulators and professional bodies in Nigeria to re-think risk governance mechanisms in the shape of improved guidelines for internal controls and risk management to restore investors trust, hence, the need for further study in this area, risk management and financial performance of firms in Nigeria: Using firm size as a moderator.

The exposure to risk at both the individual and corporate levels has become a very serious issue for survival in life. Most firms are unwilling to voluntary give disclosure information to outsiders; the risk exposure of companies is generally unavailable (Lin & Tseng, 2006). A report by the Economist Intelligence Unit (2014) indicates that a large number of businesses have perceived a rise in risk and its severity in their operation, due to the interconnectedness of the global business environment. Rod Eddington, the former Chief Executive Officer of British Airways once asserted that firms need to have a broader perspective of risk management practices in place (McCarthy *et al*., 2004).

Despite, the growing consensus that financial firms will boost their performance by employing risk management as a strategic management tool, the empirical evidence confirming the relationship between risk management and firm performance is quite controversial (Grace, *et al*., 2015). Of particular concern is that risk management characteristics in some specific organisations (and countries) settings have not been the subject of many research studies (Bhimani, 2009).

The rapid and widespread adoption of market-based policies such as privatization and opening to foreign markets by developing economies place domestic business enterprises with strong competitive pressures both in the domestic and foreign markets (Hoskisson & Robert, 2000). As a result, private and public enterprises of developing economies see the need to develop strategies to cope with the economic and political changes. Strengthening the firm's management control systems help businesses to adopt and effectively implement risk management activities at the enterprise level. The Organization for Economic Co-operation and Development (OECD) has pinpointed failures in risk management as the most important cause of the financial crisis and noted that this failure was attributed to weaknesses in corporate governance and defaulting risk assessment. Kirkpatrick (2009) asserts that many boards failed to ensure that approved risk management procedures were implemented, whereas others were not made aware of exposure to risks at all. The empirical works have shown that some of the studies like Ahmadu and Abdulkarim (2019), Ahmadu *et al.* (2020) and John-Akamelu *et al.* (2017) conducted in Nigeria combined the data for both pre and post IFRS implementation together which may likely affect their findings as IFRS has made serious changes to financial reporting like the issue of impairment of assets as against the only depreciation been applied in the past. The empirical works have also shown that

most of the studies like Desta (2020) and Mohd *et al.* (2020), carried out in recent times of 2020 regarding financial leverage risk, interest rate risk and financial performance of firms in Nigeria and other countries of the world were not current in their data used for the analysis as most of their data were within 2018 and below except very few studies like Ahmadu *et al*. (2020).

Furthermore, these kinds of risk management and profitability performance studies in recent times were mostly carried out in other countries of the world more than Nigeria. These highlighted gaps in the literature above call for further study in this area which necessitated this study, risk management and financial performance of firms in Nigeria: Using firm size as a moderator, to update the data, cover only the periods of IFRS implementation in Nigeria, add to the recent literature in this area in Nigeria and introduced a firm size as a moderator to determine the dimension of the relationships in Nigeria.

The broad objective of this study is to investigate the risk management and financial performance of firms in Nigeria: Firm size as a moderator. The study specifically intends to:(i)find out the effect of financial leverage risk on return on asset of quoted financial firms in Nigeria;(ii)ascertain the effect of interest rate risk on return on asset of quoted financial firms in Nigeria;(iii)examine the moderating effect of firm size on financial leverage risk and return on asset of quoted financial firms in Nigeria; and(iv)find out the moderating effect of firm size on interest rate risk and return on assets of quoted financial firms in Nigeria.

In line with the specific objectives of the study, the following hypotheses are formulated in null form.H_{01}:Financial leverage risk has no significant effect on return on assets of quoted financial firms in Nigeria.H_{02}:Interest rate risk has no significant effect on return on assets of quoted financial firms in Nigeria.H_{03}:Firm size has no significant moderating effect on financial leverage risk and return on assets of quoted financial firms in Nigeria.H_{04}:Firm size has no significant moderating effect on interest rate risk and return on assets of quoted financial firms in Nigeria.

REVIEW OF RELATED LITERATURE

Conceptual Framework

The conceptual framework adapted from Qamar*et al.* (2016)for this study is made up of Risk Management (proxies by financial leverage risk and interest rate risk), the profitability proxied by return on assets (ROA), the firm size is used as a moderating variable while firm age is used as a control variable.

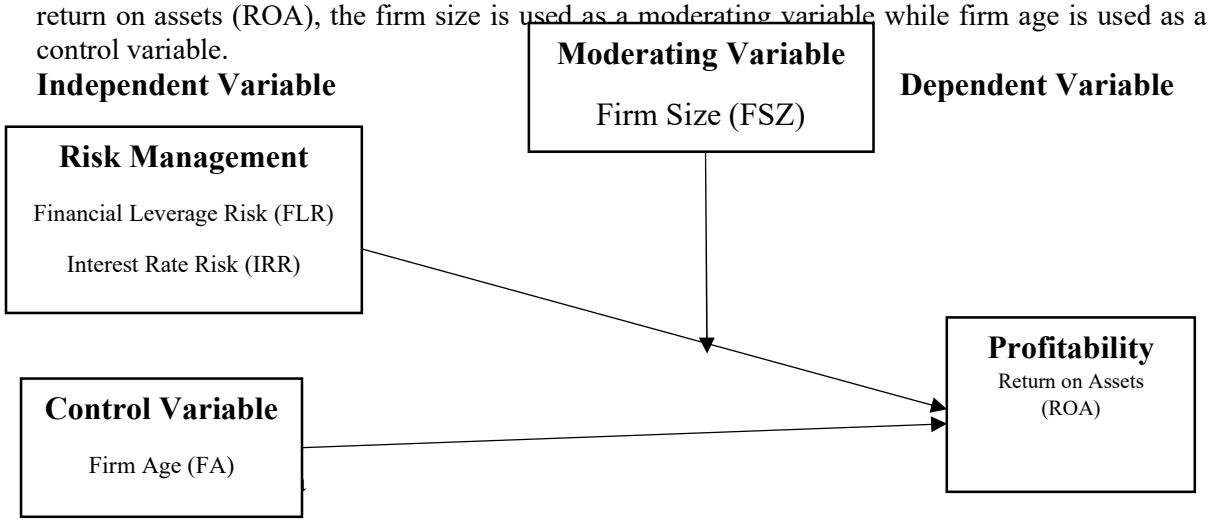

Figure 1- Framework of the study. Source: Adapted from Qamar et al, 2016

Risk Management

Business risk is the uncertainty associated with an organization's operating environment and reflected in the variations of operating income and hence, having a negative impact on the profitability of a given organization (Madhani, 2011). Risk management is a process by which firms identify measure, prioritize and mitigate the adverse effect of uncertainties (Chapman & Ward, 1997). Accordingly, risk management is a systematic approach to alleviate the negative consequence of any specific phenomenon. Kannan and Thangavel (2008), defined risk as exposure to uncertainty or threat. Risk sometimes entails some economic benefits as firms may derive considerable gains by taking a risk. Kaye and Lowe (2010) are of the view that risk is integral to opportunities and threats which may adversely affect an action or expected outcome. Hillson and Murray-Webster (2011) see risk as 'uncertainty that matters' in business enterprise.

