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Enterprise Risk Management and Financial Reporting Quality: Evidence from Listed Nigerian Non-financial Firms

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Abstract: *Enterprise risk management and associated value relevance and quality of the financial information are said to be curial for sound corporate governance and organisational success. The value of enterprise risk management in checkmating managerial opportunistic tendencies and improving the quality of financial reporting has been debated by various scholars; the quarrelsome view in terms of the direction of their association has remained unclear, which entreats the exploration of the possible effect of enterprise risk management practices on the quality of firms' accounting numbers. The population of the study consists of all the 74 listed non-financial firms that are active on the Nigerian Stock Exchange as at 31st December, 2019 and whose data were for the period of the study 2010-2019. Secondary source of data was used and the data in respect of all the variables of the study was extracted from the Annual Report and Accounts of the firms. Longitudinal balanced panel multiple regression (two stage least square) was used as a technique of data analysis for the study. The study reveals that enterprise risk management has significant impact on quality of financial reports of the firms under investigation. Specifically, both Board Risk Management Committee and Value at Risk are positively, strongly and significantly constraining earnings management to improve quality of financial reporting. On the other hand, Cash Flow Volatility is inversely related with earnings management and therefore significantly diminishes the quality of accounting numbers in the financial statement of the firms. The implications of these findings show that when ERM is appropriately managed, a quite number of abnormal earnings would be exterminated, which improves the quality of financial reporting of listed non-financial firms in Nigeria. What is left to be done therefore, is for the regulatory bodies like FRCN, SEC, and NSE to ensure that listed firms in Nigeria strictly adhere with code of best practice of corporate governance, COSO frameworks and all other enactments in terms of integrated risk management, so that the quality of financial reports is protected and enhanced so that the contents do not mislead both existing and prospective investors which influence investment decision as well as the cost of raising funds especially among the listed Nigerian non-financial firm.*

Keywords: *ERM, Cash flow Volatility, Value at Risk, Fraud Risk Factors, FRQ and Nigeria*

1. INTRODUCTION

The general operating environment of business organisations in modern times has been characterized by turbulences and uncertainties necessitating thoughtful Enterprise Risk Management (ERM) initiatives. COSO (2004) observed that all organisations are confronted with uncertainty- both risks and opportunity- and the primary challenge is to manage it in order to maximize shareholder value. The increasingly dynamic and complex nature of significant risks and their materialization are a serious concern to all organisations (Hardy: 2010) and thereby making risk management a crucial issue in today's dynamic global business environment (Gordon, Loeb & Tseng, 2009). The main preoccupation of ERM underlies the philosophy of proactively confronting the risk exposures of an entity in a comprehensive and coherent manner instead of addressing them on individual basis (Bromily, McShane, Nair and Rustambekov, 2015). ERM is a strategic governance mechanism for an integrated management and control of the organisation contingent on corporate strategy for enhancing entity's performance. The COSO 2004 Enterprise Risk Management- Integrated Framework defines 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 risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives''. The Traditional Risk Management (TRM) approach addresses risks based on the silo mentality- individually, defensively and without synergy. The TRM has been described as ineffective in the treatment of risks since risks are being managed discretely, fragmentally and exclusively in silos (Quon, Zeghal & Maingot: 2012). The ERM perspective emerged in the 1990s to counteract the shortcomings of the TRM approach thereby managing risks as a portfolio to enhance financial reporting processes (Cohen, Krishnamoorthy & Wright 2014; Hsu, 2018), ensuring the integrity of entity's accounting and reporting systems (OECD, 2014), quality and integrity of financial information (Amartey and Kamal, 2018) and for organisational performance (COSO, 2017).

The global financial crises of the 2007-2008 brought to the fore the significance of risk management in the global business arena (Quon *et al.*, 2012). Prominent corporate governance scandals and accounting frauds like the famous Enron, WorldCom, Parmalat, Cadbury Nigeria Plc in Nigeria have been recorded. In Nigeria for instance, the Central Bank of Nigeria (CBN) had bailed out banks ''in grave situations'' with over ₦200Billion in 2009 as a fall-out of the financial crises. Consequently, the attention of regulators and corporate boards have been redirected to address not only corporate governance but internal controls (Luo, 2017; Chen, Chan, Dong and Zhang; 2015) and risk management (OECD, 2014). A plethora of corporate governance and risk management frameworks have over the two decades been crafted to address risk management concerns to enhance transparency, reliability and integrity of financial statements. Two streams of jurisdiction have emerged namely the voluntary codes and mandatory/ statutory provisions for the improvement of corporate governance and risk management. The UK Code of Corporate Governance Code 2010 epitomizes a voluntary jurisdiction on corporate governance and risk management and many other country-wide jurisdictions like the Code of Corporate governance issued by the Nigerian Securities and Exchange Commission (SEC) in 2003 and revised in 2011 and the latest Nigerian Code of Corporate Governance 2018 issued by the Financial Reporting Council of Nigeria (FRCN). The US Sarbanes-Oxley Act 2002, made statutory provisions for compliance with respect to many governance issues including risk management and internal control. As postulated by COSO (2004), one of the objectives of ERM system is to guarantee the attainment of the reliability of reporting.

