

## Effect of Enterprise Risk Management on the Profitability of Insurance Companies in Nigeria

<sup>1</sup>Abidemi Soladoye; <sup>2</sup>Olabisi Ijeoma Dominic; <sup>3</sup>Nasamu Gambo (Ph.D), <sup>4</sup>Hauwa Lamino Abubakar (Ph.D)

<sup>1,2,3,4</sup> Department of Business Administration, Nile University of Nigeria, Abuja.

doi: <https://doi.org/10.37745/ejafr.2013/vol12n25170>

Published January 31, 2024

**Citation:** Soladoye A., Dominic O.I., Gambo N., Abubakar H.L. (2024) Effect of Enterprise Risk Management on the Profitability of Insurance Companies in Nigeria, *European Journal of Accounting, Auditing and Finance Research*, Vol.12, No. 2, pp.,51-70

**ABSTRACT:** *Nigeria's insurance industry, despite contributing less than 1% to Nigeria's GDP, is considered crucial to the economy as it controls large sums of money and protects businesses from diverse risks. However, concerned about business failures in the insurance industry, the National Insurance Commission in 2012, mandated the adoption of Enterprise Risk Management (ERM) by all insurance businesses in Nigeria to address this issue and to deter future business failures. This research work studied the effect of ERM on the profitability of Nigerian insurance businesses over a 10-year period, encompassing the two years prior to, and eight years following the introduction of ERM. ERM is studied from two perspectives: ERM adoption and ERM implementation. Profitability, the dependent variable was measured by Return on Assets while ERM adoption was measured using Chief Risk Officer (CRO) and Board Risk Committee Composition (BRCC). Enterprise Risk Management Index (ERMI) measured ERM implementation. Firm Size (F. SIZE) represented by Total Assets and Firm Age (F.AGE), represented by total years of operations, served as control variables. Using the expo-facto research design and the census sampling technique, relevant secondary data about all 37 insurance companies that were in operation during the study period (2010 – 2019) was collected from published financial statements and the regulator's reports. The multiple regression analysis revealed that while CRO and BRCC contributed positively to ROA but not at a statistically significant level, ERMI had a negative effect on ROA. The research confirms that ERM adoption only is not sufficient to influence profitability. For better results from ERM, an industry-wide review of implementation practices by NAICOM is recommended.*

**KEYWORDS:** enterprise risk management (ERM), chief risk officer (CRO), board risk committee composition (BRCC), return on assets (ROA)

### INTRODUCTION

At the root of many business failures is the failure to recognize, appreciate and effectively manage risks. Risks are generally described as the likelihood of unfavourable outcomes such as financial losses, failure to meet goals, and even loss of lives. Enterprise Risk Management (ERM) emerged in the late 20th century to address the complexities of the modern business environment and the associated risks and business failures. The success and shortcomings of

ERM as a risk management strategy have been studied by scholars, corporate managers, and professionals, leading to numerous articles and research papers. Anton & Nucu, (2020), identified four broad methods used to measure ERM engagement namely: Employing or the hiring announcement of a CRO or an equivalent position as a suggestion for ERM engagement, Looking by keywords for evidence of ERM in databases like Lexis, Nexis, and Dow Jones, Using ERM ratings offered by Standard & Poor's for banks and insurance companies, and Surveying firms to find the degree of ERM implementation.

However, results of empirical research on ERM's impact on business performance vary widely not only due to the diversity in methodology and proxy, but also because of the variety of jurisdictions in which the studies are carried out. For instance, Otero-Gonzalez et al., (2020), found that the performance of Spanish insurance companies was unaffected by the implementation of enterprise risk management. Instead, they discovered that although having a Chief Risk Officer (CRO) is one of the main indicators of ERM adoption, it might actually worsen overall financial health while also having a negative impact on financial performance. Conversely, Jurdi & AlGhnamat, (2021), like others, found that ERM had a favourable impact on financial performance by reducing risk and increasing premiums collected, based on a study listed insurance companies in Ethiopia. Furthermore, it has been observed that many of the studies do not make a distinction between ERM adoption and implementation. Evidently, there is a difference between the adoption and implementation of an intervention or initiative. Adoption involves a company's formal decision to use an intervention, while implementation involves its integration into the business. (Jean-Jules & Vicente, 2020). Lack of distinction between these two is likely to result in variation in findings and conclusions. Despite their relatively small contribution to Nigeria's GDP (less than 1% in 2022), insurance companies are vital for national economic growth and development because they are financial "first responders"; restoring claimants to their pre-loss positions as quickly as possible. In addition, insurance companies help to mitigate risks by sponsoring and promoting loss-preventing activities and personnel. Furthermore, there is empirical evidence that activities of insurance companies, reflected by gross claims payments, is positively correlated to economic growth (Apergis & Poufinas, 2020).

To continue to play their role in economic growth and development, insurance companies need sustained profitability for financial stability, as sustained profits not only allow them to pay claims, they are also able to generate investment funds, and attract new clients. Failure on the other hand, can have severe financial system consequences (ECB, 2021). But optimal premiums, higher returns on investments, and lower business costs and claims are key factors in profitability. The Committee of the Sponsoring Organizations of the Treadway Commission (COSO) developed a framework for Enterprise Risk Management (ERM) in 2004. The framework has been adopted by organizations worldwide, including NAICOM, the Nigerian insurance regulator, which first mandated ERM adoption by insurance companies in 2012. Concerns have been raised about the effectiveness or otherwise of the initiative

This study therefore examines the impact of Enterprise Risk Management (ERM) on the profitability of Nigerian insurance firms since its mandatory adoption. It does so in a bi-focal manner, by examining the proxies for ERM adoption on the one hand while also measuring its

implementation, on the other. It rates the appointment of a CRO and the composition of the risk committee as measures of ERM adoption while an ERM index is created to assess implementation. The index includes the existence of the Board Risk Committee, the Board's independence, and the type of audit firm involved. Firm size and business age are added as control variables. Total Assets is used to measure firm size, while the company's age is the number of years from start of operations. The research thus addresses the issue of restrictive and narrow ERM measurement in previous research studies in which ERM engagement is often assumed to mean implementation. By so doing, it contributes to filling the gap occasioned by the paucity of research literature on ERM within the domain of the Nigerian insurance industry. The main objective of this study is to examine the effect of enterprise risk management (ERM) on the profitability of insurance companies in Nigeria. Its specific objectives are to:

- i. Investigate the effect of the Chief Risk Officer (CRO) on the Return on Assets of insurance companies operating in Nigeria
- ii. Evaluate the effect of the composition of the Board Risk Committee on the Return on Assets of insurance companies operating in Nigeria
- iii. Examine the effect of the Enterprise Risk Management Index (ERMI) on the Return on Assets of insurance companies operating in Nigeria.