Risk in financial terms is usually defined as the probability that the actual return may differ from the expected return (Dionne, 2013). Shafiq and Nasr (2010) defined risk management as a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. This study adopts the definition of risk management given by Abdullahi (2013).

Financial Performance

In the words of FrichKohlar, "the performance is a general term applied to a part or to all the conducts of activities of an organization over a period of time often with concerning projected cost efficiency, management responsibility or accountability or the like". Thus, not just the presentation, but the quality of results achieved refers to the performance. Performance is used to indicate a company success, conditions, and compliance. Enekwe *et al.* (2015) assert that a company's performance is a process of measuring the results of the company's policies and operations in monetary terms. They added that performance is used to indicate a company's success, conditions and compliance to set targets and that it measures the company's overall financial health over a given period and can also be used to compare similar companies across the same industry or to compare industries or sectors in aggregation. Profitability is a key component of financial performance. Return on assets (ROA) expresses the corporate efficient management to generate the net income from firms' resources (Khrawish, 2011). According to Wen (2010), the high return on assets (ROA) indicates the more corporate efficiency of the use of resources. Return on assets is regarded as having prominence for accounting performance measures. Return on assets reflects the ability of firm's management to generate profits from assets. ROA is calculated as profit after tax over the total assets of a firm.

Financial Leverage

Financial leverage is the use of borrowed finances for investment expecting the profits to be greater than the interest payable i.e. the more you borrow in form of debt, the more you pay in terms of interest hence it increases the risks of leverage (Abor, 2007). An unlevered firm is an all-equity firm, whereas a levered firm is made up of ownership equity and debt. Financial leverage takes the form of a loan or other borrowing (debt), the proceeds of which are (re) invested with the intent to earn a greater rate of return than the cost of interest. Leverage allows a greater potential return to the investor than otherwise would have been available, but the potential loss is also greater, if the investment becomes worthless, the loan principal and all accrued interest on the loan still need to

be repaid. This constitutes financial risk (Pandey, 2005). The degree of this financial risk is related to the firm's financial structure.

Heinkel (1982) and Noe (1988) asserted that increasing leverage, by acquiring debt should have positive implications for firm value and performance. Furthermore, Hadlock and James (2002) also supported this result, where they concluded that companies prefer debt (loan) financing because they anticipate a higher return. According to Champion (1999), the use of leverage is one way to improve the performance of the firm. Roden and Lewellen (1995) find a significant positive association between profitability and total debt while Gleason *et al*. (2000) found a negative impact of leverage on the profitability of the firm. Thus, there is no universal acceptance of debt-equity choices. Shubita and Alsawalhah (2012) reveal that there is a significantly negative relation between debt and profitability. They suggested that profitable firms depend more on equity as their main financing option. According to previous studies, financial leverage affects the cost of capital, ultimately influencing firms' profitability and stock price (Higgins, 1977; Miller, 1977; Myers, 1984; Sheel, 1994). This study defines financial leverage as the ratio of debts to equity of financial firms.

Interest Rate Risk

When the corporate borrowing interest rate is greater than the market rate, the company may face interest rate risk. The interest rate factors measure as total loans and deposits (Al-Khouri, 2011). An investor may lose potential return if interest rates rise after committing to a particular interest rate. When interest rates change it affects the value of the instrument (Basel Committee on Banking Supervision BCBS, 2000). Financial firms encounter interest rate risk in different ways including re-pricing risk which is the primary and most common form of interest rate risk that arise from timing differences in the maturity of banking corporation assets and liabilities (BCBS, 2000). The yield curve may likely shift due to changes in relationships between interest rates for different maturities of the same index. Differences in interest rate changes give rise to unexpected changes in the earnings spread between assets and liabilities of similar maturities (Kolopo & Dapo, 2015). Waseem and Abdul (2014) found a significant negative correlation between interest rate risk and the performance of commercial banks in Pakistan. Kolopo and Dapo (2015) found that the interest rate risk had an insignificant effect on banks performance in Nigeria. The following were used to measure interest rate risk; loans to total asset ratio and interest income to total assets.

Moderating Effect of Firm Size in the Relationship between Risk Management and Profitability

Ramasamy *et al*. (2005) observed that the association between firm performance and firm size was ambiguous and cautioned the need for industry-specific consideration while advising researchers to proceed on a case-by-case basis of analysis and avoid the tendency to generalise. Akinyomi and Olagunju (2013) observed that the nature of the relationship that exists between firm size and profitability is an essential matter that may shed some light on the factors that enhance profits in firms.

In more recent studies, however, a positive relationship has been established between the size of the firm and profit. Akinyomi *et al.* (2018) in their study found that firm size, both in terms of total assets and in terms of total sales, has a positive effect on the profitability of Nigerian companies. Accordingly, Cabral and Mata (2003) in their study of Portuguese firms validated the view that the availability of a more accurate and complete data set has been adduced as the reason for the conflict between what was previously held as an independent relationship between firm size and growth and new findings that there is a positive relationship.

One of the firm-specific less researched areas that can also moderate the risk-performance relation is the firm size. Firm size is viewed as a significant factor that can affect the firm's relationship with its external environment (Ezeoha, 2008). Since larger firms have more capacity to influence their stakeholders, their role is more critical in the corporate environment. Similarly, these firms play a significant role in commercializing innovative ideas provided by small firms. From a macroeconomic perspective, many parts of economic growth came from the growth of large size concerns. So, with its increasing recognition to external business environment firm size can be an important ingredient to corporate finance decisions (Voulgaris *et al*., 2004).