The COSO (2017) Enterprise Risk management- Integrating Strategy and Performance together with its sister counterpart the COSO Internal Control Integrated Framework 2017 posited that the overriding goal of enterprise risk management and internal control system of corporate entities is to ensure value relevance, reliability of financial reporting, for sustainability reporting and for compliance with regulations. The emergence of the global economic meltdown of 2008-2009 and its negative consequences on corporate entities globally have caused the attention of governments, regulatory agencies and corporate entities to underscore the imperative of risk management as an important corporate governance mechanism (McShane, Nair & Rustambekov, 2011). COSO (2004 & 2017) posit that Internal control mechanism is complimentary to risk management and inherently connect. In this regard, consequences of corporate scandals and opportunistic accounting practices have brought to the fore the question of effectiveness of internal control (Chen *et al.*. 2015) and the adequacy and efficacy of risk management (Bromily *et al.*, 2015). For instance, the 2011 SEC's Code of Corporate Governance (Section 10) and the 2018 FRCN'S Nigerian Code of Corporate Governance (Section 11.5) stipulate new corporate governance requirements requiring Risk Management Committee of all quoted companies to be proactively and deeply involved in risk governance and oversight.

ERM has become increasingly germane for managing entity-wide risks (Gatzert & Martin, 2015). The precursor of the Financial Reporting Council of Nigeria (FRCN), the Nigerian Accounting Standard Board (NASB) provided for accounting standards and regulations that exact strict quality of accounting information to reflect objectivity and reliability of financial statements and to mitigate the risks of misstatements. Consequently, enterprise risk management and associated value relevance and quality of the financial information are curial for sound corporate governance and organisational success. According to the International Accounting Standard Board (IASB), the quality of financial reporting should incorporate its relevance, faithful representation, understandability, comparability, verifiability and timeliness. This should invariably incorporate both its fundamental qualitative and enhancing qualitative characteristics for it to be useful (Herath & Albarqi, 2017).

The quality of financial accounting information in Nigeria has been described as weak (Soyemi & Olawale, 2019). In order to enhance the quality and integrity of financial reporting, risk management and the emerging enterprise risk management perspective should be strengthened and improved upon. The efficacy and integrity of the internal control mechanism (Luo, 2017) and its complimentary enterprise risk management system are crucial for enhanced quality of reporting information (COSO, 2004). Justification for the institution of proactive and holistic risk management system in the Nigerian economy has been heightened following the devastating impact of the global financial crises that caused exposure of the Nigerian capital market to toxic assets associated by the Oil and Gas Sector (Sanusi, 2011) with estimated plummeting of the total market capitalization of the Nigerian Stock Exchange (NSE) by 32.4% that affected both the financial and real sectors of the economy (Sanusi, 2010). The final conclusions of investigations into the monumental accounting and corporate scandals in Cadbury Nigeria Plc in March 2009 had established frauds of ₦13 Billion with dire consequences on corporate governance (Okaro and Okafor, 2014). Therefore, the history of corporate governance frauds and financial scandals in Nigeria has affected both the financial and non-financial sectors of the economy.

As provided for in the 2011 SEC Corporate Governance Code and the latest lunched 15th January, 2019 Nigerian Corporate Governance Code (NCGC) by the Financial Reporting Council of Nigeria (FRCN), all corporate entities have been mandated to comply with adoption of risk governance and oversight systems. As the nonfinancial corporate institutions comply with adoption of risk management systems, the impact of the adoption as regards the quality of financial reporting has not been settled and clear. This research seeks to conduct an empirical study on the nexus between ERM as a corporate governance mechanism on the quality of financial reporting of non-financial entities quoted on the Nigerian Stock Exchange (NSE). This research has taken academic interest in the previous research conducted by diverse academics including but not limited to Klein (2006)

Song and Kemp (2013), Cohen, Krishnamoorthy, & Wright (2004), Zhang (2014), Wang, Bloomberg, Zhang & Zhang (2015), Prawitt, Smith & Wood (2009), Luo, M. (2017), Wadesango; Mhaka, & Wadesango, (2017), Cohen, Krishnamoorthy, & Wright (2017), Nichita, M. (2018); Amartey & Kamal, (2018), Olayinka, Uwuigbe, Sylvester, Uwuigbe & Amiolemen (2019); Haruna, Kwambo & Hassan (2018). Most of the aforementioned cited studies were done based on investigations regarding internal control, board characteristics and general corporate governance on the quality of financial accounting information mostly in the Organisation of Economic Cooperation and Development (OECD) Countries. There are only a handful of research works on the effects of enterprise risk management on the quality of financial information such as USA (Song & Kemp, 2013; Edmond, Edmonds, Leece & Vermeer 2015, Amartey and Kamal, 2018; Cohen, Krishnamoorthy, & Wright (2017); Japan (Yasuda, Okuda, & Konishi, 2004) Romania (Nichita & Vulpoi,2016); Iran (Akbari, Samadi & Jafari, 2016; Kordlouie, Sadeghi and Sadeghim2018) Indonesia (Ningtyas and Adhariani, 2019) Zimbabwe (Wadesango; Mhaka, & Wadesango, 2017); Nigeria (Olayinka *et al.*. 2019). As has been posited by McShane *et al.*. (2011) the findings on the nexus between ERM system and the diverse dimensions of firm value have been mixed. Gordon *et al.* (2009) asserts that the empirical evidence establishing the link between ERM and firm value has been very limited and not premised on a robust measure of the ERM construct.

