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Moderating Effect of Firm Size on Risk Management and Profitability of Quoted Financial Firms in Nigeria

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ABSTRACT
The exposure to risk at both the individual and corporate levels has become a very serious issue for survival in life. Nigeria had for several years been experiencing one form of financial distress or the other. The series of poor performance experienced by financial firms in Nigeria were attributedto inadequate risk management. This study examines the moderating effect of firm size on risk management and profitability of quoted financial firms in Nigeria, 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 liquidity risk has asignificant positive effect on return on asset of quoted financial firms in Nigeria while market risk has an insignificant positive effect on return on asset of quoted financial firms in Nigeria. The study further reveals that market risk without moderation is insignificant positive at all levels of significance whereas the indirect relationship of market risk as moderated by firm size has a significant negative effect on return on assets. This, implies that firm size moderates the relationship between market risk and return on assets of quoted financial firms in Nigeria.The study recommends among others, that the financial firms should manage their liquidity level by striking a balance between excess cash and cash trapping by maintaining the industry standard of 2:1 to enhance their profitability level in Nigeria. Also, the management of financial firms in Nigeria should maintain appropriate market risk by ensuring that they make adequate provisions for foreign exchange to minimise its negative effect on their operations and enhance their profitability level in Nigeria.

Keywords: *Moderating Effect, Firm Size, Risk Management, Profitability, Quoted Financial Firms, Nigeria*

INTRODUCTION

In business, it is impossible to avoid all kinds of risks. Most risk-taking activities are associated with opportunities. Hence, companies' managers need to be intelligent enough in managing their risks not only to grasp the benefit out of it but also to survive in business. Risk management has a strong inspirational effect on the major shareholders to invest more in the organization. This investment is a weapon for the company to provide better business opportunities which ultimately leads to a long-lasting competitive advantage. Ineffective risk management results in extra costs and costly lower tail outcomes on both the company and stockholders (Andersen, 2008). It is imperative to gauge risk with firms' profitability performance.

Profitability is a concept explaining the success of a firm or a reflection of the fulfilment of the organization's objectives. It describes how a firm had performed over some time. Firm performance refers to a firm ability to achieve its goal through the application of available resources efficiently and effectively (Asat*et al*., 2015). This is expressed on return on assets (ROA) which measures how much one naira of assets generates the net income. The company is more profitable when the

return on assets (ROA) is high. Return on assets (ROA) expresses the corporate efficient management to generate the net income from the firms' resources (Khrawish, 2011).

Liquidity risk usually arises from financial firms' management inability to adequately anticipate and plan for changes in funding sources and cash needs. Efficient liquidity management requires maintaining sufficient cash reserves on hand while also investing as much funds as possible to maximize earnings. According to Sufian and Kamarudin (2011); and Dang (2011), an adequate level of liquidity is positively related to firms' profitability performance. Market risk management provides a comprehensive and dynamic framework for measuring, monitoring and managing market-related factors like foreign exchange and equity risks associated with banks that need to be closely integrated with the bank's business strategy. An effective market risk management by financial firms will enhance profitability performance. Hannie and Sonja (2009) argue that market risk occurs when an entity experiences loss from unfavourable movements in market prices resulting from changes in prices of fixed-income instruments, commodities, equity instruments and currencies, which need to be effectively managed by firms to enhance their profitability.

The size of the firm determines its 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 profitability of financial 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.

The financial crisis in the banking sector in Nigeria in 2009 which led to the financial sector reforms by the Central Bank of Nigeria (CBN) has made risk management and compliance become top priorities for banks and other financial institutions. Financial sector players now realise that it is too costly to ignore risk management. To preserve the integrity and stability of the financial system, the CBN has mandated banks to implement enterprise-wide risk management and Basel II. The Basel II Pillar 2 mandated supervisors to provide an extra set of eyes to verify that banks understand their risk profile and are sufficiently capitalised against risks that they face.

Nigeria had for several years been experiencing one form of financial distress or the other. The series of poor performances experienced by financial firms in Nigeria were attributedto inadequate risk management, poor monitoring systems and ineffective board members (Dabari & Saidin, 2015). The Central Bank of Nigeria (CBN) audit report classified eight deposit money banks in serious financial grief (Sanusi, 2010). In all these instances, inadequacies of the risk management programmes were cited as the primary causes of poor firms' performance in Nigeria (IMF, 2013). Most recent studies like Igbinosa and Ogiemudia (2020), Isam and Malik (2020), Kaodui (2020), LiMei*et al.* (2020) which were conducted on risk management were done in other countries, with very few studies like Ofeimun, *et al*. (2019) done in Nigeria.

The empirical works have shown that some of the studies like Enekwe*et al*. (2017); and Kola and Yusuf (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 Igbinosa and Ogiemudia (2020), Isam and Malik (2020), Kaodui (2020), LiMei*et al*. (2020), carried out in recent times of

2020 regarding liquidity risk, market risk and profitability of quoted financial 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.

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, moderating effect of firm size on risk management and profitability of quoted financial firms in Nigeria, 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 moderating effect of firm size on risk management and profitability of quoted financial firms in Nigeria. The study specifically intends to:(i) determine the effect of liquidity risk on return on asset of quoted financial firms in Nigeria; (ii) assess the effect of market risk on return on asset of quoted financial firms in Nigeria; (iii) determine the moderating effect of firm size on liquidity risk and return on asset of quoted financial firms in Nigeria; and (iv) ascertain the moderating effect of firm size on market risk and return on asset 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}: Liquidity risk has no significant effect on return on assets of quoted financial firms in Nigeria.H_{02}: Market 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 liquidity risk and return on assets of quoted financial firms in Nigeria.H_{04}: Firm size has no significant moderating effect on market risk and return on assets of quoted financial firms in Nigeria.