Qamar *et al*. (2016) examined firm size as a moderator to leverage-performance relation: an emerging market review. The study data were collected from 304 Pakistani non-financial firms from 2005 to 2013. The study found that the overall leverage-performance relationship is negative for all types of firms. However, such losses are more prominent for small size firms. Results also showed that the leverage-performance relation is nonlinear for medium and large size firms. However, in practice, these firms are not targeting optimal level and over-leveraging that ultimately decrease their profits.

Researchers documented different results and explained various rationales in this respect. Some researchers found positive risk-performance relation while others believe conversely and described the risk as a negative connotation. Even some studies found insignificant or inconsistent results in this respect. O'Brien (2003) also argued that studying the direct leverage-risk-performance relationship could portray misleading conclusions due to situational and contingency factors. The magnitude and even direction of the risk-performance relationship can change due to these factors. Therefore, it is important to consider a moderating factor of firm size while studying the risk-performance relationship.

Theory Underpinning the Study

Trade-off Theory

The trade-off theory outlines how a company chooses between the amount of debt and shares to use in their operations in a bid to reap the maximum advantages that come with having both as sources of capital. The theorists, Kraus and Litzenberger (1973), noted that it is important for organisations to strike a balance between bankruptcy and agency expenditure and the tax-saving benefits accrued from having debt. They concluded that a firm's management decides on a target debt level by balancing the costs of bankruptcy associated with debt against the tax benefits of the debt (Harris, 2015). Hackbarth *et al.* (2007) noted that debt capital offers a better balance when it comes to tax savings and bankruptcy expenditure implying that as the debt level increases, the firm is more exposed to bankruptcy. Bankruptcy costs that result from credit risk as a result of increased use of debt result in an adverse effect on the firm's valuation since its onset may necessitate parties other than equity and debt holders sharing in the firm's cash flow (Eckbo & Kisser, 2015). These costs can thus cause the value of the firm to reduce if the firm over relies on debt. The trade-off theory thus suggests that higher expected bankruptcy costs would push firms towards lower debt ratios in an attempt to minimize suffering from costs, which also imply that the firm will not optimize their productivity limiting value creation.

The theory further notes that more debts increase the risk of bankruptcy which makes debts unattractive to the organisation. On the other hand, the tax shields that come with debt capital makes debt attractive to the organisation. This is why a balance should be struck between the costs and benefits of debt capital if the firm wishes to get borrowed funds (Eckbo& Kisser, 2015).

Consequently, the theory is applicable in explaining how debt as part of the firm's capital affects its valuation. Precisely, the theory supports interest rate risk and financial leverage risk since as the level of debt increases, the fixed charge interest expense also increases exposing private equity firms to lower interest coverage. This problem is compounded where the long-term debt attracts a variable interest rate which becomes unpredictable thus increasing interest rate risk.

Trade-off Theoryis relevant to this study becausethe theory supports interest rate risk and financial leverage risk since as the level of debt increases, the fixed charge interest expense also increases exposing private equity firms to lower interest coverage. This problem is compounded where the long-term debt attracts a variable interest rate which becomes unpredictable thus increasing interest rate risk.

Empirical Review

Financial Leverage and Financial Performance

Abdul *et al.* (2021) examine the effect of financial leverage on the Islamic banks' performance in Asian countries. The population comprises all Islamic Banks from the Asian region with data consisting of twenty-five Islamic banks from Asian economies for the period (2010 -2019). Data analyses were performed by applying Descriptive Statistics, Correlation Analysis, Fixed Effect Model, Likelihood Test, Random effect Model and Hausman Test. The study found a significant and positive impact of leverage on Islamic Banks performance in the Asian Region. The study used appropriate statistical tools of analysis to examine the panel data. Also, the study was carried out in 2021 the data covered up to 2019 which enhance the currency of the study. The study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the data up to the current period in Nigeria.

Desta (2020) examine the impact of financial leverage on the performance of commercial banks: evidence from selected commercial banks in Ethiopia covering the periods of 2008-2017. Secondary data were collected from the audited financial reports of selected commercial banks operating in the Ethiopian financial system. The study used descriptive statistics and a fixed-effect model for the analysis. The study found that Debt Ratio (DR) has a negative insignificant effect on Banks' performance measured by Return on Assets (ROA) and Return on Equity (ROE) while Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) have significant positive Effect on Banks' performance measured by Return on Assets (ROA) and Return on Equity (ROE). The study used appropriate statistical tools of analysis to examine the panel data. However, even though the study was carried out in 2020 the data covered only up to 2017 which affect the currency of the study. The study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the data up to the current period in Nigeria.

Mohd *et al.* (2020) examine financial leverage and profitability: evidence from the oil and gas sector of India. Secondary data were extracted from the annual reports of respective companies. Their sample consists of 10 Oil and Gas Companies in India for the period of ten years from 2008-09 to 2017-18. Analysis of data was carried out with the aid of E-views and SPSS 21 software while a random effect model was used to test the null hypotheses. The study found that leverage has a positive association with the profitability of Indian Oil and Gas Sector Companies. The study used appropriate statistical tools of analysis to examine the panel data. Also, the study was carried out in 2020 and the data covered up to 2018 which enhance the currency of the study. The study was carried out in another environment outside Nigeria in the past which cannot be generalized

because of the environmental differences and also the need to update the data up to the current period in Nigeria.

Ahmadu and Abdulkarim (2019) carry out a study on financial leverage and financial performance of quoted services firms in Nigeria. They used a population of 7 companies quoted on the services sector of the Nigerian stock exchange (NSE), during the period 2005- 2016. Descriptive statistics and Fixed Effects Model were used to analyze the data and to test the hypotheses respectively. They found that short-term debt ratio, long-term debt ratio and total-debt equity ratio on their individual basis have a significant negative effect on the financial performance measured by return on equity. They recommend that a debt ratio comprising 20 per cent short-term debt and 80 per cent long-term debt should be adopted. They also recommended that quoted firms in the services sector should increase the equity portion in their capital structure by 10 per cent, using the bonus and right issue. The study used appropriate statistical tools of analysis to examine the panel data. However, even though the study was carried out in 2019 the data covered only up to 2016 which affect the currency of the study.

Ripon *et al.* (2018) examine the effect of corporate financial leverage on financial performance: a study of publicly traded manufacturing companies in Bangladesh. Panel data consisting of 816 cases from 1999 to 2016 (48 companies x 17 years). Financial performance is measured using ROA, ROE, EPS, and Tobin's Q, and financial leverage is measured using the debt-assets ratio and debt-equity ratio. They used a random effect regression technique and found that ROA and Tobin's Q are negatively correlated with financial leverage. However, financial leverage has a positive effect on ROE and no effect on EPS. They used appropriate statistical tools of analysis to examine their panel data. However, even though their study was carried in 2018 their data covered only up to 2016 which affect the currency of their study. Also, the study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the study up to the current period in Nigeria.