On the basis of the research objectives, the following hypotheses were formulated to guide the research study:

H<sub>01</sub>: The Chief Risk Officer (CRO) has no significant effect on the Return on Assets of insurance companies operating in Nigeria

H<sub>02</sub>: The Composition of the Board Risk Committee has no significant effect on the Return on Assets of insurance companies operating in Nigeria

H<sub>03</sub>: The Enterprise Risk Management Index (ERMI) does not have a significant effect on the Return on insurance companies operating in Nigeria

## LITERATURE REVIEW

### Conceptual Review

#### *Enterprise Risk Management*

Many scholars and practitioners have defined enterprise risk management since the COSO introduced its framework in 2004. Enterprise risk management is defined by Hayes, (2022), as a strategic, company-wide approach to risk management. He describes it as a "top-down strategy that aims to identify, assess and prepare for potential losses, dangers, hazards, and other potentials for harm that may interfere with the goals and operations of an organisation and/or result in losses. According to Kumar, (2021), ERM is a risk management architecture that links risk management across the organization and is said to be the "enabler of companywide risk management". Further, he describes it as an integration of corporate strategy into the company's risk management strategy. The National Institute of Standards and

Technology in its 2023 glossary provides a robust definition of ERM: The methods and processes an enterprise uses to manage risks to its mission as well as to establish the trust required for the enterprise to support shared missions. It involves the identification of “mission dependencies on enterprise capabilities, the identification and prioritization of risks due to defined threats, the implementation of countermeasures to provide both a static risk posture and an effective, dynamic response to active threats; and it assesses enterprise performance against threats and adjusts countermeasures as necessary”. These, and other definitions establish ERM not only as a process but also as a strategy. And just like responsibility for overall corporate strategy rests with the board, ERM ownership starts with the board at the top of the ladder, while implementation is the responsibility of the Chief Risk Officer (CRO). One other interesting dimension of ERM highlighted by Kumar; is that it ensures a fusion of risk objectives with risk cultures such that risk management is not only owned at the top but is built into the activities of every functional area and cascaded down through the various functional heads and across the entire organization

### **Measures of Enterprise Risk Management**

**Chief Risk Officer :** A key component of a functional risk framework, according to the COSO framework, is having a Chief Risk Officer (CRO) position within the organisation. Although the Board is given ownership and accountability for Enterprise Risk Management under the COSO structure, the Chief Risk Officer is ultimately responsible for carrying out the Board's daily mission. The Chief Risk Management Officer (CRO) is a person who oversees the assessment of enterprise risks and threats to the company's profitability and capital, as well as devising strategies to reduce those risks (Pratt et al., 2021). As Hayes, (2022), observed, the role of a CRO is a constantly evolving one, especially as companies continue to adopt new technologies and business practices. As such, companies seek persons who not only have several years of experience in law, accounting, economics, or actuarial science to fill the role, but they also look out for strong interpersonal and analytical competencies. The CRO is regarded as one of the most important members of a management team because the CRO works with senior management to develop and implement ERM strategies and policies and to create a healthy risk culture. Al-Farsi, (2020), concluded that the CRO plays a key role in the adoption and implementation of ERM. Li et al. (2022) noted that while hiring a CRO lowers company risk and boosts operational effectiveness, the influence on performance is greater when the CRO is strong. As a result, companies operating in situations that are dynamic or litigious will yield stronger returns from a CRO. More so, when compensation is tied to performance (Da Silva et al., 2019)

**Board Risk Committee:** Bearing in mind that Enterprise Risk Management is more than a method for managing risk; it is a strategy, ownership, and responsibility for success rests squarely on the board of directors. Moreover, given the continuous evolution of the business environment, risk and risk-taking take a central place in the minds of boards of directors and is no longer a matter of mere operational necessity, but a governance issue (Brownstein et al., 2018). Board Risk Committees are made up of members of the board, established by the board with clear reporting procedures and scope of authority to provide oversight over the management of risk in the company. According to Brownstein et al. (2018), the idea that board

committees' responsibilities stop with monitoring and do not include ongoing risk management is supported by both law and practise. The board's oversight, through its risk committee, guarantees that senior management's risk management policies and procedures align with business strategy and risk appetite, that they function as intended, and that the required steps are taken to establish a risk culture that promotes suitable risk awareness, behaviour, and judgement. Many risk committee attributes, such as the committee's size in terms of members, gender diversity in the membership, members' degrees of expertise, and members' thoroughness, are identified by Odubuasi et al., (2022), as having an effect on implementation. Recent publications also mention members' tenure, qualifications, independence, and participation at meetings (Onipe & Ishaku, 2022).

Other than the matter of independence, the COSO ERM framework does not mandate the configuration (size, gender, qualifications, etc) of the Board Risk Committees in detail, and research findings show that practice varies with industry. Diversity in committee makeup is believed to enhance the settlement of potential difficulties since it deploys unique viewpoints, as noted by Khalik & Sum (2019), In the Nigerian insurance industry, the observed industry pattern is a minimum of three committee members, one independent, non-executive director and meetings held at least thrice a year

***Enterprise Risk Management Index (ERMI):*** As previously mentioned, it is critical to consider ERM's implementation as well as adoption when assessing the impact of the practise on business performance. Despite differences in the component variables and methodology employed, numerous academics have measured the application of enterprise risk management (ERM) using the Enterprise Risk Management Index (ERMI). For instance, Ali et al., (2019), looked through numerous reports for phrases that indicate the existence of ERM and simply utilised 1 and 0 to show the presence and absence of ERM, respectively. Using the amount of items revealed in accordance with the ERM standards, Erin Olayinka et al. (2019) created the ERM index. Horvey & Ankamah (2020) used a more robust method for creating the ERMI: the index was built using the presence or otherwise of the title of the Risk Manager, ERM adoption, Risk management committee, Risk department, Board of director independence, Auditor type, and Risk plan

Drawing from the work of previous researchers and NAICOM's guidelines on risk management, ERMI is constructed in this study using the presence or otherwise of each of these component variables identified from the COSO ERM framework: a Board Risk Management Committee, an Independent Board of Directors, and the type of Audit firm.

***Board Risk Management Committee:*** This ERMI component variable simply deals with the presence or otherwise of a board. The board of directors' risk committee functions to assist the board perform its oversight responsibility of implementing an effective global risk management framework that is reasonably designed to identify, assess and manage the entire gamut of an organizations' risks risk committee in the insurance company

***Independent Board of Directors:*** The nexus between corporate governance and firm performance has long been established in academic literature and contemporary business practice, and responsibility for quality corporate governance lies primarily with the board of



directors. This is in line with agency theory, which suggests that a company's board can ensure managers act in the firm's best interest as directed by the board (Hidayah et al., 2021). Rashid, (2018), (Qadorah, 2018), (Mohd Idris et al., 2021), and others, all point to a positive and significant relationship between board independence and firm performance. The board's independence is strongly linked with its ability to discharge its functions creditably. Board members are considered independent when they do not have a material relationship with the company, are not on the executive team and are not involved in the company's daily operations. Rashid, (2018), however, makes the point that independence could be superficial and concluded that board independence in its true sense, may still be an illusion, at least in Bangladesh where his study was carried out. Similarly, board independence has been found to positively affect ERM implementation. This has been established in studies by Khalik & Sum, (2019) in Malaysia and (Mardessi & Ben Arab, 2018) in a study of Tunisian companies