REVIEW OF RELATED LITERATURE

Conceptual Framework

The conceptual framework adapted for this study is made up of Risk Management (proxies by liquidity risk and market 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.

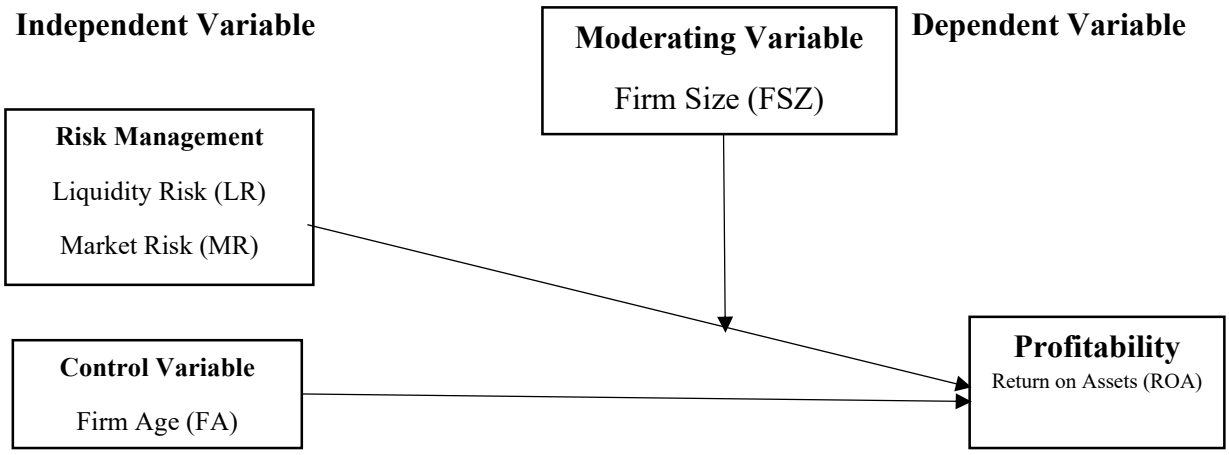

Figure 1: Conceptual Framework of the Study

Risk Management

According to Pym (1987) Risk management is the identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor and control the probability and impact of unfortunate events. According to Christoffersen (2012), the risk is the possibility of unfavourable events occurring in future. Financial risk results from uncertainties associated with defaults on loans advanced, volatility of interest rates, liquidity management and changes in foreign exchange rates. Decisions involving financial institution activities, therefore, have an element of risk, which has effects on the overall performance and value of the firm (Schonborn, 2010). Liquidity risk arises due to a firm inability to meet its obligation without incurring losses, thus it's a risk of being unable to liquidate a position at a reasonable price and timely (Arif&Anees, 2012).

The Committee for Sponsoring Organizations (2004: 2) of the Trade way Commission defined Enterprises Risk Management (ERM) 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 risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives."*

ERM is a process for total risk management and is the focus of all strategic management efforts (Moody, 2003) to give companies a long-run competitive advantage. Deloach and Andersen (2000: 5) states that ERM is "a structured and disciplined approach: it aligns strategy, processes, people, technology and knowledge to evaluate and manage the uncertainties the enterprises face as it creates value."

In the opinion of Issack and Mutswenye (2022) Risk is defined as anything that can create hindrances in the way of the achievement of certain objectives. It can be because of either internal factors or external factors, depending upon the type of risk that exists within a particular situation. Abdullahi (2013) defines risk management as a process by which an organization identifies and analyses threats, examines alternatives and mitigate the threats before they obstruct activities of the organization for improved financial performance.

Profitability as a Measure of Performance

Zayol et al (2018) considered the word 'Performance is derived from the word 'parfourmen', which means 'to do', 'to carry out' or 'to render'. It refers to the act of performing; execution, accomplishment, fulfilment among others (Agrawal & Knoeber, 1996). In a broader sense, performance refers to the accomplishment of a given task measured against preset standards of accuracy, completeness, cost and speed. In other words, it refers to the degree to which, (Ramakrishna & Shaitanya, 2014 August, 3) achievement is being or has been accomplished. Cho and Pucik (2005) agree that financial performance as a method to satisfy investors can be represented by profitability, growth and market value. A company's performance means how good is the position of a company, and how efficiently a company is using its assets to earn more revenues and enlarge its operations.

Performance is a concept that explains the extent to which an organization achieves its objectives. It indicates how organisations have been peering over time (Saeidi*et al*., 2014). Firm performance is an indicator that helps to evaluate and measure how an organization succeeds in realizing business objectives to all its stakeholders (Antony & Bhattacharyya, 2010). Firm performance refers to a firm's ability to achieve its goal through the application of available resources efficiently

and effectively (Asat*et al*., 2015). The return on assets (ROA) ratio expresses how much one naira of assets generates the net income. The company is more profitable when the return on assets (ROA) is high. This study adopts return on assets (ROA) as a financial performance measure.

Liquidity Risk

Liquidity risk is defined as the risk of being unable either to meet their obligations as they fall due or to fund increases in assets as they fall due without incurring unacceptable costs or losses (Ismail, 2010). Liquidity risk is the possibility of negative effects on the interests of owners, customers and other stakeholders of the financial institution resulting from the inability to meet current cash obligations in a timely and cost-efficient manner. Liquidity risk concerns the inability of the company to reduce its liabilities and increase its assets. The liquidity risk of any company is measured by taking the liquid assets over liabilities (Al-Khouri, 2011).