John-Akamelu *et al.* (2017) examine the leverage and financial performance: evidence from Nigerian food production firms. An ex-post facto research design was adopted and data for the study were obtained from 2009 to 2014 annual reports and accounts of food production firms in Nigeria. Paired sample t-test analysis was applied for the test of the three hypotheses formulated with the aid of Statistical Package for Social Sciences (SPSS) version 2.0. They found that financial leverage has no significant effect on Earning Per Shares of food production firms in Nigeria and also that financial leverage) affects Return on Equity of manufacturing companies in Nigeria. However, another finding showed that financial leverage affects Return on Assets of companies in Nigeria. They recommend, among other things that the amount of debt finance in the financial mix of the firm should be at the optimal level to ensure the firms' assets are utilized appropriately. The study used an inappropriate statistical tool of ordinary least square regression technique to estimate the panel data as against the postulate of Hausman (1978). Also, they combined data from both pre (2009-2011) and post (2012-2014) IFRS implementation in Nigeria which affects their study findings. Furthermore, even though their study was carried out in 2017 their data covered only up to 2014 which affect the currency of their study.

Robert and Mohamed (2015) study financial leverage and performance of listed firms in a frontier market: panel evidence from Kenya. Annual datafor the period 2007 – 2011 were used. Various panel procedures were also employed, the study findsreasonably strong evidence that financial leverage significantly, and negatively, affect the performance of listed firms in Kenya (ROA, β = -

.0438, p = .0350) and Tobin's Q, β = -.5144, p = .0124). However, financial leverage negative but insignificant effect on ROE, β = -.0176, p = .5765). They concluded that the financial leverage is an important negative predictor of financial performance measured in terms of ROA and Tobin's Q; ownership concentration is a pertinent negative predictor of financial performance measured in terms of Tobin's Q and asset tangibility is a significant positive predictor of performance measured in terms of ROE and Tobin's Q. They used a panel regression technique which is a good method for this kind of study that provides reliable results. However, the study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the study up to the current period in Nigeria.

Enekwe *et al.* (2014) examine the effect of financial leverage on financial performance: evidence of quoted pharmaceutical companies in Nigeria, for twelve (12) years (2001 – 2012) for the three (3) selected companies. They used an *ex-post facto* research design while secondary data were extracted from the financial statement of the selected pharmaceutical companies' quoted on the Nigerian Stock Exchange (NSE). Descriptive statistics, Pearson correlation and panel regressions were employed and used for this study. They found that the debt ratio (DR) and debt-equity ratio (DER) have a negative relationship with Return on Assets (ROA) while the interest coverage ratio (ICR) has a positive relationship with Return on Assets (ROA) in Nigeria pharmaceutical industry. They also revealed that all the independent variables have no significant effect on financial performance of the sampled companies. They recommend that companies' management should ensure that financial decisions made by them align with the shareholders' wealth maximization objectives which encompass the profit maximization objective of the firm. The amount of debt finance in the financial mix of the firm should be at the optimal level to ensure appropriate utilisation of the firms' assets. The management should also monitor the interest charged on debt financing to avoid liquidation of the company. They used appropriate statistical tools of analysis to examine their panel data. Also, their study covers 2001-2012 which is before the implementation of IFRS in Nigeria and affects the currency of their study.

Syed (2013) examines the relationship between financial leverage and financial performance: empirical evidence of listed sugar companies of Pakistan. He collected secondary data from the annual reports of the companies (nonfinancial) listed at the Karachi Stock Exchange from the period 2006-2011. The sample size consists of 35 listed companies from the food producer sector of the Karachi Stock Exchange. The panel fixed effect regression analysis was used to estimate the model. They found a positive relationship between debt-equity ratio and return on asset and sales growth, and a negative relationship of debt-equity ratio with earning per share, net profit margin and return on equity. This study used a panel regression technique which is a good method for this kind of study that provides reliable results. However, the study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the study up to the current period in Nigeria.

Interest Rate Risk and Financial Performance

Ahmadu *et al.* (2020) examine financial risk and financial performance of listed deposit money banks in Nigeria. They used panel data from the annual reports and financial statements of 8 listed deposit money banks in Nigeria over 10 years from 2010 to 2019. They used ex-post facto and longitudinal research designs. Descriptive analytical tools such as mean, median, minimum and maximum values among others were used in data presentation, while fixed effects model with robust heteroskedasticity and autocorrelation (HAC) standard errors was applied in analysing the effect of financial risk management proxies as credit risk, operational risk and market risk on the

financial performance measured by return on equity (ROE). They found that credit risk proxy by capital adequacy ratio (CAR) and market risk measured by net interest margin (NIM) have significant and positive effects on the financial performance; while operational risk gauged by the cost-to-income ratio (CIR) did not have any significant effect on the ROE as an indicator of the financial performance. They recommend that banks should improve their capital base as banks with a high capital adequacy ratio are more likely to witness improvements in shareholders wealth. The study used appropriate statistical tools of analysis to examine the panel data. Also, the study was carried out in 2020 and the data covered up to 2019 which enhance the currency of the study. However, the study combined data from both pre (2010-2011) and post (2012-2019) IFRS implementation in Nigeria which affects the findings.

Alhassan *et al.* (2018) examine the impact of interest rate spread on bank profitability in Ghana. They measured interest rate spread using net interest income (IntSp) and net interest margin (NIM) and bank profitability using Return on Assets (ROA) and Return on Equity (ROE). Secondary data were extracted from 24 banks over ten years while the panel regression technique was used to estimate the model. They found that there is a positive and statistically significant association between interest rate spread and bank profitability in Ghana. They used appropriate statistical tools of analysis to examine their panel data. However, the study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the study up to the current period in Nigeria.

Duncan *et al.* (2018) examine the effect of interest rate capping on the financial performance of commercial banks in Kenya. Data was collected for the variables for four quarters of a financial year before the introduction of capping and four quarters of a financial year immediately after the introduction of capping. Fixed effect regression analysis and paired sample T-test was used in the analysis because of the relationship between the variables. Interest rate capping was found to have a statistically significant negative effect on the performance of commercial banks and specifically from interest income whose negative impact could not be compensated by non-interest income increase or the interest expense decrease and thus the decline in profits. They used appropriate statistical tools of analysis to test their hypotheses. Also, the study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the study up to the current period in Nigeria.