This paper provides an empirically-grounded investigation from a Nigerian perspective based on the non-financial firms in a developing economy context. It discovers novel insights into the deductive reasoning of previous works on risk management as a corporate governance mechanism drawn from across diverse jurisdictions and from different industries. Most of the previous studies in this area focused on the financial industry (Hoyt & Liebenberg, 2011; McShane *et al.*. 2011; Liebenberg and Hoyt, 2003; Gatzert and Martin, 2015; Soliman & Adam, 2017). Senol & Karaca (2017) assert that even though ERM research has been preponderant in the financial sectors, it has started being investigated in the real sector. The only two recent research papers in Nigeria namely Haruna *et al.*, 2018; Olayinka *et al.*. 2019) are relevant studies. However, Haruna *et al.*. (2018) investigated effect of board characteristics and earning quality in quoted Nigerian conglomerates while Olayinka *et al.*. 2019 conducted a study on the effect of ERM on financial reporting quality with focus on the financial industry whereas the focus of this research is on the non-financial sector of firms quoted on the Nigerian Stock Exchange. Also this study adopts different measurement methodologies in respect of both the independent and dependent variables. The findings of the diverse research on risk/ERM, and related governance, financial and accounting constructs and value of the firm in Nigeria like the research of (Hassan & Ahmed, 2012; Kolapo, Ayeni & Oke 2012; Hassan (2015); Ahmed and Abdul Manab, 2016; Soliman & Adam, 2017; Olayinka, Emoarehi, Jonah & Ame (2017; Haruna *et al.*. (2018)) have been mixed, controversial and inconclusive. To the best of our knowledge, there is no any empirical research on the impact of ERM initiatives on the quality of financial reporting in the non-financial firms in the Nigerian economy. This research employs novel multi-faceted proxies of ERM to explore its effect on the quality of financial reporting in the non-financial firms in Nigeria.

More importantly, the Financial Reporting Council of Nigeria (FRCN) and other relevant regulatory authorities like the Security and Exchange Commission (SEC) emphasized the strengthening of corporate governance mechanisms to enhance quality and integrity of financial reporting of corporate entities. Contrary to this, a few evidences from the Nigerian Security and Exchange Commission (SEC) indicated evidence for opportunistic accounting practices and material misstatements in financial reports (Ogiedu & Odia 2013; Okaro and Okafor, 2014; Uwuigbe, Olorunshe, Uwuigbe, Ozordi, Asiriuwa, Asaolu, & Erin, 2020). Yet there has been paucity of research work investigating the impacts of ERM mechanism on quality of financial reporting pursuant to the Nigerian Corporate Governance Code and other extant SEC regulations.

The next sections of the research are organized as follow; Section 2 reviews the theoretical literature and develops testable hypotheses. Section 3 reviews the empirical studies on the nexus between ERM and Quality of Financial reporting. Section 4 examines the research methodology and model specification. Section 5 presents the major research findings and Section 6 offers the conclusions and recommendations of the research study.

2. THEORETICAL FRAMEWORK & HYPOTHESES DEVELOPMENT

This study discusses how an ERM system engenders a qualitative accounting information and reporting in the nonfinancial institutions listed on the Nigerian Stock Exchange (NSE). A few empirical research studies such as (Song and Kemp, 2013; Cohen *et al.*, 2017; Amartey & Kamal, 2018; Wadesango *et al.*. 2017 and Olayinka *et al.*. 2019) have established the link between ERM and Financial Reporting Quality (FRQ). However, they have failed to integrate multiple-faceted quantitative dimensions of the measures of ERM on the FRQ. In fact, as a fall out of the global and national corporate accounting scandals, one of the main preoccupation of corporate governance is to align the interest of the management with the stakeholders. As argued by Bukit and Iskandar (2009) the Agency Theory advocates a chain of corporate governance mechanisms to mitigate the inherent conflicts of interest between managers and shareholders through both internal and external interventions like board committees, internal audit, institutional shareholders, mergers and acquisitions, regulatory authorities and use of external auditors. ERM has been advocated as a mechanism of corporate governance serving as an effective means to reduce the incidences of fraudulent and opportunistic accounting thereby enhancing the quality of financial reporting in the corporate world (Cohen, *et al.*, 2014). Achieving enhanced quality of financial reporting implies low level of manipulative accounting practices and sound risk management system as a corporate governance mechanism.

It is further observed that engaging in earnings management practices could result to misrepresentation of financial statement arising from conflicting interests between the principal and agent. Contingent on the Agency Theory, management will have the incentive to act in its selfish interests instead of those of the owner/principal. The celebrated work of Jensen and Meckling (1976) popularized the Agency Theory depicting the principal-agent relationship when the principal or owner employs an agent to undertake some services on its behalf which usually lead to conflicts of interest with attendant agency problem under the assumption that the agent will act inconsistent with the best interest of the principal. Amartey & Kamal (2018) posited that the outcomes of managerial decisions based on conflicts of interest could influence the quality of financial reporting both in the short and long terms but using ERM system could mitigate the risk of financial reporting manipulation. Risk management theory postulates the mitigation of accounting and financial costs which ultimately engender the improvement of value of the firm (Yang *et al.*, 2018). This is a clear demonstration that in empirical terms, ERM is based on quality financial reporting (Gordon *et al.*, 2009). The academic literature has favoured the contention that ERM practices mitigate the problems of opportunistic accounting, financial frauds and restatements (Cohen, *et al.*, 2004).

The import and significance of the Agency Theory in this study is to provide a sound theoretical foundation for providing critical expected role of ERM practices in mitigating the negative consequences of earnings management hence reduction of conflicts of interests between the managers and stakeholders. The theory can also be used to justify the use of Risk Management Committee, the technique of Cash Flow Volatility and Market Risk through Value at Risk (VaR) Approach in monitoring earnings management practices with a view to enhancing the quality of financial reporting.