*Size of Audit Firm:* Some research studies have questioned the place of size in audit quality and by extension, the relevance of the 'big four' audit firms in enterprise risk management. For instance, Kerraous, (2018) found that the presence of big four audit firms does not exert a significant impact on ERM integration. Nevertheless, there is sufficient evidence to link these audit firms to superior audit quality, particularly in ERM consulting thereby justifying their use as a proxy for ERM implementation. First, in using the 'big four' as a proxy for audit quality, Herusetya, (2020) makes the point that these firms are able to select clientele which is indicative of the quality they offer and the respect they command. Also, Zandi et al., (2019) from their study in Pakistan, emphatically posit that the big four audit firms provide superior financial reporting quality and that companies are better able to engage in real earnings management activity when they engage these firms. Another justification for the use of the big four audit firms as a proxy for ERM implementation is that their presence has been proven to enable international funding Beisland et al., (2018) and most large corporations in Nigeria including insurance companies are known to have benefited from overseas funding The big four audit firms are PricewaterhouseCoopers (PWC), Deloitte, KPMG, and Ernst & Young and amongst them, they audit the biggest companies on the Nigeria Stock Exchange earning as much 11 billion naira from Nigerian Banks alone (Ebubejulius, 2022)

### ***Profitability (Return on Asset)***

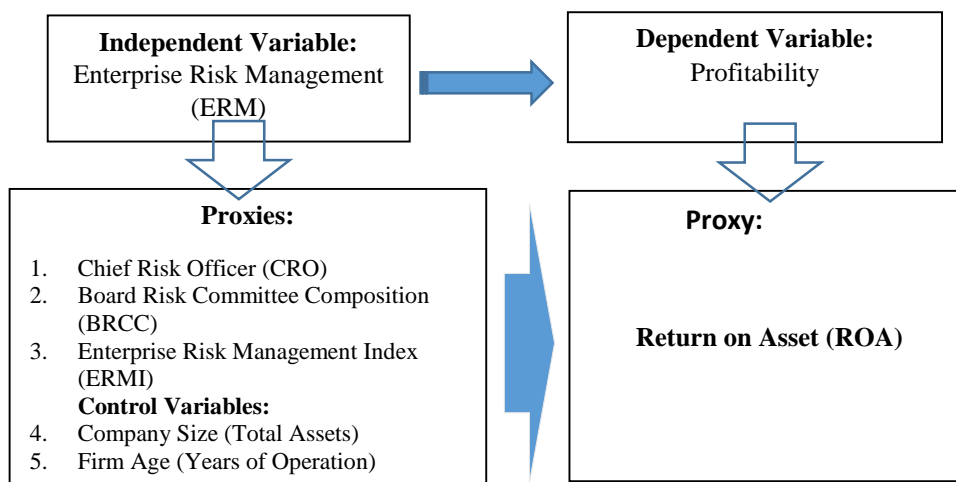
Return on asset (ROA) is a profitability metric that shows how much profit a firm can make from its assets. In other terms, return on assets (ROA) assesses the effectiveness of management in generating a profit from a company's financial resources or assets on its balance sheet. The more effectively a company's management manages its balance sheet to produce profits, the higher the value displayed for ROA, which is expressed as a percentage. (Boyte-White, 2023)

### ***Firm Size & Firm Age***

In this study, firm size is measured in terms of total assets while firm age is depicted by the number of years since commencement of operation till the date of the study. Firm size is employed as a control variable to give stability to the research model as measures of firm size are typically robust in sign and statistical significance (Dang et al., 2018). Moreover, each of

the ERM proxies used bear relevance to firm size. Firm age is used because of its unique character of influencing other variables without being influenced itself. In addition, it has tendency to produce a non-linear U-shaped relationship when measured against variables such as firm performance depicting the liabilities of newness at first, and the liabilities of old age later on (Coad et al., 2017).

### Conceptual Framework



**Figure 1**

**Diagrammatic representation of Conceptual Framework (Researcher, 2023).**

### Theoretical Review

#### *Agency Theory*

Agency theory is primarily an economic theory, though it is now applied in diverse fields of study. It focuses on the relationships that exist between a set of self-interested individuals (O'Donnell & Sanders, 2003) in which one party (the principal) delegates some decision-making authority to another (the agent) who in turn is responsible for maximizing returns on the principal's investment in return for an agreed remuneration (Putra, 2017). As a principle, agency theory is used to explain and resolve the issues that arise in the principal-agent relationship such as exists between shareholders as principals, and company executives as agents (Kopp, 2022). Originally put forward as the agency theory of corporate governance by Alchian and Demsetz (1972) and Jensen and Meckling (1976), agency theory begins by highlighting assumptions that border on rationality, contractual obligations, and informational conditions, and then proceeds to address the problems of "hidden characteristics" and "hidden actions" of principals and agents respectively (Tan, 2014). (Linder & Foss, 2015). In other words, the areas of dispute addressed in agency theory are differences in goals and differences in risk aversion. Principals on the one hand seek long-term earnings and growth from moderate risks while agents tend to pursue huge short-term profits with less consideration for the level of risk (Kopp, 2022).. Accordingly, agency theory views the firm as a "set of contracts among self-interested individuals" (O'Donnell & Sanders, 2003)

Agency theory is adopted as the theoretical bedrock for this study because ERM, as revealed in literature places a whole lot of responsibility on the board of directors and its delegates such as the board risk committee and the chief risk officer. Thus, ERM serves as a governance tool for supervising the activities of executives thereby reducing agency related issues and costs. Proponents of agency theory recommend that executive compensation be tied to shareholder value. They also propose back-loading of their compensation so that the time lag between the decisions they take and the consequences of such decisions ensures that they focused on long-term strategic results which form the basis of their compensation. A third solution is to set executive targets that cut across various units of the organization so that they are compelled to pay attention to organizational goals, not just personal or departmental objectives, a concept that is central to ERM's ethos.

### **Empirical Review**

Results obtained from the research studies reviewed, revealed a mixed bag of outcomes. While several of the researchers such as (Olayinka et al., 2017), Luthfiyanti & Dahlia, (2020), Jurdi & AlGhnamat, (2021), Jinadu, (2022), and others established a significant, positive relationship between ERM and financial performance, others like da Silva et al., (2019) and others observed negative relationships from their studies. Other researchers yet like González et al., (2020), and Phan et al., (2020), no relationship between ERM on financial performance. The study of the effect of ERM on firm value by da Silva et al., (2019) was done using Chief Risk Officer (CRO) as the proxy of ERM as well as data from publicly quoted insurance companies in the U.S over the period 2009 to 2017. The research threw up an unusual outcome: a negative relationship between ERM and firm value. That is to say, the participation and influence of the CRO were not enough to increase firm value in insurance companies. They however did find a positive relationship between CRO compensation and firm value. In a study with a similar outcome in which the effect of Enterprise Risk Management (ERM) on the performance and the financial stability of a sample of non-financial Spanish-listed companies was studied by Luís et al, (2020), data was sourced from the Spanish stock exchange while credit risk theory was adopted as the study's theoretical framework. The variables employed include ROE, ROA, VAR, Z-Score, Tobin's Q, Hedging Price, Hedging Credit, Hedging Exchange, Risk Map, and CRO while Fixed and Random Effect and GMM were employed as the estimation technique. The findings revealed that having a chief risk officer (CRO) can reduce financial performance, although it can improve the degree of financial health measured as the distance to default