Maniagi *et al.* (2017) examine the influence of interest rate risk on performance of commercial banks in Kenya. Secondary data from the banks' websites and the central bank of Kenya were used in the study. The population was the 44 commercial banks in Kenya of which 2 were under receivership and one under statutory management. Panel data for 30 commercial banks that had data for 10 year period from 2006 to 2015 were used. Descriptive statistics and correlation analysis were used, for regression random and fixed effects were applied. They found that interest income to total loans had a significant positive relationship with performance. They used appropriate statistical tools of analysis to examine their panel. However, even though their study was carried out in 2018 their data covered only up to 2015 which affect the currency of their study. Also, the study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the study up to the current period in Nigeria.

Fauziah *et al.* (2009) examine the impact of financial risks on profitability of Malaysian commercial banks: 1996-2005. They studied the conventional and Islamic banks in Malaysia for

the period between 1996 and 2005. The measures of profitability that have been used in the study are the return on equity (ROE) and return on assets (ROA) while the financial risks are credit risk, interest rate risk and liquidity risks. They employed panel data regression analysis of Generalised Least Squares of fixed effects and random-effects models. They found that credit risk has a significant impact on ROA and ROE for the conventional as well as the Islamic banks. The relationship between interest rate risk and ROE were found to be significant for the conventional banks and insignificant for the Islamic banks. The effect of interest rate risk on ROA is significant for conventional banks. Liquidity risk was found to have an insignificant impact on both profitability measures. They used a panel regression technique which is a good method for this kind of study that provides reliable results. However, the study was carried out in another environment outside Nigeria in the past which cannot be generalized because of the environmental differences and also the need to update the study up to the current period in Nigeria.

METHODOLOGY

This study used an *ex post facto* design and is used to examine the statistical relationship between two or more variables. The population of the study consists all the fifty-three (53) quoted financial firms in Nigeria on the Nigerian Stock Exchange as at 31st December 2019 calendar year. The sample size of this study comprises all the firms quoted in the financial sector, at least one year before the implementation of International Financial Reporting Standards (IFRS) totalling forty-four (44) firms in the financial sectors in Nigeria covering 2012-2019 based on the filter criteria stated below. The filter criteria for the firms to be included in the study from the financial sectors are stated below:

(i) A firm must have been quoted on the floor of the Nigerian Stock Exchange (NSE) at least a year before the implementation of IFRS in (2012).
(ii) A firm must be quoted on the Nigerian Stock Exchange and its shares often traded on the floor of the exchange for the periods covered by the study.

This study used panel data extracted from the audited financial reports/statements of the sampled firms within the chosen period of this study. The technique of data analysis used by this study is robust random effect regression model based on the result of Hausman test. The study adopts this technique to establish the risk management (financial leverage and interest rate risk), moderated by firm size and controlled by firm age on return on assets of financial firms in Nigeria. The data were analyzed using STATA 15 and the outcome were used to test the formulated hypotheses. Various robustness tests were carried out to check the validity of the research results.

Model Specification

This study employs two different models for the purpose(s) of achieving the objectives. The first model captures the direct relationship between financial leverage (FL), interest rate risk (IRR); a control variable of firm age, the moderating variable (firm size) with return on assets without moderation. The second model captured the indirect relationship between financial leverage (FL) and interest rate risk IRR); a control variable of firm age as moderated by firm size with return on assets. The first model anchors the direct relationship between financial leverage (FL), interest rate risk (IRR); firm size (FSZ); a control variable of firm age with return on assets is specified as adapted from Abdul *et al.* (2019), Maniagi*et al.* (2017) and Ripon *et al.* (2018)as follows:

ROA = *f*(FLR, IRR, FSZ, FAG)

The expression in equation one is express econometrically as follows:

$ROA_{it} = \alpha + \beta_1 FLR_{it} + \beta_2 IRR_t + \beta_3 FSZ_{it} + \beta_4 FAG_{it} + e_{it}$……. (Model I)

Where:

β_1, β_2 = Coefficients of proxies of independent variable.
β_3 = A coefficient of moderating variable
β_4 = A coefficient of control variable
ROA= Return on Assets
α = Constant
FLR = Financial Leverage Risk
IRR = Interest Rate Risk
FSZ = Firms' Size
FAG = Firms' Age
e = Error term
i = Firms
t = Periods and
f = Functional relationship.

The second model of the study is specified to establish the indirect relationships of the independent variables moderated by firm size. However, in the second model, the researcher collectively captured both the direct and indirect relationship of financial leverage risk (FLR), interest rate risk (IRR), firm age and firm size as they affect ROA. The model is, therefore, specified below:
Specifically, the functional linear equation is presented as adapted from Qamar*et al.* (2016) as follows:
ROA = *f*(FLR + IRR + FSZ + FSZ*FLR + FSZ*IRR + FA
Econometrically, the above function is rewritten as:
$ROA_{it} = \alpha + \beta_1 FLR_{it} + \beta_2 IRR_t + \beta_3 FSZ_{it} + \beta_4 FSZ*\beta_4 FLR_{it} + \beta_5 FSZ*\beta_5 IRR_t + \beta_6 FA_{it} + e_{it}$..(Model II)

Where:
ROA = an indicator representing return on assets (proxy for dependent variable);
α = Intercept term (a constant);
β_1, β_2, β_4 and β_5= Coefficients of the proxies of independent variable;
β_3= Coefficient of moderating variable.
B_6 = A coefficient of control variable;
FLR= a predictor representing Independent Variable (financial leverage risk);
IRR = a predictor representing Independent Variable (interest rate risk);
FSZ = a predictor representing moderating variable (firm size)
FA= a predictor representing control variable (firm age);
e = Stochastic error term;
i = Firm
t = periods; and
f = Functional relationship.
A-proiri expectations : β_1, β_2, β_4, $\beta_5 < 0$
These a-priori expectations mean that increase in risk will reduce the profitability of quoted financial firms in Nigeria.

Variables Measurement and Justification
Table 1 below explains the variables under study.

Variable	**Acronym**	**Type of variable**	**Measurement**	**Justification**
Return on Assets	ROA	Dependent	Profit after tax divided by total assets.	Ripon *et al*. (2018); Robert and Mohamed (2015); and Syed (2013).