This is the risk arising when security or asset cannot be traded quickly in the market to avoid a loss or to make some required amount of profit. It arises mainly because of the uncertainties involved in the trading of liquidity assets of an institution or organization. In simple words, it refers to a situation when a party cannot able to trade its asset in the market as because of the nonparticipation of other parties involved in trading. It is very much important for those parties who want to hold their current assets with them and not interested in trading. Liquidity risk is the risk stemming from the lack of marketability of an investment that cannot be bought or sold quickly enough to prevent or minimize a loss. According to Wikipedia, it is the risk that a given security or asset cannot be traded quickly enough in the market to prevent a loss. The Basel Committee issued its "Principles for Sound Liquidity Management and Supervision which gave two concepts of liquidity, funding liquidity and market liquidity. Funding liquidity refers to the ease with which an organisation can attract funding. Market liquidity is high if it's easy for an organisation to raise funds by selling an asset, other than borrowing against it as collateral. Liquidity becomes a risk factor if the magnitude of impact changes randomly over time (Clemens *et al.,* 2015). Therefore, this study defines liquidity risk as the ratio of current assets of financial firms over the liabilities falling due within a year.

Market Risk

This is the risk where the value of an investment portfolio or trading portfolio will expect to decline due to the change in the value of the market risk factors. Sethi*et al*. (2013) define market risk as the possibility of loss to firms caused by the changes in the market variables. It is the risk that the value of on/off financial positions will be adversely affected by movements in equity and interest rate markets, currency exchange markets and commodity prices, (Reserved Bank of Indian, 2002). This market risk is divided into four types such as equity risk (volatility in stock prices), interest rate risks (volatility in interest rates), currency risks (volatility in foreign exchange rates) and commodity risks (volatility in commodity prices).

Market risk occurs when an entity experiences loss from unfavourable movements in market prices resulting from changes in prices of fixed-income instruments, commodities, equity instruments, off-financial position contracts, and currencies (Hannie& Sonja, 2009). Market risk is the loss arising from adverse changes in market rates and prices such as commodity prices and equity prices (Othman & Ameer, 2009). Market risk is the possibility for an investor to experience losses due to factors that affect the overall performance of the financial markets in which he is involved. This study defines market risk as volatility in foreign exchange rates.

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

According to Niresh and Velnampy (2014), firm size is a primary factor in determining the profitability of a firm due to the concept of economies of scale in the neoclassical view of the firm. Akinyomi and Olagunju (2013) showed that in today's world firm size is very critical to performance due to the phenomenon of economies of scale. Essentially, it means larger entities can obtain cost leadership relative to smaller firms. Firms size is seen by firms as a resource in obtaining sustainable competitive advantage in terms of profit and market share.

Wu (2006) in Prasetyantoko & Parmonon (2012) argued that larger firms have stronger competitive capability than smaller ones as a result of their superior access to resources and good risk management techniques. Thus, while size has been accepted as the main feature in the firm performance debate (Niresh &Velnampy, 2014; Akinyomi & Olagunju, 2013; Cabral & Mata, 2003; Prasetyantoko & Parmono, 2012), it is not clear how it affects the actual profitability performance dynamics. Firm size is thus introduced as a moderator in determining its interaction effect in the relationship between risk management and profitability performance.

Theories Underpinning

Shiftability Theory of Liquidity

This theory was formally developed by Harold G, Moulton in 1915, the shiftability theory held that banks could most effectively protect themselves against massive deposit withdrawals by holding, as a form of liquidity reserve, credit instruments for which there exist a ready secondary market. The theory is based on the proposition that banks liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. Also, these assets could be shifted to the Central Bank for cash without a material loss in case of necessity than relying on maturities to solve their liquidity problems (Ngwu, 2006). This theory posits that a bank's liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. This point of view contends that a bank's liquidity could be enhanced if it always has assets to sell and provided the Central Bank and the discount market stands ready to purchase the asset offered for a discount. Thus, this theory recognizes and contends that shiftability, marketability or transferability of a bank's assets is a basis for ensuring liquidity. This theory further contends that the highly marketable security held by a bank is an excellent source of liquidity. Dodds (1982) contends that to ensure convertibility without delay and appreciable loss, such assets must meet requisites. According to Dodds (1982), liquidity management theory consists of the activities involved in obtaining funds from depositors and other creditors and determining the appropriate mix of funds for a, particularly bank. Liquidity theory has been subjected to critical review by various authors. The general consensus is that during the period of distress, a bank may find it difficult to obtain the desired liquidity since the confidence of the market may have been seriously affected and credit worthiness would invariably be lacking. However, for a healthy bank, the liabilities constitute an important source of liquidity.

The liquidity shiftability theory provides for an explicit understanding of how the liquidity risk affects the financial performance using liquidity coverage and net stable funding ratios as stated by the new Basel III framework. The analysis of this study provides information as to whether liquidity maintained by the financial firms affect the returns to the shareholders.

Risk Management Theory

David (1997) developed risk management theory aiming to study why risk management was required and outlines theoretical underpinning under contemporary bank risk management; its

emphasis is on market and credit risks. The theory indicates that market and credit risks would have either a direct or indirect effect on banks survival (Eichhorn, 2004). One would expect the credit risk indicators to influence banks profitability if there is no effective and efficient credit risk management (Ngugi, 2001). This theory identifies the major source of value loss as Market risk being a change in the net value of an asset due to change in interest rate, exchange rate, equity and commodity prices (Wu & Olson, 2010).

Regulators are concerned with overall risk and have a minimum concern with the individual risk of portfolio components as managers are capable of window dressing the bank position. The need for total risk show that measurement of risk cannot be centralized as the risk of a portfolio is not just a sum of the component as per Markowitz theory. This implies that portfolio risk must be driven by portfolio return which is invariant to changes in portfolio composition (Beverly, 2015).

Regulatory requirements and alternative choices require managers to consider risk-return trade-off, measurement of risk is costly thus bank managers compromise between precision and cost (Sovan, 2009). The trade-off will have profound effects on any method adopted by the bank. They have one risk measurement goal knowing to a high degree with precision and the maximum loss that the bank will likely experience (Muhammad & Bilal, 2014). Regulators may set capital requirements to be greater than the estimated maximum loss to ensure non-failure. Risk management theory has two principal approaches to the measurement of risk, scenario analysis and value at risk (Sovan, 2009). The scenario analysis approach does not require a distribution assumption of the risk calculation and it's very subjective and assumes that future results will resemble those of the past (Wilfred, 2006).