In a departure from negative findings with negative relationships, González et al., (2020), studied the effect of ERM (Enterprise Risk Management) on the performance and financial stability of non-financial listed companies using the presence of a CRO, Risk map, ISO 31000, and COSO frameworks as proxies. Credit risk theory was used as a theoretical framework. The formulated hypotheses were that the adoption of ERM positively affects the performance of Spanish companies. Also, that ERM reduces the likelihood of bankruptcy, and that risk-hedging improves performance and reduces the likelihood of bankruptcy. The study used secondary data sourced from the annual, and management reports of the 162 listed Spanish firms spanning a four-year period (2012 to 2015). Performance, which is the dependent variable, was measured using return on asset, return on equity, and Tobin's Q, while the



independent variable, ERM, was measured using the presence of a Risk 69 Committee, a Chief Risk Officer (CRO), a Risk Map, ISO 31000 tracking and COSO framework tracking. Firm size, financial leverage and liquidity were used as control variables. They concluded from the results obtained, that ERM had no effect on the performance of the firms which was measured by Return on Assets and Return on Equity. In other words, there was no evidence that value was created by the adoption of ERM. They however acknowledged that this divergent result could be as a result of the quality with which the risk management and governance is being carried out. The results also showed that while having a CRO can reduce risk, it does also impede performance

In another study with a similar finding, Egberi, (2022), evaluated the effect of ERM on the firm value of listed Nigerian oil and gas companies using risk monitoring committee as proxy for ERM while Tobin's Q, earnings per share and earnings yield were used to measure firm value. Enterprise risk management theory and COSO's ERM framework provided the theoretical base for the study. The study made use of panel data on which regression analysis was performed using the fixed and random effects method. He concluded that risk monitoring committee does not affect firm value, particularly for listed Nigerian oil and gas firms. Likewise, Horvey & Ankamah, (2020), established that a non-linear relationship exists between ERM and the performance of listed firms in Ghana and that whether the non-linearity is an inverted U shape or direct U shape depends on firm performance. The study had examined the linear and non-linear relationship between Enterprise Risk Management (ERM) and firm performance. Agency theory and portfolio theory provided the theoretical bedrock for the work. An enterprise risk management index (ERMI) was generated and measured against ROA, Tobin Q, and ROE, with firm size, efficiency, and firm age serving as control variables. The leverage generalized least square estimation technique was used to analyse data from the Ghanaian equity market.

The foregoing findings notwithstanding, most of the studies reviewed seem to point at a positive relationship between ERM and financial performance suggesting that ERM, if properly implemented, promotes the attainment of a company's financial goals on a sustained basis. However, Anton & Nucu, (2020) made the point that little effort has been dedicated to the analysis of the effectiveness of ERM by its components and to institutional, individual, and organizational factors that affect ERM adoption. Olayinka et al., (2017) carried out a study on the effect of enterprise risk management on firm performance using value at risk (VaR) as a proxy of ERM while return on assets (ROA) was used to measure financial performance. The study involved 40 companies in the Nigerian financial sector over a five-year period from 2012 to 2016, resulting in 200 observations. Time series and cross-sectional were used in analyzing the panel data. Five control variables were incorporated namely leverage, board size, firm size, institutional ownership, and risk management committee size. The result of the regression analysis showed that ERM is positively and significantly related to firm financial performance; all the proxy independent variables were statistically significant and positively related to return on assets with the exception of leverage which showed an inverse relationship. The researchers concluded by recommending the mandatory adoption of ERM by all financial service organizations in Nigeria.

Iswajuni et al. (2019) relied on data from companies listed on the Indonesian Stock Exchange between the years 2010 and 2013 to investigate the effect of enterprise risk management (ERM) with firm size, ROA and managerial ownership as control variables on firm value on the performance of listed on Indonesian manufacturing companies. Agency theory was employed as the theory underpinning the study while multiple linear regression-ordinary least square was employed as the estimation technique. Findings revealed that ERM, ROA and size of the company have a significant positive effect on the firm value. While the managerial ownership has a significant negative effect on the firm value. Luthfiyanti & Dahlia, (2020), examined the effect of ERM on financial performance in the context of widespread financial distress experienced by companies in the Indonesian retail industry sector. Using binary logistic regression to analyze data involving 21 retail companies listed on the Indonesian Stock Exchange from 2013 to 2017, they found a positive relationship between ERM and financial performance. Notably, companies with dwindling Return on Asset ratios were more likely to go into financial distress. It was suggested that improving internal control and internal audit helped to improve the effectiveness of ERM implementation. It is worth pointing out, however, that the study sample was selected using a purposive random sampling method which is often accompanied by a lack of objectivity

Hidayah et al., (2021), studied the effect of corporate governance and enterprise risk management on company performance. The results obtained showed that ERM has a positive effect on firm performance. In addition, they found that ERM is able to mediate the effect of the board of directors and audit committee, proxies of corporate governance, on company performance. They concluded by stating that companies are obliged to continuously seek the improvement of ERM in order to obtain optimal firm performance. Jurdi & AlGhnamat, (2021), in their study of the effects of adopting ERM on the performance and risks of listed European insurance firms, found that companies that adopted ERM posted significantly higher premiums. In addition, they showed from the study, that ERM adopters effectively reduced total risk. Data about the companies studied spanning a period of 24 years (1995-2020) showed a steady increase in the rate of ERM adoption. It was also noted that firm characteristics such as size, opacity and choice of external monitoring (for example, external auditors) to a large extent, determine the adoption or otherwise of ERM. They concluded that in addition to risk reduction, ERM provided the additional benefit to firms of providing corporate governance. One clear limitation of the study, however, is that because many insurance companies operating in Europe are not listed, the study covered only a relatively small data sample

Relying on data from Kenya Stock exchange, Isaac, et al., (2021) examined the relationship between risk management and the financial performance of insurance firms in Kenya. Keynesian Liquidity Preference theory, Credit Risk Theory, Resource-based theory were the theoretical underpinnings while Credit risk, Market Risk, Liquidity Risk, Operational Risk, ROA, AGE, Size were the variables considered. Applying regression as the estimation technique, the results showed that market risk management positively and significantly affects financial performance. Muhammad et al., (2022), studied the effect of ERM on the cost of capital which is considered a measure of financial performance given its effect on profitability. Measures of both independent and dependent variables were obtained from secondary sources; ERM was measured using S&P ERM scores while cost of equity and cost of debt were obtained

from Thomson Reuters Datastream. The study involved data obtained on 41 companies listed on the Malaysian stock exchange spanning the period 2008 to 2017. The empirical analysis was done using panel data analysis using GLS random effects regression estimation. The researchers concluded that ERM has a positive relationship with firm performance and value though the mechanism for value creation was not clear. They however found that ERM reduces the cost of capital and suggested that this phenomenon could be explained by the risk-reducing effect of ERM on firms and the consequent improvement in their risk profile. When such information is made available to creditors and investors, the effect is reduced cost of capital