Financial Leverage Risk	FLR	Independent	This is total debt divided by total equity.	Ripon *et al*. (2018); Robert and Mohamed (2015); and Syed (2013).
Interest Rate Risk	IRR	Independent	This is a market prevailing lending rate.	Fauziah*et al*. (2009); and Kihara and Mirie (2017).
Firm Size	FSZ	Moderator	Natural log of total assets.	Qamar*et al*. (2016).
Firm Age	FAG	Control	This is the difference between the year of incorporation and the year 2019.	Isaac *et al*. (2017).

Source: Researcher's compilation, 2021.

RESULTS AND DISCUSSION

The data analysis was carried out using descriptive statistics, Shapiro-Wilk normality test, Pearson correlation, Heteroskadasticity test, Hausman specification test, Lagrangian Multiplier Test and Random effect regression model.

Descriptive Statistics

Table 2 below is the descriptive statistics that summarises the entire data set.

Variable	Obs	Mean	Std.Dev.	Min	Max
ROA	341	.011	.189	-.692	.231
FL	343	3.833	11.036	.004	14.029
IRR	352	27.194	2.352	23.79	30.6
FSZ	343	7.602	1.007	4.864	9.936
FAG	352	35.659	15.270	8	74

Source: Researcher's Computation using STATA 15 software

Table 2 shows that the return on assets (ROA) has a minimum value of -.692, a maximum value of 0.231 and a mean value of 0.011 that is within the minimum and maximum values indicating a good spread within the period studied. The Table also reveals that (ROA) has a standard deviation of .189 which is more than the mean, which implies that it had strong growth for the period under review.

Table 2 also shows that financial leverage (FL) has a minimum value of .004, a maximum value of 14.029and a mean value of 3.833 that is within the minimum and maximum indicating a good spread within the period studied. The table also reveals that FL has a standard deviation of 11.036 that is more than the mean, which implies that it had strong growth during the period under review.

Table 2 equally shows that the interest rate risk (IRR) has a minimum value of 23.791, a maximum value of 30.6 and a mean value of 27.194 that is within the minimum and maximum values indicating a good spread within the period studied. The Table also reveals that IRR has a standard deviation of 2.352 that is less than the mean, which implies that it had a slow growth for the period under review. Table 2 further shows that firm size (FSZ) has a minimum value of 4.864, a maximum value of 9.936 and a mean value of 7.602 that is within the minimum and maximum indicating a good spread within the period studied. The table also reveals that FSZ has a standard deviation of 1.007 that is less than the mean, which implies that it had a slow growth during the period under review. Table 2 shows that the firm age (FAG) has a minimum value of 8, a maximum value of 74 and a mean value of 35.659 that is within the minimum and maximum values indicating a good spread within the period studied. The Table also reveals that FAG has a

standard deviation of 15.270 that is less than the mean, which implies that it had a slow growth for the period under review.

Shapiro Wilk Normality Test

Table 3and figure 1 below presents the results of the normality test conducted with the use of Shapiro-Wilk test and normal distribution curve.

Variable	OBS	W	V	Z	Prob>Z
Residual	341	0.81762	43.540	8.912	0.00000

Source: Researcher's Computation using STATA 15 software

Figure 1: Normal Distribution Curve

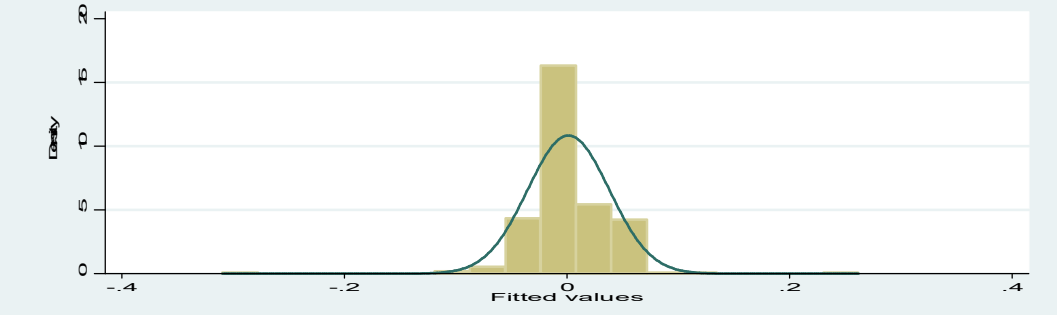

Table 3 above shows the residual and the z value of 8.912and the corresponding probability of value of 0.000 that is less than 0.05 which signifies that the residual is not normally distributed around the mean. This result is further collaborated by the normal distribution curve presented in figure 1 above. This implies that one of the basic assumptions of linear regression technique which allows only normally distributed residual has been violated, which is corrected using robust regression technique.

Correlation Matrix

Table 4 below is the Pearson correlation matrix for the data set to show the extent of interdependent variables.

Variable	ROA	FL	IRR	FSZ	FAG	FSZ_FL	FSZ_IRR
ROA	1						
FL	-0.0489	1					
IRR	-0.0484	-0.034	1				
FSZ	-0.0175	0.2307*	0.0920	1			
FAG	-0.0616	0.2396*	0.01000	0.2239*	1		
FSZ*FL	0.3824*	-0.5697*	-0.0755	0.0699	-0.1176*	1	
FSZ*IRR	0.9986*	-0.0512	-0.0457	-0.0093	-0.0656	0.3908*	1

Source: Researcher's Computation (2021) Using Stata 15
* = Significant

The correlation matrix determines the degree of relationships between the proxies of an independent variable and the dependent variable. It also shows whether there is an association

among the proxies of independent variables themselves, to detect if a multicollinearity problem exists in the model. The table 4 shows a negative and weak relationship between financial leverage (FL) and return on assets (ROA) of quoted financial firms in Nigeria, from the correlation coefficient of -0.0489. Also, the table shows 4% negative and weak association between interest rate risk (IRR) and return on assets (ROA) of quoted financial firms in Nigeria, from a correlation coefficient of -0.0484. The table also indicates 2% negative and weak relationships between firm size (FSZ) and return on assets (ROA) of quoted financial firms in Nigeria, from a correlation coefficient of -0.0175. The table indicates 6% negatively and weak relationships between firm age and return on assets (ROA) of quoted financial firms in Nigeria, from a correlation coefficient of -0.0616.