Value At Risk (VAR) uses asset return distribution to estimate the potential losses. Monte-Carlo simulation and analytical VAR method are two principal methods of estimating VAR and they enable managers to estimate forecasts. They have the advantage of computational efficiency and tractability though they may show non-normal distribution experiencing fat tails reflecting inconsistency of return volatility. This method incorporates sound economic theory that incorporates market structure (Muhammad & Bilal, 2014). Where there is non-normal distribution student t is appropriate, it's useful for fat tails distribution since it's aimed at describing the behaviour of portfolio returns. Analytical value at risk uses standard portfolio theory; the return distribution is described in terms of variance and covariance representing risk attributes to a portfolio over the horizon (Sovan, 2009).

This study is underpinned by risk management theory and shiftability theory of liquidity. Risk management theory is relevant to this study because this theory emphasized that the regulators are concerned with overall risk and that the portfolio risk must be driven by portfolio return which is invariant to changes in portfolio composition. It also asserted that the regulatory requirements and alternative choices require managers to consider the risk-return trade-off between risk and return of firms. Shiftability theory of liquidity is also relevant to this study because the theory provides for an explicit understanding of how the liquidity risk affects the financial performance using liquidity coverage and net stable funding ratios. It provides information as to whether liquidity maintained by the financial firms affect the returns to the shareholders.

Empirical Review

Liquidity Risk and Profitability

LiMei *et al.* (2020) examines credit risk, operational risk, liquidity risk on profitability. A study on South Africa commercial banks. They sample all registered banks on the Johannesburg Stock Exchange (JSE) for the period 2012-2018. Smart PLS-SEM was employed to investigate the impact of the dependent variable on the independent variables. They found that credit risk (non-performing loan ratio, capital adequacy ratio, and cost per loan) has a significant positive association with bank profitability (ROA, ROE, NIM). They also found that liquidity risk (current ratio, acid-test ratio, cash ratio) shown a positive and significant connection with bank profitability. However, operational risk (portfolio concentration, bank leverage, lawsuit, resignation of key directors) indicated a negative affiliation with bank profitability. The bank-specific risk showed a positive and significant nexus with credit risk, operational risk, and liquidity risk. Its link with profitability was insignificant. The study recommends that commercial banks take proper management of their operational risk by diversifying their investments into portfolios that will yield return, management of their internal and external operations, and decrease their leverage levels. 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. However, the study was carried out in other environments 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.

Kaodui (2020) examines liquidity and firms' financial performance nexus: a panel evidence from non-financial firms listed on the Ghana stock exchange. Panel data extracted from the published annual reports of 15 entities for the period 2008 to 2017 was employed. The study used both casuality test and random-effects generalized least squares (GLS) regression. Estimates from the random effects generalized least squares (GLS) regression showed that liquidity has a significant adverse effect on the firms' Return on Equity (ROE) but had an insignificantly positive effect on ROE when surrogated by the cash flow ratio. Finally, a test based on causalities uncovered that, except Current Ratio and ROE that are flanked by the bidirectional liaison, no other causal affiliation was evidenced amid other variables. 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 other environments 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.

Isam and Malik (2020) examine the effect of credit risk, liquidity risk and bank capital on bank profitability: Evidence from an emerging market. They used a period of nine-year (2010–2018). They used panel data GMM methods. They found that credit risk, liquidity risk, and bank capital variables have an impact on bank profitability. They recommend that enforcing Basel requirements can improve the efficiency of the bank and increases profitability while barricading it from risk. 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.

Ofeimun *et al.* (2019) examine liquidity risk management as a determinant of financial performance of listed deposit money banks in Nigeria, from 2014 to 2018.They adopted descriptive, correlation and panel regression analysis as methods of data analysis. They found a significant positive relationship between liquidity risk management and financial performance of listed banks in Nigeria. They also indicate that credit risk management has a negative but

insignificant influence on the level of profitability. Their study also indicates that operational risk management has a positive but not significant relationship with financial performance of sampled banks. They recommend the need for deposit money banks to monitor and take a closer look at liquidity risk management and ensure appropriate liquidity which will go a long way in improving the financial performance of the banks. They used appropriate statistical tools of analysis to examine their panel data. Also, their study was carried out in 2019 and their data covered up to 2018 which enhance the currency of their study.

Calistus *et al.* (2018) investigate the effect of liquidity on financial performance of the sugar industry in Kenya. They sampled five sugar firms over the period 2005 to 2016 while a random-effects regression model was used to estimate the model. They found that a negative relationship exists between liquidity management on firm performance. They recommended that careful consideration and planning of funding liquidity management is one of the ways to financial performance and as such this study recommends that there is a need for the sugar industry firms to increase their operating cash flow, to positively influence their financial performance. They used appropriate statistical tools of analysis to examine their panel data. However, even though their study was carried out in 2018 their data covered only up to 2016 which affect the currency of their 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.

Lelgo and Obwogi (2018) investigate the effect of financial risk on financial performance of microfinance institutions in Kenya. They used 13 registered microfinance institutions as licensed by the Central Bank of Kenya as of 2018. Secondary data were retrieved from the MFIs' annual financial reports spanning 5 years between 2013 and 2017. They used an ordinary least square regression technique to estimate their model. They found that liquidity risk and credit risk have a significant effect on financial performance of microfinance institutions in Kenya. They recommend that microfinance institutions should review their credit rating policies to improve performance and reduce non-performing loans. In addition, to enhance their liquidity position, the microfinance institutions should maintain a sound level of current assets that can effectively cover their short-term obligations when they fall due. Their study was carried out in 2018 their data covered only up to 2017 which enhance the currency of their study. However, 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, 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.