2.1. Hypotheses Development

Risk management practice has been regarded as the cornerstone of sound corporate governance (Miller, Kurunmaki and O'Leary, 2008). The ERM is a multidimensional term (Bromiley *et al.* 2015) and has been measured with different dimensions (Yang *et al.*, 2018). McShane *et al.*. (2011) assert that a crucial challenge in ERM research is developing not only valid but reliable measurement of the ERM construct. Empirical research on ERM were generally devoid of any specifics on how to measure ERM quantitatively (Gordon *et al.*; 2009). The risk management function has assumed a novel variety of multiple risk elements and risk measures in recent times (Nocco and Stulz; 2006). To take care of this limitation, the study adopts multi-faceted quantitative measures of ERM for the research namely Board Risk Management Committee, Cashflow Volatility and Value at Risk (VaR) as proxies for Enterprise Risk Management (ERM).

Through ERM practices, maximising shareholders' value, consistently enhancing the integrity of accounting information to investors and earnings their confidence is overriding objectives of business entities (COSO, 2004). The hallmark of good organisational performance could be established through quality of financial reporting processes and outcomes (Cohen *et al.* 2014; Cohen *et al.*. 2017 & Amartey and Kamal, 2018). The nexus between risk management and quality of financial reporting has been established by previous studies like (Song & Kemp, 2013; Cohen *et al.*. 2014; Amartey and Kamal, 2018 and Olayinka *et al.*. 2019). The attainment of this desirable goal is inherently associated with influencing perception of the financial market regarding the entity's risk exposures as an increase in risk exposures could be associated with manipulative accounting practices and high earnings management (Neffati, Fred & Schalck, 2011). Against this background, it is the contention of this study that when integrated multi-prong quantitative measures of ERM proxies are adopted, this would inherently translate into significant enhancement of quality of financial accounting information to stakeholders. To test this proposition, the following null hypotheses are proposed:

H_{O1}: Board Risk Management Committee has no significant effect on quality of financial reporting of listed nonfinancial firms in Nigeria.

H_{O2}: Cashflow Volatility has no significant effect on quality of financial reporting of listed nonfinancial firms in Nigeria.

H_{O3}: Value at Risk has no significant effect on quality of financial reporting of listed nonfinancial firms in Nigeria.

3. REVIEW OF EMPIRICAL RELATED STUDIES

Enterprise Risk management as a modern governance buzzword encapsulates an integrated strategic initiative for managing the entire gamut of risks confronting an organisation in a cohesive, proactive and tailored manner to engender benefits to the organisation. ERM offers a new paradigm shift at managing the risks factors holistically to give effect to market leadership, organisational growth and enhancement of investor confidence (Meier, 2000). A standard code of corporate governance should hold firms to comply to adopt risk management systems and practices but the strategy for risk governance may differ from one firm to the other. It is therefore, logical to assert that the difference in risk management practices and systems creates variations in the efficacy of risk governance and their effects on the quality of financial reporting. It is however, necessary to posit that risk governance are inherently contingent on firm's characteristics and both internal and external factors. Therefore, there cannot be a universal approach to adoption and implementation of ERM system. Gordon, *et al.*. (2009) posited that implementation of ERM system could produce the optimal effects if executed in conjunction with the existential contextual factors surrounding the firm. From the irrelevant school of risk management popularized by Modigliani and Miller (1958), there has been continuation of healthy academic debate on the efficacy of risk management and now ERM practices which have created a favourable ground for investigations in corporate governance research, accounting and finance fields. However, Herath & Albarqi (2017) posits that corporate governance practices have crucial role in ensuring the quality of financial reporting.

The ERM is an emergent term in governance and the finance and accounting literature with diverse meanings (Bromiley *et al.*. 2015) and considered as an all-encompassing concept (Power, 2009. This study examines the influence of ERM system on the quality of financial reporting of nonfinancial firms in the Nigerian economy. The streams of the literature in corporate governance research in relations to quality of financial reporting could be categorized into investigations of general corporate governance on the quality of financial reporting, examination of discrete board characteristics or combinations like board characteristics, the reputation of the CEO, managerial ability, internal audit and risk management on the quality of financial reporting. For the sake of this study, we consider three significant dimensions of ERM namely Board Risk Management Committee, cashflow volatility technique and the Value at Risk (VaR) on the quality of financial reporting. It has been opined that the primary responsibility of corporate governance is to ensure robust linkage of risk management, accounting function and compliance with regulations (Kommunuri *et al.*, 2014). Beasley, Clune & Hermanson (2005) posit that adequate and fit corporate governance mechanism must always be instituted and operationalized to effectively manage the constantly changing risks portfolio confronting firms to ensure shareholder value at risk. At the same time, it is recognised that the VaR model is mainly suitable for measuring market risk, and not a measure of credit risk (Li, 2015). Thus, Value at Risk (VaR) is used as a proxy for Market Risk in this study.

In the literature, enterprise risk management practices have been widely studied and discussed based on qualitative and quantitative research methods. For instance, the research studies qualitatively conducted on the effect of ERM practices on quality of financial reporting like (Cohen, *et al.*. 2004; Wadesango, *et al.*. 2017; Cohen *et al.*, 2014; Luo, 2017). Moreover, other research adopted the quantitative approach like (Neffati, *et al.*, 2011, Ishak, Atef & Yusof, 2013; Hassan and Bello, 2013; Song & Kemp, 2013; Hassan, 2015; Nichita & Vulpoi, 2016; Shankaraiah & Amiri 2017; Ishak, Amran, & Abdul Manaf, 2018; Amartey & Kamal, 2018; Haruna *et al.* 2018; Olayinka *et al.*. 2019). This study focuses on all the previous research works on the effect of ERM on the quality of financial reporting in various jurisdictions.