The table also indicates that firm size interacting with financial leverage risk and return on assets negatively increases the level of relationship to 38%, from a correlation coefficient of 0.3824 which is also significant at 5% level of significance. The table further indicates that firm size interacting with interest rate risk and return on assets negatively increases the level of relationship to 99%, from a correlation coefficient of 0.9986 which is also significant at 5% level of significance. Finally, the relationships between the proxies of the independent variable themselves suggest being mild as all coefficients are below the threshold of 0.85 as suggested by (Gujarati, 2003). This indicates the absence of multicollinearity in the model and fulfils one of the assumptions of linear regression.

Heteroskedasticity Breusch-Pagan Test

Heteroskedasticity Breusch-Pagan tests whether or not the estimated variance of the residuals from regression is dependent on the values of the independent variables.

Table 5 below shows the diagnostic test results using Heteroskedasticity Breusch-Pagan

Type of test	F-Test	P-Value
Heteroskedasticity Breusch-Pagan	32.32	0.00

Source: Researcher's Computation (2021) Using Stata 15

The Heteroskedasticity Breusch-Pagan is a statistical test that establishes whether or not the residual variance of a variable in a regression model is constant or not constant over time. Table 45 revealed the null hypothesis that there is no constant variance in the model is accepted. This is because the F-statistic of 32.32 and a probability value of 0.00 for the model is statistically significant at 1% alpha level (p-value < 0.05). This means that there is a presence of heteroskedasticity in the model. To address this heteroskedasticity problem, a robust random effect regression technique was used to estimate the model.

Hausman Specification Test

Table 6 below is the result of a Hausman specification test conducted to determine which of the model, Fixed effect or Random effect would be used for estimation.

Type of test	Chi2	P-Chi2
Hausman Test	144.94	0.4321

Source: Researcher's Computation (2021) Using Stata 15

The result from Table 6 depicts a probability > chi2 of 0.4321, a value that is higher than 0.05. This result implies that the null hypothesis which states that the difference in coefficient is not

systematic is accepted, indicating that the random effect estimation is the most appropriate model for this study.

Breusch-Pagan Lagrangian Multiplier Test for Model 3

Table 7 below presents the result of the Breusch-Pagan Lagrangian Multiplier test conducted.

Variable	Chibar2	P-Value
ROA	990.97	0.00

Source: Researcher's Computation 2021 using STATA 15 software

Considering the result of Random Effect Model (REM) regression, the Breusch-Pagan Lagrangian Multiplier test was conducted to give an insight into an actual test to be carried out between Random Effect Model and Pooled Ordinary Least Square Regression. From the Breusch-Pagan Lagrangian Multiplier test, the chibar2 value of (990.97) and the probability of (0.00) in table 7 above, therefore, suggests that REM is more appropriate instead of Pooled Ordinary Least Square.
In this section, the regression result of model one (1) of the study is presented and the findings are discussed:

Model One (Without Moderation)

Table 8: The Robust Random Effect Regression Result (Model One)

Variables	Coefficient	Z-values	p-values
Constants	6.280779	18.54	0.000
FL	.0001587	0.18	0.860
IRR	.0283038	5.36	0.000
FSZ	-.4726198	-2.21	0.027
FAG	.0149282	1.72	0.086
R-Squared	0.4960		
Wald chi2	48.51		
Prob>chi2	0.0000		

Dependent Variable: ROA

Source: Researcher's Computation (2021) Using Stata 15

Results from Table 8 above reveal an overall coefficient of determination (R-sq) of 0.496 which means that the proxies (FL and IRR) of the independent variable controlled by companies age (FAG) and the variable of the moderator (Firm Size) without moderating have an approximately 50% combined effect on the systematic changes in the dependent variable (ROA) during the period under review. The Wald chi2 of 48.51 and the corresponding prob. >chi2 of 0.00 indicates that the model is fit and reliable for decision making. This indicates that the explanatory powers of risk management (FL and IRR) with a control variable of companies age and the moderator variable of the firm size used for the study are suitable for the study.

Model Two (With the Moderator)

The study analysed the data using the moderator; based on the moderated data, the researcher subjected the data to the normality's test and the Hausman test shows that the random effect model is appropriate for the second model is presented below. Table 9 presents the results of the robust random effect regression model of the study from which the hypotheses are tested.

Table 9: Results of robust random effect model regression.

Variables	Coefficients	Z-Value	Prob.
FL	.0004624	0.32	0.752
IRR	.0280825	6.74	0.00
FSZ	-7.336365	-6.96	0.00
FAG	.0154819	1.78	0.075
FSZ*FL	.0059767	0.32	0.749
FSZ*IRR	.2588265	7.23	0.00
CONS.	6.265896	18.34	0.00
R.sq	0.65		
F-Statistic	187.66		
Prob> F	0.00		

Dependent Variable: ROA
Source: Researcher's Computation (2021) Using Stata 15

Results from Table 9 above reveal an overall coefficient of determination (R-sq) of 0.65 which means that the proxies (FL and IRR) of the independent variable and control variable (FAG) moderated by firm size used in this study have an approximately 65% combined effect on the systematic changes in the dependent variable (ROA) during the period under review. The Wald chi2 of 187.66 and the corresponding prob. >chi^2 of 0.00 indicates that the model is fit and reliable for decision making. This indicates that the explanatory powers of risk management (FL and IRR) moderated by firm size used for the study are suitable for the study of the risk management and financial performance of firms in Nigeria: Firm size as a moderator.

Test of Hypotheses

In examining the risk management and financial performance of firms in Nigeria: Firm size as a moderator, the following hypotheses were tested using a robust random effect regression model.

Based on Model One (Without the Moderator)

H_{01}: Financial leverage risk has no significant effect on return on assets of quoted financial firms in Nigeria.

The result in table 8 shows that financial leverage has a z-value of 0.18 and a beta coefficient of .0001587, with a p-value of 0.860 which is not significant at all levels of significance. This means that financial leverage has an insignificant effect on return on assets of quoted financial firms in Nigeria and, therefore, the null hypothesis three is accepted.

H_{02}: Interest rate risk has no significant effect on return on assets of quoted financial firms in Nigeria.

The result in table 8 shows that interest rate risk has a z-value of 5.36 and a beta coefficient of .0283038, with a p-value of 0.00 which is significant at 1%. This means that interest rate risk has a significant effect on return on assets of quoted financial firms in Nigeria and, therefore, the null hypothesis four is rejected.

Based on Model Two (With the Moderator)

H_{03}: Firm size has no significant moderating effect on financial leverage risk and return on assets of quoted financial firms in Nigeria.