Kola and Yusuf (2017) take a look at financial risk and financial flexibility: evidence from deposit money banks in Nigeria. They used an ex-post facto research design while secondary data were extracted from the audited financial reports of the banks within the period of the study covering ten years spanning from 2007 to 2016. Their data were analysed using the panel regression technique. They found that funding liquidity risk has a positive but insignificant effect on financial flexibility while solvency risk has a negative significant effect on financial flexibility. They recommend that management of Deposit Money Banks should strive towards expanding the customers' base to deposits frequency through the provision of enhanced financial services and this will enhance daily capital level in meeting their obligation. They used appropriate statistical tools of analysis to examine their panel data but combined data from both pre (2007-2011) and post (2012-2017) IFRS

implementation in Nigeria which affects their findings. Also, their study was carried out in 2017 and their data covered up to 2016 which enhance the currency of their study.

Enekwe *et al.* (2017) examine the effect of liquidity risk on financial performance of selected quoted commercial banks in Nigeria, covering six (6) years from 2009 – 2014.They used an ex-post facto research design while variables such as net operating profit margin (NOPM) for dependent variables and Deposits, Cash, Liquidity-Gap, Non-performing loans (NPLs) and Leverage ratio (LEV) for independent variables. Their model was estimated using the ordinary least squares technique. Descriptive statistics, Spearman rank-order correlation and regression analysis were applied for the analyses. They found that deposits, cash and non-performing loans have a positive relationship with net operating profit margin (NOPM), while liquidity-gap and leverage ratio have negative relationship with net operating profit margin (NOPM) of selected deposit money banks. They further found that deposits, cash and non-performing loans have a significant effect on net operating profit margin (NOPM); while liquidity-gap and leverage ratio have no significant effect on net operating profit margin (NOPM). They recommend that banks should establish the required cash in each product segment and maintain the optimal level which will help in reducing the cash balance level and increase their customer deposit base by making the product accessible to more customers especially the low-income earners. At the same time, banks should consider targeting the corporate clients who will be willing to retain a large cash base in the banks for a longer duration. They 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.

Market Risk and Profitability

Igbinosa and Ogiemudia (2020) examine market risk factors and banks' performance in ECOWAS countries. Panel data were collected from five ECOWAS countries from 1996 to 2016 and sourced from the World Bank database. Preliminary tests of descriptive statistics, panel group unit roots test, correlation analysis, panel co-integration test were carried out on the data set. They employed the panel regression technique of random effect method estimation based on the Hausman test. They found that all market risk factors considered have various degrees of relationship with bank performance. Among other things, the study specifically shows that Exchange rate risk is the most significant market risk factor that has a positive effect on bank performance in the ECOWAS region, while Oil price risk has the most significant negative effect on bank performance in the ECOWAS region. They recommended that bank directors in the ECOWAS region should focus more attention on monitoring and managing oil price fluctuations to boost their financial performance. 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 2016 which affect the currency of the study.

Kiokoet *al.* (2019) examine the effect of financial risk on financial performance of commercial banks in Kenya listed on the Nairobi stock exchange. The research targeted a population of all the 44 commercial banks in Kenya. The study had a sample of 11 listed commercial banks in the Nairobi Stock Exchange. The study was researched for 5 years of 2014-2018. The research design used during the study was descriptive. Secondary data for the 11 commercial banks were obtained from published bank's financial statements and annual reports. Analysis of the data was done using the OLS multiple regression model. The study finds that market risk, credit risk and operational

risk had a significant negative effect on financial performance, while liquidity risk had a negative insignificant effect on financial performance. The study recommends that commercial banks should reduce the level of nonperforming loans to manage credit risk, commercial banks should develop policies that enable a good environment for the operation to manage market risk, commercial banks should adhere to statutory requirements on liquidity risk to control and manage liquidity risk and the managers of commercial banks should reduce their operating expenses to improve their shareholders' wealth which will lead to managing operational risk 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, 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. However, the study was carried out in 2019 the data covered only up to 2018 which enhance the currency of the study.

Diby*et al.* (2019) examine market risk and financial performance of non-financial companies listed on the Moroccan stock exchange**.** They studied 31 non-financial companies listed on the Casablanca Stock Exchange (CSE) over the period 2000-2016. They utilize three variables to assess financial performance, namely return on assets, return on equity and profit margin. They also use the degree of financial leverage, the book-to-market ratio, and the gearing ratio as market risk variables. They employed a pooled OLS model, the fixed effects model, the random-effects model, the difference GMM and the system GMM models. Their results showed that market risk indicators have a negative and significant influence on the companies' financial performance. The elasticity is greater following the book-to-market ratio compared to the degree of financial leverage and the gearing ratio, respectively. In most cases, the firm size, the tangibility ratio, and the cash holdings ratio have a positive effect on financial performance, whereas the firms' age, the debt-to-income ratio, stock turnover, and leverage hurt the performance of these non-financial companies. They recommend that the decision-makers and managers should mitigate market risk through appropriate strategies of risk management, such as derivatives and insurance techniques. They used appropriate statistical tools of analysis to examine their panel data. However, even though their study was carried out in 2019 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.

Abdul *et al.* (2019) examine the impact of market risk and fair value measurement on the financial performance of public corporations in Malaysia, coving the period of 2007 to 2016. Primary data was used to collect data on fair value, whereas secondary data was used to collect market risk while panel regression analysis was used to establish the model. They found that there is no significant relationship between market risk and financial performance of public corporations in Malaysia. There is a strong relationship between fair value measurement and financial performance. They recommend including other variables such as exchange rate and financial leverage due to which the relationship with market risk could be further analyzed. They used appropriate statistical tools of analysis to examine their panel data. However, even though their study was carried out in 2019 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.