3.1. Board Risk Management Committee and Quality of Financial Reporting

The increasing uncertainty and complexity of business operations has underscored the consideration of risk exposures of all entities. Klein (2002) found evidence that firms with inefficient and weak boards and audit committees devoid of independent status were prone to opportunistic accounting. Best practice corporate governance requirements have necessitated the committees of board of directors (the audit, finance or risk management committee) to increasingly focus on risk management (Yatim, 2009). The best practice corporate governance proposition especially by the 2004 and 2017 COSO ERM Frameworks and many national corporate governance codes recommend the establishment of separate risk management committee of the Board specifically for providing technically focused and thoughtful risk governance for overall objectives of achieving entity's strategic, operational and reporting objectives. Cohen *et al.*. (2004) using surveys and interviews explored the role of both internal and external corporate governance agencies including the board, audit committee, internal audit, external auditors and management in ensuring the quality of the financial reporting. They found that applying multifaceted governance mechanisms would enhance the financial accounting information quality. The study did not incorporate the role of the Risk Management Committee (RMC) as a separate and technical governance agency in ensuring qualitative financial reporting information. Neffati *et al.*. (2011) investigated through an empirical research amongst 222 U.S. firms if risk management was a positive motivation for earnings management. They established that risks were positively correlated with earnings management and that sound corporate governance could mitigate earnings management. Though the study focused on nonfinancial firms in the USA, it relied on the qualitative characteristics of the boards of the surveyed companies. Related research works like Luo (2017) established that weak internal control system significantly results in poor quality of accounting information and Hassan (2015) had established that after the adoption of IFRS, firms' characteristics significantly influenced the quality of earnings among the Deposit Money Banks in Nigeria. Ishak *et al.* (2018) using firms' characteristics and Malaysian Corporate Governance Index as a moderating factor established that large companies indulged in manipulative accounting practices in Malaysia and thus negative effect on quality of reporting information but found that firms with high leverage and being audited by ''the four big'' accounting firms demonstrated low involvement in earnings management. Using data from the audited accounts of conglomerates on the NSE and two-step regression analyses, Haruna *et al.* (2018) found that board characteristics was influential in mitigating the effects of opportunistic accounting practices and hence quality of financial accounting information.

In a related study Ishak *et al.*. (2013) using multivariate analyses, examined how formation of Risk Management Committee (RMC) could affect the modified audit report of both non-banking and financial entities in Malaysia. They found that formation of separate RMC with membership of independent non-executive status grounded with financial and accounting orientation would mitigate against acceptance of modified audit report and hence quality of accounting information. The main strength of the study was using a quantitative empirical approach establishing evidence on the efficacy and importance of a separate RMC as a corporate governance mechanism to check against modified audit report. Amartey & Kamal (2018) employing ERM Scores from U.S insurance firms by the statistical techniques of Fixed Effects Regression and Generalized Method of Moments (GMM) estimator established that implementing ERM programme increased the quality of financial information by mitigating the risk of financial statement manipulations. The study also found that robust ERM system influenced auditors' perception of risk profiles in audit against the audit fees charges and audit report lags related to annual financial statements of the firms. Hassan and Bello (2013) examined the effects of ownership structure, monitoring and performance dimensions of 24 firms' characteristics of manufacturing companies listed on the NSE. The results of the multiple regression analysis indicated that larger and more financially leveraged firms with active involvement of institutional shareholders were not motivated to indulge in manipulative accounting and thereby enhancing the quality and integrity of the financial reporting information to stakeholders.

In related literature, Shankaraiah & Amiri (2017) investigated the quality of audit committee and its relationship with the quality of financial reporting of 133 quoted companies on the Bombay Stock Exchange in India over a ten-year period. It was statistically established that firms could enhance financial reporting quality of its audit committee by managing its size and meeting frequency. It was however, found that tenure and shareholding of CEO, board independence, proportion of independence directors and both the legal and financial qualifications of the members have no effect on financial reporting quality. The main drawback of the research is its methodological flaws as it employed a non-robust statistical techniques of Pearson Correlation Coefficient and the T-test and ANOVA to test the developed hypotheses. Also, Nichita & Vulpoi (2016) using the professional services entities in Romania during 2009-2013, employed simple regression analysis to examine the relationship between the size, financial leverage and profitability on quality and reliability of information disclosures in their financial statements. The results indicated that only company size consistently indicated positive effect risk disclosures where financial leverage, profitability and audit firm size indicated mixed results.

Wadesango *et al.* (2017) surveyed the role played by ERM and the internal audit function in enhancing the quality of financial reporting in universities in Zimbabwe. The research employed the desktop approach based on literature survey. It identified gaps in compliance with the requirements of the control environment and differences due to the strength and efficacy of corporate governance systems in the universities. The main weakness of the study was in the use of desktop study which is replete with validity and reliability deficit and lack of rigour in methodology. Cohen *et al.* (2014) empirically studied the influence of ERM practices on the financial reporting processes leveraging on the experiences of the audit committee, CFOs and external auditors. Using a qualitative interview with ''the governance triad'', respondents underscored the significance of risk and operational efficiency, and perceived role of the audit committee in ensuring a robust ERM system to engender the quality of the reporting processes. The study is a qualitative research based on a developed economy in the USA while this is based on the quantitative research approach based on a developing country like Nigeria.