Eh Poon et al., (2022), studied the effect of enterprise risk management on the performance of SMEs in Malaysia. They used 8 elements of the COSO framework to represent ERM which is the independent variable while SME performance, measured by profits, share price and cost reduction, was the dependent variable. The eight COSO components that served as proxy are: objective setting, event identification, control environment, risk assessment, risk response, control activities, information and communication, and monitoring. The study adopted the purposive sampling method and collected data using questionnaires from 312 managers and business owners of SMEs. After running a regression analysis on SPSS, the results showed that while ERM was found to have a positive effect on SME performance, only three elements, namely, event identification, risk assessment, and risk response, have a significant impact on SME performance. One other key take-away from this study is that many SMEs are not implementing ERM, and are therefore not ready to take on extensive risks such as increasing medical expenses for employees, and cyber risks Working on a population of LQ-45 companies listed on the +Indonesian Stock Exchange,

Another study that considered performance from a fraud prevention perspective was carried out by Tarjo et al., (2022). The research examined the effect of enterprise risk management on the prevention and detection of fraud in Indonesia's local government. The study looked at ERM as a tool for detecting and preventing fraud, as well as for combatting corruption. The argument here is that financial performance improves when losses to fraud and corruption is minimized. They hypothesized that ERM can both detect and prevent fraud in the local government. The research adopted a mixed method using questionnaires to collect quantitative data and interviews to collect qualitative data. The independent variable, ERM was measured by 28 items from five of COSO's ERM dimensions of internal control namely control environment, risk assessment, control activities, information and communication, and monitoring. The results from the research showed that these internal control elements can both detect and prevent fraud. The research however is significantly limited by the fact that many respondents lacked a clear understanding of ERM

Odubuasi et al., (2022) did a comparative study of the effect of ERM on the earning capacity of African Banks drawing samples from Nigeria, Ghana and South Africa. Data for the study were obtained from the financial reports of the banks that were studied and analyzed using the panel data method. Risk Committee was used as a proxy for ERM while Firm Performance was measured by Return on Equity. Risk Committee was further broken down into component characteristics namely Committee Size, Committee Diligence, Committee Composition, Committee Gender Diversification, and Committee Expertise. Firm size and Leverage were

used as control variables. The study revealed a positive relationship between ERM and earning capacity with the highest effect found in Nigeria and the lowest in Ghana. The study recommended strict implementation of ERM in African banks and suggested that boards appoint knowledgeable and experienced people to their company's risk management roles. They acknowledged limitations placed on the study by the fact that only data from banks that had implemented ERM was used. A study by Jinadu, (2022), aimed to assess the impact of ERM on the performance of insurance companies in Nigeria. The researcher collected data by administering questionnaires to staff of 15 insurance companies from within the study population, though a purposive sampling technique was used to identify the top and bottom insurance 74 companies based on GWP (gross written premium). The result of the regression analysis carried out showed a positive and significant relationship between the dependent and predictor variables; firm performance and enterprise risk management respectively.

### Literature Gap

A review of existing literature on the effect of ERM on firm performance throws up geographical, domain, methodological and domain gaps. Only a few Nigerian researchers have studied the impact of ERM on firm performance in the insurance industry; most studies focused on Nigerian banks or the financial services industry in general. ERM is a process (not an event) whose effect or impact can only be observed after a number of years and results of such effect are better obtained from more objective secondary data. By using panel data from 37 insurance companies (70%) covering a 10-year time period, this study fills the vacuum created by the tendency to cover relatively short time periods. Furthermore, most studies on ERM's impact on firm performance lack a clear distinction between ERM adoption and implementation. The assumption that ERM is being properly practiced is often unrealistic, especially in highly regulated industries where ERM adoption is a compliance requirement.

### METHODOLOGY

This study made use of the *expo facto* research design and a census population sampling technique which captured all the 37 insurance companies in operation within the 10-year study period, 2010 – 2019, with the exception of takaful and re-insurance companies. The study period covers the inception of mandatory adoption of ERM by Nigerian insurance companies, but stops before the COVID-19 pandemic year which exposed the industry to unusual dimensions of risk and business losses. Secondary data was collected from the annual reports of the companies, as well as publications by the National Insurance Commission and the Nigeria Insurance Association. Multiple regression analysis was performed on the data collected using the SPSS software. The null hypotheses tested are that the chief risk officer, composition of the board risk committee, the enterprise risk management index, firm size, and firm age all have no effect on the return on asset of insurance companies in Nigeria.

Thus, the structural multiple regression equation is defined thus:

$$ROA_{it} = \beta_0 + \beta_1 CRO_{it} + \beta_2 BRCC_{it} + \beta_3 ERMI_{it} + \beta_4 FSize_{it} + \beta_5 FAge_{it} + \varepsilon_{it}$$

as adapted from Avetisyan, (2019) and Cioacă et al., (2020)

The items in the equation are defined as follows:

ROA<sub>it</sub> = Return on Asset (Dependent Variable),  $\beta_0$  = Constant of the Linear Equation, CRO<sub>it</sub> = Chief Risk Officer, BRCC<sub>it</sub> = Board Risk Committee Composition, ERMI<sub>it</sub> = Enterprise Risk Management Index, FSize<sub>it</sub> = Firm Size, FAge<sub>it</sub> = Firm Age,  $\varepsilon_{it}$  = The Model's Error Term,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  = Regression Coefficient of each Explanatory Variable

## RESULTS AND DISCUSSIONS

Results of descriptive and regression analysis are presented in Table 1 and Table 2 below

**Table 1 - Descriptive Data.**

	ROA	CRO	BRCC	ERMI	F. SIZE (Log)	F. AGE
<b>Mean</b>	0.025	0.42	1.72	1.54	7.27	33.78
<b>Median</b>	0.032	0	2	2	6.99	29.00
<b>Mode</b>	(0.036)	0	2	1	6.99	21.00
<b>Std. Deviation</b>	0.085	0.49	0.45	0.93	7.53	16.70
<b>Kurtosis</b>	7.98	(1.91)	(1.020)	(0.84)	1.80	(0.76)
<b>Skewness</b>	(0.44)	0.32	(0.99)	0.016	0.85	0.54
<b>Largest</b>	0.58	1	2	3	8.60	71
<b>Smallest</b>	(0.39)	0	1	1	5.62	2
<b>Population</b>	370	370	370	370	370	370

Source: Author's Computation, November 2023

Table 1 provides a summary of the descriptive analysis of the variables used in the study and provides useful insights on the how ERM affected ROA during the study period. The mean represents the central position in the dataset. The ROA mean of 0.025 indicates that average profitability of Nigerian insurance companies within the period is in the positive region, and a standard deviation of 0.085 shows how close the ROA values are to the mean despite the wide disparity between the largest and smallest (0.58 and -0.39). Kurtosis is a statistical measure of the tailedness of the distribution and points to how often outliers occur. The kurtosis of 7.98 for ROA is considered high since it is greater than 3 and confirms wide disparities in the profitability of the insurance companies. The negative values of the ERM measures, CRO, BRCC and ERMI indicates a flatter than normal distribution curve and shows the values fall within a more predictable band