Wangalwa and Willy (2018) investigate the effect of financial risk on financial performance of large-scale supermarkets in Nairobi County, Kenya. They used a descriptive research design with aquantitative approach. Their target population was 13 large-scale supermarkets licensed by the countygovernment of Nairobi. Secondary data for this study was collected using data collection sheets filled by accountants of various supermarkets in Nairobi County. Collected data were analyzed using both descriptive and inferentialstatistics with the aid of SPSS Version 23. Multi regression OLS analysis was used to establishthe effect of financial risk on financial performance of supermarkets in Nairobi County. They found that the operational risk and market risk had a statistically significant effect on financial performanceof large-scale supermarkets in Kenya. They recommend to the management of largescale supermarkets to constantly work on reducing operational risk by ensuring efficient inventorymanagement, reducing idle time on employees and investing in the latest technologies that lead to innovationwithin the supermarkets like electronic data interchange and finally, management to partially manage marketsrisks to acceptable levels. 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, 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.

Isaac *et al.* (2017) examine the influence of financial risk on stock returns in Nigeria, covering the period of 2006 to 2015. The stock return data of 9 banks listed from 2006 to 2015 was used as a dependent variable while credit risk, market risk, liquidity risk and capital risk were used as independent variables. Bank size and age were used as control variables. They adopted a multivariate generalized least square regression modelling. They found that the credit risk, market risk, liquidity risk and capital risk show statistically significant positive relationships with stock returns. Collective multiple GLS regression of financial risk with a control variable of bank size indicated financial risk is negatively significant on stock returns while bank size had a positive significant influence on stock returns. The moderating effect of bank size on the influence of financial risk on stock returns was found positively significant. The study used a weaker 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 (2006-2011) and post (2012-2015) IFRS implementation in Nigeria which affects the study findings.

METHODOLOGY

This study used an *ex post facto* design to address the research objectives. This research design is used to examine the statistical relationship between two or more variables. The design is therefore considered as the most appropriate for this study because it allows for testing of relationships among variables and making predictions regarding these relationships. 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) totaling forty-four (44) firms in the financial sectors in Nigeria covering 2012-2019 based on the filter criteria stated below. This sector is selected for this study because it is one of the most capitalized sectors in the capital market in Nigeria. 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.

Based on the criteria, nine (9) firms were eliminated for not being quoted at least one year prior to IFRS implementation in Nigeria in 2012. Based on this, the sample size for this study is 44 firms. 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 (liquidity risk and market 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 liquidity risk (LR), market risk (MR); 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 liquidity risk (LR), market risk (MR); a control variable of firm age as moderated by firm size with return on assets. The first model anchors the direct relationship between liquidity risk (LR), market risk (MR), firm size (FSZ); a control variable of firm age with return on assets is specified as adapted from Abdul *et al.* (2019), Kola and Yusuf (2017) as follows:

ROA = f(LR, MR, FSZ, FAG)

The expression in equation one is express econometrically as follows:

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

Where:

β_1 andβ_2 = Coefficients of proxies of independent variable.
B_3 = A coefficient of moderating variable
β_4 = A coefficient of control variable
ROA= Return on Assets
α = Constant
LR = Liquidity Risk
MR = Market 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 liquidity risk (LR), market risk (MR), firm age and firm size as they affect ROA. The model is, therefore, specified below:

Specifically, the functional linear equation is presented as follows:

ROA = f(LR + MR + FSZ + FSZ*LR + FSZ*MR + FA

Econometrically, the above function is rewritten as:

$ROA_{it} = \alpha + \beta_1 LR_{it} + \beta_2 MR_t + \beta_3 FSZ_{it} + \beta_4 FSZ*\beta_4 LR_{it} + \beta_5 FSZ * \beta_5 MR_t + \beta_6 FA_{it} + e_{it}$… (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;
LR = a predictor representing Independent Variable (liquidity risk);
MR= a predictor representing Independent Variable (market 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.	Calistus*et al*. (2018); and Diby*et al*. (2019);
Liquidity Risk	LR	Independent	Current assets (cash and cash equivalent) / total current liabilities.	Enekwe*et al*. (2017); Lelgo and Obwogi (2018); Ofeimun*et al*. (2019);
Market Risk	MR	Independent	% change in foreign exchange rates.	Isaac *et al*. (2017); Kioko*et al*. (2019); Wangalwa and Willy (2018).
Firm Size	FSZ	Moderator	Natural log of total assets.	Isaac *et al*. (2017).
Firm Age	FAG	Control	This is the difference between the year of incorporation and the year 2019.	Isaac *et al*. (2017).

Source: Researchers' 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
LR	341	.622	2.185	0.001	31.817
MR	352	-18.783	35.114	-.108	.94
FSZ	343	7.602	1.007	4.864	9.936
FAG	352	35.659	15.270	8	74

Source: Researchers' Computation (2021) Using Stata 15

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 equally shows that the liquidity risk (LR) has a minimum value of 0.001, a maximum value of 31.817 and a mean value of .622 that is within the minimum and maximum values indicating a good spread within the period studied. The Table also reveals that (LR) has a standard deviation of 2.185 that is more than the mean, which implies that it had strong growth for the period under review.