Song & Kemp (2013) investigated whether the effect of ERM programme would mitigate the risk of material weaknesses in internal control over financial reporting quality. Using US SEC registrant to determine firms that implemented ERM programme and firms' characteristics of size, growth and profitability as control variables, the linear regression analysis established empirical evidence that public companies with ERM systems reported less material weaknesses over financial reporting than public companies without ERM programme. But empirical findings indicated that the strengths of the findings were not statistically significant. While the study established control variables of sales and profitability to be positively related with the existence of material weakness in control over financial reporting, the firm size dimension yielded a negative relationship. Overall, the statistical correlations indicated that relationship between material weakness in internal control over financial reporting and the control variable used were not significant. Olayinka *et al.*. (2019) investigated the impact of ERM on quality of accounting information from the Nigerian financial sector using content analysis panel data based on Generalized Method Moments estimator to test hypotheses of the study. It was found that ERM had no effect on accounting information quality in the pre-ERM periods but significant positive correlations were established between ERM implementation and quality of accounting information in the post-ERM periods. This signifies that ERM programme implementation had mitigating effect on use of earnings management and discretionary accruals.

3.2. Cashflow Volatility and Quality of Financial Reporting

In modern capitalist economy, regular and sustainable cashflow streams are a necessary for organisational survival and performance. Based on the accrual basis of accounting, firms have discretionary powers to effect changes to the books to attain specific organisational and stakeholder objectives. The ERM as a portfolio approach to managing risks seeks to mitigate the probability of unfavorable earnings and increased cash inflows by risks aggregation and mitigation across the corporate entity (Pagach and Warr, 2010). It has been canvassed that a successful ERM implementation engenders smoother earnings capabilities and reduced likelihood of experiencing unfavorable earnings and cash flows which could lead to both direct and indirect costs (Kommunuri et.at., 2014). Related empirical studies have revealed diverse interesting academic findings on various dimensions of corporate governance and finance which allude the fact that corporate financial policies are contingent on cashflow streams like the studies of Easterwood, Paye & Xie (2017); cashflow volatility and debt financing and accounts payable (Santousuosso; 2015); cashflow volatility and costs of capital and discretionary investment (Minton & Schrand, 1999) and cashflow volatility and systematic risk (Barrese & Wang, 2008). Lukianchuk (2015) critically examined the impact of ERM on firm performance of 208 Small and Medium Enterprises (SMEs) in the UK by employing Seemingly Unrelated Regression (SUR) technique. The result indicated a statistically insignificant relationship between cash flow volatility as a proxy of ERM and Return on Asset (ROA) as a measure of firm performance amongst the sampled SMEs. The evidence also indicated insignificant results based on some dimensions of governance like the gender of the directors but significant relationship with number of executive directors with firm performance. Even though this study was in respect of MSEs, it is relevant as it highlighted that cashflow volatility could stand as an important proxy for ERM adoption and implementation

Huang, Guo, Ma & Zhang (2015) investigated the effect of cash holdings for or against material weaknesses in the internal control mechanism over financial reporting quality within the context of Sarbanes-Oxley 404 internal control evaluations threshold. Overall, the study indicated that cash and near-cash investments and related securities were significantly more valuable assets for weak internal control over financial reporting entities as against strong and effective internal control over financial reporting firms. This is logical with the thinking that the unfavourable effect of cash-induced agency costs over weak internal control over financial reporting entities was more than offset by the favourable effect of precautionary cash position of the firm. A related research by Douglas, Huang & Vetzal (2012) empirically examined the impact of cashflow volatility on corporate bond yield spreads in the USA. Using a robust statistical analysis and after controlling for relevant investment factor like share return, time to maturity, credit rating, financial leverage, the study established that cashflow volatility had a strong statistical significance and economic impacts on corporate bond yield spreads. Though the research is related with focus on cashflow risk on an important financial policy goal-bond yield spreads, this research is on ERM proxy of cash flow volatility on quality of financial accounting information.

Wei (2018) conducted an empirical study using the COMPUSAT dataset of American listed firms to investigate the relationship between cashflow volatility and corporate value of the firm and its earnings policy outcomes. The major finding of the robust statistical regression analyses showed evidence that stake holders and investors would attach higher premium of corporate value to firms with consistently normal and smooth cashflow when earnings management were not detected and would prefer firms with irregular cashflow given the fact that those firms were indulged in earnings management. The overall result indicated a negative statistical effect of cashflow volatility on firm value implying increased cashflow irregularity caused investors to attach low value estimation to the firm. This research is germane to our research as it particularly used cashflow volatility to measure organisation-wide risk on earnings management and overall effect on value of the firm. It also focused the empirical research on the non-financial institutions in the US economy using the data information from the standard COMPUSET source. A related empirical literature was study conducted by Li, Abeysekera & Ma (2014) which found that the financial status of the firms on the earnings management component like accruals quality, earnings predictability and smoothness of earnings were significant but not particularly relevant to earnings persistence. But further statistical analyses showed that firm specific issues like how healthy, distressed or bankrupt the firms were doing did not indicate distinct variations in the earnings quality attributes of the companies. Though this study was based on a developing economy like Nigeria, its independent variable was on the impacts of financial categorization of the studied firms based on the quality of earnings management while the focus of this research would be on the nexus between cash flow volatility as a measure of ERM on financial reporting quality within the context of non-financial sector of listed firms in Nigeria.