Skewness measures the asymmetry of the distribution and a negative skewness of 0.44 and -0.99 for ROA and BRCC respectively means more of the values are medium to large, while the fewer, smaller values form the left tail of the distribution curve



**Table 2 - Multiple Regression Report**

Multiple Regression Analysis							
	Coefficients	Std. Error	T	p-value	Collinearity Statistics		
					Tolerance	VIF	
Predictors	(Constant)	0.360	0.084	4.265	0.001		
	CRO	0.044	0.033	1.326	0.186	0.809	1.235
	BRCC	0.034	0.037	0.906	0.366	0.760	1.315
	ERMI	(0.166)	0.033	(3.497)	0.001	0.774	1.292
	F. SIZE	0.707	0.039	18.321	0.001	0.914	1.094
	F. AGE	0.041	.031	1.334	0.183	0.952	1.050
R	0.728						
R <sup>2</sup>	0.530						
Adjusted R <sup>2</sup>	0.524						
F-statistics	82.209						
P-value	0.001						
Durbin-Watson	1.524						
Dependent variable: Return on Asset (ROA)					*significant at 5%		

Source: Researcher's Study, November 2023

From the regression table above, the estimated model is as follows:

$$ROA_{it} = \beta_0 + \beta_1 CRO_{it} + \beta_2 BRCC_{it} + \beta_3 ERMI_{it} + \beta_4 FSize_{it} + \beta_5 FAge_{it} + \varepsilon_{it}$$

$$ROA = 0.360 + 0.044CRO + 0.034BRCC + (-0.116) ERMI + + 0.707FSize + 0.041FAge$$

The result of the multiple regression analysis presented in Table 4.2 indicates that CRO, BRCC, ERMI, F. SIZE and F. AGE affect the return on asset. This is indicated by the parameters of the coefficients, which are  $\beta_1 = 0.044$ ,  $\beta_2 = 0.034$ ,  $\beta_3 = -0.116$ ,  $\beta_4 = 0.707$ , and  $\beta_5 = 0.041$  respectively. While CRO, BRCC, F.SIZE and F.AGE all affect ROA positively, ERMI has a negative effect. However, the effects of CRO, BRCC, and F.AGE were not statistically significant with p-values of 0.186, 0.366 and 0.183 respectively. With a value of 0.530 (53.0%), the model's coefficient of determination (R-squared) showed that variations in ROA can be explained by the independent variables, CRO, BRCC, ERMI, Firm Size and Firm Age. The remaining 47.0% is explained by other factors extraneous to the model

## DISCUSSIONS

The results of the multiple regression analysis carried out showed that the effect of ERM measures on the profitability of insurance companies in Nigeria is varied. CRO which measured ERM adoption, has a positive coefficient of 0.044 and thus has a positive effect on ROA though with a p-value of 0.186, the effect was found not to be statistically significant.

Similarly, BRCC which also measured ERM adoption, was found to have a positive effect such that each unit increase in ROA was accounted for by 0.034 units of BRCC but with a p-value of 0.366, the effect could not be said to be significant. These findings are similar to those of Phan et al., (2020) and González et al., (2020) who also found the effect of ERM on firm performance to be insignificant. It is however at variance with studies by da Silva et al., (2019), Witjaksono & Sari, (2021), and others on one hand, and those of Odubuasi et al., (2022), Shad et al., (2022), etc, on the other who found the effect of ERM on firm performance to be negative, and positive respectively at statistically significant levels. This finding should be of interest to the regulator as it aligns with those of previous studies that pointed at regulatory compliance as a catalyst for ERM adoption and the consequent tendency for superficial engagement (Adeyele & Maiturare, (2021), Grammenidis & Hiebl, (2021).

ERMI which measured ERM implementation had a negative effect on ROA (0.166), and the effect is considered statistically significant since the p-value is 0.001. This finding is in tandem with those of da Silva et al., (2019) and Luís et al, (2020) whose studies also showed that ERM can result in negative financial performance. In addition, the study showed that while both firm size and firm age had a positive effect on ROA (i.e. 0.707) and 0.041 respectively), the effect of firm size was found to be significant (with p-value of 0.001) but the effect of firm age was found to be not statistically significant with p-value at 0.183. Iswajuni et al., (2019), also observed a positive relationship between firm size and financial performance. This is arguably because large balance sizes increase a firm's earning capacity. However, age has been found to be more neutral as the whole spectrum of firm performance is commonly found at both ends of the firm maturity curve.

## **CONCLUSION AND RECOMMENDATIONS**

This research study examined the effect of ERM on the profitability of insurance companies in Nigeria. It revealed that while the appointment of a CRO, and the composition of a risk committee which represent ERM adoption did not have a significant effect on profitability, ERM implementation had a significant negative effect thus underscoring the fact that adoption does not necessarily infer implementation. The study confirms the notion that the use of ERM can be superficial, especially when it is required for regulatory compliance. Thirdly, the research raises concern about the effectiveness and efficiency of the implementation of ERM by Nigerian insurance companies. Based on these, the following recommendations are made as regards ERM adoption and implementation by the Nigerian insurance industry

- i. NAICOM should ensure that adoption of ERM by insurance companies is done in the spirit of its objectives, not just the letter. Only persons who meet predetermined requisite risk management skill and experience may be appointed CRO. They should also have an acceptable level of demonstrable independence, and a portion of their compensation tied to corporate risk performance
- ii. In the same vein, it is recommended that NAICOM steps up its oversight with respect to the composition and activities of board risk committees. With the exception of small-sized committees with only three members, each committees should have at least two truly independent directors, or one director, if such a person is the chair

- iii. There is a need for an industry study of ERM implementation practices to establish critical success factors and impediments. The regulator should facilitate and encourage trainings, workshops and peer reviews to help improve implementation.

### **CONTRIBUTIONS TO KNOWLEDGE**

This study explores the impact of Enterprise Risk Management (ERM) on insurance company profitability from both adoption and implementation perspectives, providing a more robust analysis than previous studies that primarily used single proxies like CRO. The study, which spans ten years, provides a comprehensive evaluation of ERM's impact on profitability. It employs a large dataset from 37 companies, a novel approach to academic research on the Nigerian insurance industry. The study is expected to pique researchers' interest and encourage further studies in the subject area. This study is also valuable for regulators and insurance professionals as it provides insights into the critical area of ERM implementation, encouraging them to re-examine their assumptions and practices to improve their ERM efforts and results obtained.

### **SUGGESTIONS FOR FURTHER STUDIES**

First of all, further studies on the effect of ERM on corporate financial performance will require a greater variety of methodologies. Secondly, despite their respective merits, use of secondary and primary data each have their drawbacks. Therefore, more studies that make use of the mixed method and more variables will therefore be most welcome. Another suggestion for further research is a comparative study that covers one or two other African nation economies, for example. Finally, since one of the goals of ERM is sustainability, it would be a good idea to study its effect on the corporate growth of insurance companies.