Table 2 shows that the market risk (MR) has a minimum value of -.108, a maximum value of 0.94 and a mean value of -18.783 that is within the minimum and maximum values indicating a good spread within the period studied. The Table also reveals that (MR) has a standard deviation of 35.114that is more than the mean, which implies that it had a strong increase 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 3 and figure 2 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	0.84093	37.974	8.589	0.00000

Source: Researchers' Computation using STATA 15 software

Figure 2: Normal Distribution Curve

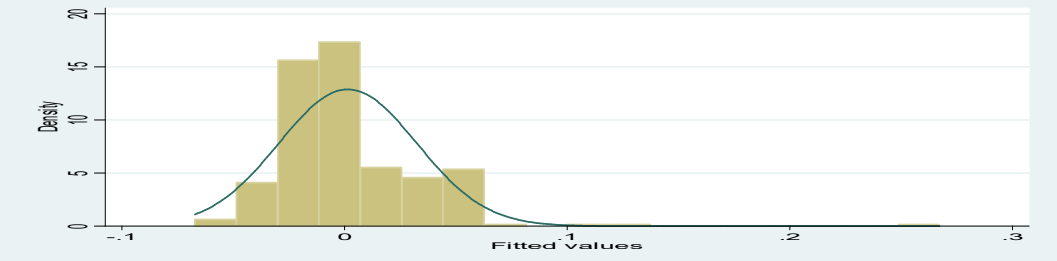

Table 3 above shows the residual and the z value of 8.589and the corresponding probability of value of 0.000 that is less than 0.05 which signifies that the residual is not normally distributed around the mean. This result is further collaborated by the normal distribution curve presented in figure 2above. 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	LR	MR	FSZ	FAG	FSZ_LR	FSZ_MR
ROA	1						
LR	0.1501*	1					
MR	0.0819	-0.0350	1				
FSZ	0.2228*	-0.1613*	0.0079	1			
FAG	-0.0284	-0.1852*	-0.0030	0.2239*	1		
FSZ*LR	0.1541*	0.6256*	-0.0337	-0.1488	-0.1813*	1	
FSZ*MR	0.0510	-0.0175	-0.7888*	-0.0640	-0.0082	-0.0171	1

Source: Researchers' 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 result from table 4 shows that there exist approximately 15% positive and weak relationships between liquidity risk (LR) and return on assets (ROA) of quoted financial firms in Nigeria from the correlation coefficient of 0.1501. The table also shows that there is a 8% positive and weak relationship between market risk (MR) and return on assets (ROA) of quoted financial firms in Nigeria, from the correlation coefficient of 0.0819.

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 0.2228. The table indicates 3% negatively and weak relationships between firm age and return on assets (ROA) of quoted financial firms in Nigeria, from a correlation coefficient of -0.0284.

The table further indicates that firm size interacting with liquidity risk and return on assets positively increases the level of relationship to 15%, from a correlation coefficient of 0.1510which

is also significant at 5% level of significance. The table equally indicates that firm size interacting with market risk and return on assets positively increases the level of relationship to 5%, from a correlation coefficient of 0.0510which 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	118.90	0.00

Source: Researchers' 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 5 revealed the null hypothesis that there is no constant variance in the model is accepted. This is because the F-statistic of 118.90and 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	4.37	0.3578

Source: Researchers' Computation (2021) Using Stata 15

The result from Table 6 depicts a probability > chi2 of 0.3578, 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	144.28	0.00

Source: Researchers' 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 (144.28) 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	-.2244602	-1.85	0.065
LR	.0040057	2.92	0.003
MR	-.0001554	-1.32	0.187
FSZ	.0319484	2.24	0.025
FAG	-.0005606	-0.93	0.354
R-Squared	0.6901		
Wald chi2	15.77		
Prob>chi2	0.0033		

Dependent Variable: ROA

Source: Researchers' Computation (2021) Using Stata 15

Results from Table 8 above reveal an overall coefficient of determination (R-sq) of 0.6901 which means that the proxies (LR and MR) of the independent variable controlled by companies age (FAG) and the variable of the moderator (Firm Size) without moderating have an approximately 70% combined effect on the systematic changes in the dependent variable (ROA) during the period under review. The Wald chi2 of 15.77 and the corresponding prob. >chi2 of 0.003 indicates that the model is fit and reliable for decision making. This indicates that the explanatory powers of risk management (LR and MR) 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.
LR	-.0241685	-0.33	0.741
MR	.0015889	1.49	0.137
FSZ	.0273312	2.14	0.032
FAG	-.0005482	-0.91	0.365
FSZ*LR	.0043121	0.39	0.695
FSZ*MR	-.0001875	-1.98	0.054
CONS.	-.190993	-1.72	0.086
R.sq	0.482		
F-Statistic	15.50		
Prob> F	0.0167		

Dependent Variable: ROA

Source: Researchers' Computation (2021) Using Stata 15

Results from Table 9 above reveal an overall coefficient of determination (R-sq) of 0.48 which means that the proxies (LR and MR) of the independent variable and control variable (FAG) moderated by firm size used in this study have an approximately 48% combined effect on the systematic changes in the dependent variable (ROA) during the period under review. The Wald chi2 of 15.50 and the corresponding prob. >chi^2 of 0.01 indicates that the model is fit and reliable for decision making. This indicates that the explanatory powers of risk management (LR and MR) moderated by firm size used for the study are suitable for the study of the moderating effect of firm size on risk management and profitability of quoted financial firms in Nigeria.

Test of Hypotheses

In examining the moderating effect of firm size on risk management and profitability of quoted financial firms in Nigeria, the following hypotheses were tested using a robust random effect regression model.

Based on Model One (Without the Moderator)

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

The result in table 8 shows that liquidity risk has a z-value of 2.92and a beta coefficient of .0040057, with a p-value of 0.003 which is significant at 1% level of significance. This means that liquidity risk has a significant effect on return on assets of quoted financial firms in Nigeria and, therefore, the null hypothesis one is rejected.

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

The result in table 8 shows that market risk has a z-value of 1.32 and a beta coefficient of .0001554, with a p-value of 0.187 which is not significant at all levels of significance. This means that market risk has an insignificant effect on return on assets of quoted financial firms in Nigeria and, therefore, the null hypothesis two is accepted.