Table 9 presents the results of the explanatory powers of financial leverage in explaining return on asset, when moderated with firm size, to see whether financial leverage risk and return on asset of quoted financial firms in Nigeria has changed when applied with firm size. The result reveals a positive beta coefficient value of .0059767; a z-value of 0.32 with a p-value of 0.749. This implies that financial leverage with the interaction of firm size has an insignificant statistical effect in explaining the return on assets of quoted financial firms in Nigeria. As observed from table 8 above, the result of financial leverage without moderation is insignificant positive at all levels of significance whereas the indirect relationship of financial leverage in table 9 as moderated by firm size also has an insignificant positive effect on return on assets of quoted financial firms in Nigeria. This, therefore, implies that firm size does not moderate the relationship between financial leverage and return on assets of quoted financial firms in Nigeria. This result also gives the basis for failing to reject the null hypothesis three which states that firm size has no significant moderating effect on financial leverage risk and return on assets of quoted financial firms in Nigeria.

H_{04}: Firm size has no significant moderating effect on interest rate risk and return on assets of quoted financial firms in Nigeria.

Table 9 finally presents the result of the explanatory powers of interest rate risk in explaining return on asset, when moderated with the firm size. The question is whether the interest rate risk and return on assets of quoted financial firms in Nigeria have changed when moderated with firm size? In addressing this question, the beta coefficient of interest rate risk when moderated with firm size, reveals a positive beta coefficient value of .2588265; a z-value of 7.23 with a p-value of 0.00. This implies that interest rate risk with the interaction of firm size is significant at 1% level of significance, in explaining the return on assets of quoted financial firms in Nigeria. As observed from table 8 above, the result of interest rate risk without moderation is significant at 1% while the indirect relationship of interest rate risk in table 9 as moderated by firm size has a positive significant effect on return on assets of quoted financial firms in Nigeria. This, therefore, implies that firm size moderates the relationship between interest rate risk and return on assets of quoted financial firms in Nigeria. This result gives the basis for rejecting the null hypothesis four which stated that firm size has no significant moderating effect on interest rate risk and return on assets of quoted financial firms in Nigeria.

Discussion of Findings

The study further reveals that financial leverage has an insignificant positive effect on return on assets of quoted financial firms in Nigeria. This implies that an increase in financial leverage will result in an increase in return on assets of quoted financial firms in Nigeria by .0001587. This finding is not in consonance with the researcher's a-priori expectation but is in line with trade-off theory becausethe theory supports financial leverage risk since as the level of debt increases, the fixed charge interest expense also increases exposing private equity firms to lower interest coverage. The finding also is in agreement with the findings of Enekwe *et al.* (2014), and Robert and Mohamed (2015). However, the finding is at variance with the findings of Abdul *et al.* (2021), Ahmadu and Abdulkarim (2019).

The study reveals that interest rate risk has a significant positive effect on return on assets of quoted financial firms in Nigeria. This implies that an increase in interest rate risk will result in an increase in return on assets of quoted financial firms in Nigeria by .0283038. This finding is not in line with the researcher's a-priori expectation but supports trade-off theory becausethe theory supports interest rate risk since as the level of debt increases, the fixed charge interest expense also

increases exposing private equity firms to lower interest coverage. The finding is in line with the empirical findings of Alhassan *et al.* (2018), Duncan *et al.* (2018), Fauziah *et al.* (2009).

The study reveals that financial leverage risk with the interaction of firm size has an insignificant statistical effect in explaining the return on assets of quoted financial firms in Nigeria. The result of financial leverage risk without moderation is insignificant positive at all levels of significance whereas the indirect relationship of financial leverage as moderated by firm size also has an insignificant positive effect on return on assets of quoted financial firms in Nigeria. This, therefore, implies that firm size does not moderate the relationship between financial leverage and return on assets of quoted financial firms in Nigeria. This result does not conform to the a-priori expectation of the researcher but is in line with trade-off theory becausethe theory supports financial leverage risk since as the level of debt increases, the fixed charge interest expense also increases exposing private equity firms to lower interest coverage.

The study reveals that that interest rate risk with the interaction of firm size is significant at 1% level of significance, in explaining the return on assets of quoted financial firms in Nigeria. The result of interest rate risk without moderation is significant at 1% while the indirect relationship of interest rate risk as moderated by firm size has a positive significant effect on return on assets of quoted financial firms in Nigeria. This, therefore, implies that firm size moderates the relationship between interest rate risk and return on assets of quoted financial firms in Nigeria. This result does not conform to the a-priori expectation of the researcher but supports trade-off theory becausethe theory supports interest rate risk since as the level of debt increases, the fixed charge interest expense also increases exposing private equity firms to lower interest coverage.

Conclusion and Recommendations

The management of financial firms in Nigeria must use a high leverage level to enhance their profitability. The high leverage level will put the managers on their toes and check their financial excesses, empire-building and enhance their operational efficiencies which in turn increases the profitability level of financial firms in Nigeria. The management of financial firms in Nigeria must sustain the management of their interest rate risk to enhance their profitability. Effective management of interest rate risk will enhance the profitability of financial firms in Nigeria.

The management of firms in the financial sector must also put their size into consideration, as the size of the firm is the moderating factor influencing interest rate risk and profitability of quoted financial firms in Nigeria. The firm size must be considered when taking decisions regarding interest rate risk and profitability as it moderates the relationship between interest rate risk and profitability of quoted financial firms in Nigeria.

The firm size also is not a considerate factor in the decision regarding leverage in financial firms in Nigeria, as the size of the firm is not a moderating factor influencing financial leverage and profitability of quoted financial firms in Nigeria. The firm size must not be put into consideration when taking decisions regarding financial leverage and profitability as it does not moderate the relationship between financial leverage and profitability of quoted financial firms in Nigeria.

Based on the above conclusions, the following recommendations are made:

(i) The management of financial firms in Nigeria should use a high leverage level of ratio 60:40 to enhance their profitability level. The highly levered firms will bring checks and balances to the organisations and resolves some agency problems which in turn enhance their profitability level in Nigeria.

(ii) The management of financial firms in Nigeria should sustain the management of their interest rate risk by ensuring that the interest rate charge is gauged by the prevailing inflation rate in Nigeria to enhance their profitability level.
(iii) The management of firms in the financial sector should also put their size into consideration before taking decisions in respect of interest rate risk to enhance the profitability of quoted financial firms in Nigeria.
(iv) The firm size should also not be put into consideration when taking decisions regarding financial leverage and profitability as it does not moderate the relationship between financial leverage and profitability of quoted financial firms in Nigeria.

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