Related studies like Bukit and Iskandar (2009); Ujah and Brusa (2014) and Foroozian and Gaskari (2016) variously examined the effects of cashflow, financial leverage and earnings management of listed companies under different jurisdictions. Bukit and Iskandar (2009) investigated if free cash flow as moderated by independent audit committee of the board provided an effective agency mechanism to mitigate earnings management practices. Employing a sample of 155 firms listed Bursa Malaysia IN 2001, the research established evidence that with surplus free cashflow streams and moderated by effective audit committee, it served as a veritable monitoring tool to reduce the negative consequences of earnings management. Ujah and Brusa (2014) using diverse industry studies established that cash flow volatility and leverage impacted on the degree of earnings management depending the type of the industry of study but the consumer staples and consumer cyclical sectors were very much susceptible to high level of manipulative accounting and the transportation and utilities industries were least amenable to opportunistic accounting practices. Foroozian and Gaskari (2016), using a data of 90 quoted firms on the Tehran Stock Exchange, examined the effect of cashflow volatility and financial leverage on the earnings management practices of the sample firms using the technique of multivariable regression. The research evidences found that while cashflow volatility had statistical positive impacts on earnings management, financial leverage demonstrated a statistically negative effects on earnings management practices of the studied firms.

3.3. Value at Risk and Quality of Financial Reporting

Studies show that there is no a universally agreed VaR model that can be relied upon to provide an accurate forecast for any sample dataset. The more advanced models, which allow for heteroscedasticity and other conditional parameters should provide a more accurate forecast than the more traditional models. Turner (2009) is critical of the framework in which VaR models have been applied and studies question the very idea of using statistical models for risk assessment by firms. Despite the warnings of Turner, Taleb and other critics of VaR models, most firms continue to employ them as their primary tool for market risk assessment and economic capital allocation. VaR models are usually based on normal asset returns and do not work under extreme price fluctuations. This point is emphasised through the financial market crisis of 2008.

Kuesters, Mittnik & Paolella (2006) applied both a conditional and an unconditional VaR model to NASDAQ-composite data and concluded that most of the models were unable to produce accurate results due to a tendency to underestimate market risk and present the reliability of earnings. However, they did find that although the conditional VaR models was found to produce an increased level of volatility in their estimates, if heteroscedasticity is factored into the calculation, then the model will provide a satisfactory output that investors may relied upon to make profitable decision. The study concluded that mixed normal GARCH, extreme value theory and filtered historical stimulation models usually provide the most accurate forecasts and therefore improve the quality of financial statements for investment decisions. For some organisations, asymmetric distributions pose a problem that VaR on its own cannot address and may consider it more useful not to examine the loss associated with a chosen probability level but rather to observe the risk associated with a given loss. In their paper entitled 'Comparative analyses of expected shortfall and value-at-risk (Yamai & Yoshiba, 2002) concluded that VaR and expected shortfall may underestimate the risk of securities with flat-tailed properties and a high potential for large losses.

The growing importance of risk management within firms could see certain responsibilities switching away from accountants into the hands of professional risk managers with quite different training and outlook, and the interface between internal audit and risk management is certainly one area where accountants may be threatened in this way. New corporate governance regulations and Section 404 of the Sarbanes-Oxley Act are also shifting the focus of attention towards improved internal control systems, the efficacy of which are subject to regular review and audit. Ensuring that the auditors possess the required skills to evaluate such control systems is, therefore, essential to the credibility of the audit report.

Moreover, although the limitations of VaR figures are well known to risk management experts, such knowledge is unlikely to be widespread amongst the users of company annual reports. It is also doubtful that most auditors can fully understand – let alone check – the VaR figures generated by different models, based on alternative methodologies, different VaR parameters and so forth. If such information cannot easily be audited, it is presumably unreliable, and therefore arguably misleading and/or incomplete, which directly reduce the quality of financial reporting.

Collectively, the findings of the foregoing studies and their mixed results suggest the necessity to investigate more rigorously the efficacy of the ERM system to determine if earnings management practices would be mitigated to enhance the quality of financial accounting information in the Nigerian scene through effective and efficient risk management.

4. RESEARCH METHOD AND MODELS SPECIFICATION

This study is conducted within the purview of quantitative approach with a philosophical research paradigm of positivism, which observes reality through the eyes of the researcher. This reflects the aim of this study, quality of accounting numbers in the financial statements of listed Nigerian non-financial firms with regards to enterprise risk management practices. In this aspect, positivists usually employ the method of the physical science, which is rooted in empirical epistemology and hypothetico-deductive methodology to arrive at valid conclusion about the phenomenon at hand. However, this study is a correlational research that links risk enterprise management characteristics and financial reporting quality. The study population consists of all the 74 listed non-financial firms that are active on the Nigerian Stock Exchange as at 31st December, 2019 and whose data for the period of the study 2010-2019. The sample is the total population for the study using census sampling technique. Secondary source of data was used and data extracted from the annual report and accounts of selected firms of the 10 years period. Longitudinal Balanced Panel Multiple regression (two stage least square) was used as a technique of data analysis for the study. The justification for this technique is that it has the ability to test the statistical association between two or more variables and allows for the prediction of the expected outcome. However, effort is being made to ensure the validity, reliability and robustness of the statistical results. The panel attributes of cross-sectional and time series pose challenges with regard regression; for instance, the sample firms exhibit many similarities and dissimilarities, which usually cause cross-sectional dependence and heterogeneity, hence distort estimation. In view of this, the study checks for the statistical problems of normal distribution of the data, heteroscedasticity and collinearity. Shapiro-Wilk (W) test for normal data is being employed to check whether the variables of the study came from a normally distributed population.