### **REFERENCES**

- Abbas, D. S., Ismail, T., Taqi, M., & Yazid, H. (2021). Determinants of Enterprise Risk Management Disclosures: Evidence from insurance industry. *Accounting*, 7(6), 1331–1338. <https://doi.org/10.5267/j.ac.2021.4.005>
- Abeyrathna, G., & Lakshan, A. M. (2020). Conference: International Conference on Business and Information ICBI 2020(online), University of Kelaniya (Vol. 11). Kelaniya; International Conference on Business and Information (ICBI). Retrieved September 29, 2022, from [https://www.researchgate.net/publication/347907188\\_Impact\\_of\\_Enterprise\\_Risk\\_Management\\_Practices\\_on\\_Performance\\_of\\_insurance\\_companies\\_in\\_Sri\\_Lanka](https://www.researchgate.net/publication/347907188_Impact_of_Enterprise_Risk_Management_Practices_on_Performance_of_insurance_companies_in_Sri_Lanka).
- Adeyele, J. S., & Maiturare, M. N. (2021). Enterprise Risk Management and Stakeholders' Value: Evidence from Nigerian Insurance Companies. *Lapai Journal of Management Science*, 10(1 & 2).
- Al-Farsi, H. A. (2020). The influence of chief risk officer on the effectiveness of enterprise risk management: Evidence from Oman. *International Journal of Economics and Financial Issues*, 10(1), 87–95. <https://doi.org/10.32479/ijefi.8932>

- Ali, M. M., Ab Hamid, N. S., & Ghani, E. K. (2019). Examining the relationship between enterprise risk management and firm performance in Malaysia. *International Journal of Financial Research*, 10(3), 239. <https://doi.org/10.5430/ijfr.v10n3p239>
- Anton, S. G., & Nucu, A. E. (2020). Enterprise risk management: A literature review and agenda for future research. *Journal of Risk and Financial Management*, 13(11), 281. <https://doi.org/10.3390/jrfm13110281>
- Beisland, L. A., Mersland, R., & Strøm, Ø. (2018). Use of big four auditors and fund raising: Evidence from developing and emerging markets. *International Journal of Emerging Markets*, 13(2), 371–390. <https://doi.org/10.1108/ijoem-11-2016-0321>
- Boyte-White, C. (2020) Revenue vs. Income: What’s the Difference? Corporate Finance & Accounting. Investopedia. <https://www.investopedia.com/ask/answers/122214/what-difference-between-revenue-and-income.asp>
- Brownstein, A., Neff, D., Miller, M., Lipton, M., Niles, S., & Rosenblum, S. (2018, March 20). *Risk management and the Board of Directors*. The Harvard Law School Forum on Corporate Governance. Retrieved November 23, 2022, from <https://corpgov.law.harvard.edu/2018/03/20/risk-management-and-the-board-of-directors-5/>
- Cassar, S., Salmon, J., Timperio, A., Naylor, P.-J., van Nassau, F., Contardo Ayala, A. M., & Koorts, H. (2019). Adoption, implementation and sustainability of school-based physical activity and sedentary behaviour interventions in real-world settings: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, 16(1). <https://doi.org/10.1186/s12966-019-0876-4>
- da Silva, A. F., Brunassi Silva, V. A., Sampaio, J. O., & Silva, J. R. (2019). Chief risk officers and firm value: Empirical evidence from the insurance industry. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3355854>
- Dang, C., (Frank) Li, Z., & Yang, C. (2018). Measuring firm size in empirical corporate finance. *Journal of Banking & Finance*, 86, 159–176. <https://doi.org/10.1016/j.jbankfin.2017.09.006>
- Desalegn, G. (2019). The effect of risk management on financial performance of insurance companies in Ethiopia. (financial, operational and enterprise management risk dimensions). *International Journal for Innovative Research in Multidisciplinary Field*, 5(10).
- Ebubejulius. (2022, September 9). *The big four accounting firms in Nigeria*. Business Elites Africa. Retrieved December 11, 2022, from <https://businesselitesafrica.com/2022/09/09/the-big-four-accounting-firms-in-nigeria>
- Egberi, K.A. (2022). Risk monitoring committee and firm value of listed oil and gas companies in Nigeria: a panel data analysis. *International Journal of Applied Economics, Finance, and Accounting*, (13)2, 61-68.
- Eh Poon, A., Roslan, N. H., Othman, J., Anuar, A., & Yousefi Nejad, M. (2022). The effect of Enterprise Risk Management (ERM) implementation on SME’s performance in Malaysia. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7(4). <https://doi.org/10.47405/mjssh.v7i4.1460>
- Erin-Olayinka, A., Uwuigbe, U., Sylvester, E., Ranti-Uwuigbe, O., & Osereme Amiolemen, O. (2019). Does enterprise risk management impact accounting quality? evidence from

- the Nigerian Financial Institutions. *Investment Management and Financial Innovations*, 16(4), 16–27. [https://doi.org/10.21511/imfi.16\(4\).2019.02](https://doi.org/10.21511/imfi.16(4).2019.02)
- European Central Bank. (2021, February 2). *Insurance corporations*. European Central Bank. Retrieved December 8, 2022, from [https://www.ecb.europa.eu/stats/financial\\_corporations/insurance\\_corporations/html/index.en.html#](https://www.ecb.europa.eu/stats/financial_corporations/insurance_corporations/html/index.en.html#).
- Faisal, M., & Challen, A. E. (2021). Enterprise risk management and firm value: The role of Board Monitoring. *Asia Pacific Fraud Journal*, 6(1), 182. <https://doi.org/10.21532/apfjournal.v6i1.204>
- Grammenidis, G., & Hiebl, M. R. (2021). Enterprise risk management in Germany. *Enterprise Risk Management in Europe*, 23–37. <https://doi.org/10.1108/978-1-83867-245-420211003>
- Hayes, A. (2022, April 18). *Chief risk officer (CRO)*. Investopedia. Retrieved November 24, 2022, from <https://www.investopedia.com/terms/c/chief-risk-officer-cro.asp>
- Hayes, A. (2022, September 15). *Enterprise risk management (ERM): What is it and how it works*. Investopedia. Retrieved November 14, 2022, from <https://www.investopedia.com/terms/e/enterprise-risk-management.asp>
- Herusetya, A. (2020). Audit Quality of Big Four Firms: Evidence From Client's Business Strategy. *Jurnal Reviu Akuntansi Dan Keuangan*, 10(3), 430–443. <https://doi.org/10.22219/jrak.v10i3.12994>
- Hidayah, R., Faizah, S. N., Sukirman, Suryandari, D., & Zahid, A. (2021). Corporate Governance, Enterprise Risk Management, and Company Performance. *Management Analysis Journal*, 10(3). <https://doi.org/10.15294/maj.v10i3.49518>
- Horvey, S. S., & Ankamah, J. (2020). Enterprise risk management and firm performance: Empirical evidence from Ghana Equity Market. *Cogent Economics & Finance*, 8(1), 1840102. <https://doi.org/10.1080/23322039.2020.1840102>
- Isaac K.K Samuel N.K & Kennedy, N.O (2021). Risk management and financial performance of insurance firms in Kenya. *Cogent Business & Management*,8(1), 1997246, DOI: 10.1080/23311975.2021.1997246
- Iswajuni I.A.M & Soengeng, S. (2019). The effect of enterprise risk management (ERM) on firm value in manufacturing companies listed on Indonesian Stock Exchange year 2010-2013. *Asian Journal of Accounting Research*, 3(2), 224- 235.
- Jinadu, M. N. (2022). Enterprise Risk Management and Insurance Company's Performance in Nigeria. *IOSR Journal of Business and Management (IOSR-JBM)*, 24(02), 2022, pp. 01-09. DOI: 10.9790/487X-2402050109
- Jurdi, D. J., & AlGhnamat, S. M. (2021). The effects of ERM adoption on European insurance firms performance and risks. *Journal of Risk and Financial Management*, 14(11), 554. <https://doi.org/10.3390/jrfm14110554>
- Kenton, W. (2022, September 26). *Understanding value at risk (VAR) and how it's computed*. Investopedia. Retrieved November 24, 2022, from <https://www.investopedia.com/terms/v/var.asp>
- Khalik, Z. A., & Sum, R. M. (2019). In *International Research Conference on Multidisciplinary in Social Sciences and Technology (IRCMST 2019)*. Lumpur.