Based on Model Two (With the Moderator)

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

Table 9 further presents the result of the explanatory powers of liquidity risk in explaining return on asset, when moderated with the firm size. The question is whether the liquidity risk and return on assets of quoted financial firms in Nigeria have improved when moderated with firm size? In addressing this question, the beta coefficient of liquidity risk when moderated with firm size, reveals a positive beta coefficient value of .0043121; a z-value of 0.39 with a p-value of 0.685. This implies that liquidity risk with the interaction of firm size is positively not statistically significant at all levels of significance, in explaining the return on assets of quoted financial firms in Nigeria. As observed from table 8 above, the result of liquidity risk without moderation is significant at 1% level of significance while the indirect relationship of liquidity risk in table 9 as moderated by firm size has a negative insignificant effect on return on assets. This, therefore, implies that firm size does not significantly moderates the relationship between liquidity risk and return on assets but changes the direction of the relationships. This result gives the basis for accepting the null hypothesis three which states that firm size has no significant moderating effect on liquidity risk and return on assets of quoted financial firms in Nigeria.

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

Table 9 also presents the results of the explanatory powers of market risk in explaining return on asset, when moderated with firm size, to see whether market risk and return on asset of quoted financial firms in Nigeria changes when applied with firm size. The result reveals a negative beta coefficient value of -.0024469; a z-value of -2.24 with a p-value of 0.025. This implies that market risk with the interaction of firm size has a significant statistically effect in explaining the return on assets of quoted financial firms in Nigeria. As observed from table 8 above, the result of market risk without moderation is insignificant negative at all levels of significance whereas the indirect relationship of market risk in table 9 as moderated by firm size has a significant negative effect on return on assets. This, therefore, implies that firm size moderates the relationship between market risk and return on assets of quoted financial firms in Nigeria. This result gives the basis for rejecting the null hypothesis four which states that firm size has no significant moderating effect on market risk and return on assets of quoted financial firms in Nigeria.

Discussion of Findings

This study reveals that liquidity risk has a significant positive effect on return on assets of quoted financial firms in Nigeria. This implies that an increase in liquidity risk will result in an increase in return on assets of quoted financial firms in Nigeria by 0.0040057. This finding is not in agreement with the researcher's a-priori expectation but is in line with the shiftability theory of liquidity because the theory provides for an explicit understanding of how the liquidity risk affects the financial performance using liquidity coverage and net stable funding ratios. It provides information as to whether liquidity maintained by the financial firms affect the returns to the shareholders. These finding is also in line with the empirical findings of Isaac *et al.* (2017), Lelgo and Obwogi (2018) and LiMei*et al.* (2020). However, the finding is not in line with the empirical finding of Enekwe*et al.* (2017), Kioko*et al.* (2019) and Kola and Yusuf (2017).

The study also reveals that market risk has an insignificant positive effect on return on assets of quoted financial firms in Nigeria. This implies that an increase in market risk will result in a decrease in return on assets of quoted financial firms in Nigeria by -.0001554. This finding is in line with the researcher's a-priori expectation and also in line with the risk management theory because the theory emphasized that the regulators are concerned with overall risk and that the portfolio risk must be driven by portfolio return which is invariant to changes in portfolio composition. The finding is also in consonance with the empirical finding of Abdul *et al.* (2019). The finding, however, disagrees with the empirical findings of Igbinosa and Ogiemudia (2020), Isaac *et al.* (2017), Kioko*et al.* (2019) and Wangalwa and Willy (2018).

The study reveals that liquidity risk with the interaction of firm size is positively not statistically significant at all levels of significance, in explaining the return on assets of quoted financial firms in Nigeria. The result of liquidity risk without moderation is significant at 1% level of significance while the indirect relationship of liquidity risk as moderated by firm size has a negative insignificant effect on return on assets. This, therefore, implies that firm size does not significantly moderates the relationship between liquidity risk and return on assets but changes the direction of the relationships. This result does not conform to the a-priori expectation of the researcher and also does not support the shiftability theory of liquidity because the theory provides for an explicit understanding of how the liquidity risk affects the financial performance using liquidity coverage and net stable funding ratios.

The study reveals that market risk with the interaction of firm size has a significant statistical effect in explaining the return on assets of quoted financial firms in Nigeria. The result of market risk without moderation is insignificant positive at all levels of significance whereas the indirect relationship of market risk as moderated by firm size has a significant negative effect on return on assets. This, therefore, implies that firm size moderates the relationship between market risk and return on assets of quoted financial firms in Nigeria. This result conforms to the a-priori expectation of the researcher and is also in line with the risk management theory because the theory emphasized that the regulators are concerned with overall risk and that the portfolio risk must be driven by portfolio return which is invariant to changes in portfolio composition.

Conclusion and Recommendations

The management of financial firms in Nigeria must adequately plan their firms' liquidity level to enhance their profitability in Nigeria. Financial firms with stable liquidity levels will have smooth operational effectiveness that will enhance their profitability level, therefore, effective management of liquidity risk that will strike a balance between excess cash and cash trapping is required to enhance the profitability of financial firms in Nigeria. The management of financial firms in Nigeria must guide against market risk by ensuring that they made adequate provisions for foreign exchange to minimise its negative effect on their operations. Financial firms with proper and adequate planning for foreign exchange will have smooth operational effectiveness that will enhance their profitability level in Nigeria.

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

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

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

(i) The financial firms should manage their liquidity level by strike a balance between excess cash and cash trapping by maintaining the industry standard of 2:1 to enhance their profitability level in Nigeria.

(ii) The management of financial firms in Nigeria should maintain appropriate market risk by ensuring that they made adequate provisions for foreign exchange to minimise its negative effect on their operations and enhance their profitability level in Nigeria.

(iii) The management of firms in the financial sector should put their size into consideration before taking decisions in respect of market risk to enhance the profitability of quoted financial firms in Nigeria.

(iv) The firm size should not be considered when taking decisions regarding liquidity risk and profitability as it does not moderate the relationship between liquidity risk and profitability of quoted financial firms in Nigeria.

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