- Retrieved November 22, 2022, from <https://www.researchgate.net/publication/333160422>.
- Kirchner, K. (2018, June 5). *Insurers provide stability to financial markets and the overall economy*. III. Retrieved November 23, 2022, from <https://www.iii.org/press-release/insurers-provide-stability-to-financial-markets-and-the-overall-economy-060518>
- Kopp, C. M. (2022, September 20). *Agency theory: Definition, examples of relationships, and disputes*. Investopedia. Retrieved December 30, 2022, from <https://www.investopedia.com/terms/a/agencytheory.asp>
- Kumar, S. (2021). Challenges in embedding enterprise risk management in the Indian market. *Academia Letters*. <https://doi.org/10.20935/al3841>
- Kumar, S. (2021). Risk culture is a necessary condition for enterprise risk management to succeed. *Academia Letters*. <https://doi.org/10.20935/al2464>
- Kumar, S. (2021). Risk management and enterprise risk management. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3891339>
- Li, H., Lam, H. K., Ho, W., & Yeung, A. C. (2022). The impact of chief risk officer appointments on firm risk and operational efficiency. *Journal of Operations Management*, 68(3), 241–269. <https://doi.org/10.1002/joom.1175>
- Linder, S., & Foss, N. J. (2015). Agency theory. *International Encyclopedia of the Social & Behavioral Sciences*, 344–350. <https://doi.org/10.1016/b978-0-08-097086-8.73038-8>
- Luthfiyanti, N. K., & Dahlia, L. (2020). The effect of enterprise risk management on financial distress. *Journal of Accounting Auditing and Business*, 3(2), 30. <https://doi.org/10.24198/jaab.v3i2.25910>
- Mardessi, S. M., & Ben Arab, S. D. (2018). Determinants of ERM implementation: The case of Tunisian companies. *Journal of Financial Reporting and Accounting*, 16(3), 443–463. <https://doi.org/10.1108/jfra-05-2017-0044>
- Mohd Idris, A., & A. A., O. (2021). The impact of board independence, gender diversity and nationality diversity on firm performance. *Asia-Pacific Management Accounting Journal*, 16(1), 323–346. <https://doi.org/10.24191/apmaj.v16i1-12>
- Muhammad, K. S., Fong-Woon, L., Amjad, S., Michael, M., & Sheikh, M.Z. (2022). The relationship between enterprise risk management and cost of capital. *Asian Academy of Management Journal*. <https://doi.org/10.21315/aamj2022.27.1.4>
- O'Donnell, J. B., & Sanders, G. L. (2003). *Agency theory*. Agency Theory - an overview | ScienceDirect Topics. Retrieved December 30, 2022, from <https://www.sciencedirect.com/topics/social-sciences/agency->
- Odubuasi, A. C., Ofor, N. T., & Ilechukwu, F. U. (2022). Enterprise risk management, risk committee, and earning capacity of African Banks: A Comparative Approach. *Modern Economy*, 13(01), 51–68. <https://doi.org/10.4236/me.2022.131004>
- Odubuasi, A. C., Ofor, N. T., & Ilechukwu, F. U. (2022). Enterprise risk management, risk committee, and earning capacity of African Banks: A Comparative Approach. *Modern Economy*, 13(01), 51–68. <https://doi.org/10.4236/me.2022.131004>
- Olayinka, E., Emoarehi, E., Johah, A., & Ame, J. (2017). Enterprise Risk Management and Financial Performance: Evidence from Emerging Market. *International Journal of Management, Accounting and Economics*, 4(9).

- Onipe, Y. A., & Ishaku, Y. (2022). Risk Committee's Influence on Enterprise Risk Management. *Journal of Risk and Financial Management*, 15(120).  
<https://doi.org/doi.org/10.3390/jrfm1502008x>
- Otero-González, L., Durán Santomil, P., & Tamayo Herrera, A. (2020). The effect of enterprise risk management on the risk and the performance of Spanish listed companies. *European Research on Management and Business Economics*, 26(3), 111–120. <https://doi.org/10.1016/j.iedeen.2020.08.002>
- Phan, T. D., Dang, T. H., Nguyen, T. D., Ngo, T. T., & Hoang, T. H. (2020). The effect of enterprise risk management on firm value: Evidence from Vietnam Industry Listed Enterprises. *Accounting*, 473–480. <https://doi.org/10.5267/j.ac.2020.4.0011>
- Pratt, M. K., Cole, B., & Gonsalves, C. (2021, October 12). *What is a chief risk officer (CRO)?* SearchSecurity. Retrieved November 23, 2022, from <https://www.techtarget.com/searchsecurity/definition/chief-risk-officer-CRO>
- Putra, O. P. B. (2017, December 30). *Basic principles of agency theory*. Management. Retrieved December 30, 2022, from <https://bbs.binus.ac.id/management/2017/12/basic-principles-of-agency-theory/> ay
- Rashid, A. (2018). Board independence and firm performance: Evidence from Bangladesh. *Future Business Journal*, 4(1), 34–49. <https://doi.org/10.1016/j.fbj.2017.11.003>
- Tan, Y. (2014). Corporate governance in the banking sector. *Performance, Risk and Competition in the Chinese Banking Industry*, 39–64.  
<https://doi.org/10.1533/9781780634463.39>
- Tarjo, T., Vidyantaha, H. V., Anggono, A., Yuliana, R., & Musyarofah, S. (2022). The effect of enterprise risk management on prevention and detection fraud in Indonesia's Local Government. *Cogent Economics & Finance*, 10(1).  
<https://doi.org/10.1080/23322039.2022.2101222>
- Zandi, G., Sadiq, M., & Mohamad, S. (2019). Big-four auditors and Financial Reporting Quality: Evidence from Pakistan. *Humanities & Social Sciences Reviews*, 7(2), 369–375. <https://doi.org/10.18510/hssr.2019.7.243>