Moreover, residual diagnostic tests are also conducted using scatter graph and Shapiro-Wilk (W) Test to ensure the residual follow the normal distribution assumption, and the Breuch Pagan/Cook-Weisberg Test for heteroscedasticity to check whether the variance of the residuals is constant (Homoscedastic) or not. To check the collinearity problem, Variance Inflation Factor (VIF) and Tolerance Values (TV) are used. When these problems were addressed, the model of the study produces estimators that are Best Linear Unbiased Estimators (BLUE). However, to come out with results consistent with the panel data attributes, Fixed Effect (FE) and Random Effect (RE) regression models are employed alongside the pooled Ordinary Least Squares (OLS) regression. The FE regression model concentrates on differences within individual companies. Also, Hausman test is being conducted to determine which of the two models is more efficient, and a further test of random effect is applied to choose between the RE and OLS, which proved that OLS is the most appropriate for the study. The analysis is conducted using Statistics/Data Analysis Software (STATA 14).

The variable measurements of the study are presented in table 1 as follows:

Table 1
Variable Measurement

Variables	*Definition and Measurement*
Financial Reporting Quality (FRQ)	Measured by absolute values of the residuals of discretionary accruals using modified (Soon, Kim and Woodruff, 2012) model.
Board Risk Management Committee (BRMC)	Proportion of Board Risk Management Committeemembers on the board.
Cash Flow Volatility (CFV)	Changes in total cash flow annually for a firm (Easterwood, Paye and Xie, 2017).
Value at Risk (VaR)	as [Expected weighted return on the portfolio minus (z-score of the confidence interval * standard deviation of the portfolio)] multiplied by portfolio value annually (Olayinka, Emoarehi, Jonah and Ame, 2017).

contd. table 1

Variables	*Definition and Measurement*
Firm Size(Control Variable)	Measured as profit after tax divided total assets (Hassan 2015).
Leverage(Control Variable)	Measured as a proportion of total debts to total assets (Hassan 2015).
Firm Growth (Control Variable)	Measured as a proportion of total sales to total assets (Hassan & Bello, 2013).

Source: Author, 2020

A cross-sectional regression of the modified Soon et al (2012) total accruals model is utilized in this paper to estimate the discretionary accruals which represent the extent of earnings management. This model is selected because it has been found to have higher explanatory power than their first model and is one of the most recent accrual models with few impregnable criticisms. The model without and with modifications are presented as follows:

$$TA_{it} /At\text{-}1 = \beta_0 + \beta_1 \Delta REV_{it} /At\text{-}1 + \beta_2 \Delta NREC_{it} /At\text{-}1 + \beta_3 PPE_{it}\ t\text{-}1/At\text{-}1 + \varepsilon_{it} \quad \text{(i)}$$

$$TA_{it} /At\text{-}1 = \beta_0 + \beta_1 \Delta REV_{it} /At\text{-}1 + \beta_2 \Delta NREC_{it} /At\text{-}1 + \beta_3 PPE_{it}\ t\text{-}1/At\text{-}1 + \beta_4\ INTG_{it}\ t\text{-}1/At\text{-}1 + e_{it} \quad \text{(ii)}$$

Where: TA = is the total accruals, T = total asset, a= Constant, β_1-β_4= parameters, t-1 = previous year (lag 1), DREV= is change in revenue, D REC= is change in receivables, PPE = is property, plant and equipment, INTG = is intangible assets, t = time, i = firm, ε = is the residual.

The models that examined the hypotheses of the study are presented as follows:

$$TA_{it} = a+\beta_1 BRMC_{it}+\beta_2 CFV_{it}+\beta_3 VaR_{it}+\beta_4 FS_{it}+\beta_5 LEV_{it}+\beta_6 FG_{it}+ \varepsilon_{it} \quad \text{(iii)}$$

Where: TA = Total Accruals, α = Intercept, β_1–β_6= parameters, i t = firm i in time t, BRMC= Board Risk Management Committee, CFV= Cash Flow Volatility, VaR= Value at Risk, FS= Firm Size, LEV= Leverage, FG= Firm Growth, ε = error term.

4. RESULTS AND DISCUSSIONS

This section describes the trend of the variables using descriptive statistics followed by the correlation matrix and finally summary of the regression result which will show the extent to which the independent variables affect the dependent variable.

Table 2
Descriptive Statistics

Variables	*Mean*	*Std. Dev*	*Minimum*	*Maximum*
FRQ	0.633	0.912	0.104	5.355
BDRM	0.177	0.150	0.016	0.762
CFL	0.104	0.143	0.005	0.681
VALR	0.048	0.108	-0.003	0.600
FS	0.119	0.162	0.001	0.853
LEV	0.121	0.129	0.017	0.670
FG	0.596	0.111	0.250	0.909

Source: STATA 11

Table 2 is the summary statistics of the explanatory variables. The average of financial reporting quality (FRQ) is 0.633 with the minimum of 0.104 and a maximum of 5.355. board risk management (BDRM) average is 0.177, ranging from the extreme values of 0.016 and 0.762 as the minimum and maximum respectively. The average cash flow (CFL) of the sample firms is 0.104, ranging from 0.005 to 0.681, value at risk (VALR) with average value of 0.048. The firm size, leverage and firm growth have an average values of 0.119, 0.121 and 0.596 with a minimum and maximum values of 0.001, 0.017, 0.250, 0.853, 0.670 and 0.909 respectively. Here also, the disparities of all the means values from their standard deviations are statistically minimal and tolerable.

The following table present the correlation matrix table where the relationship of the independent variable and the dependent variable is analysed and also between independent variables and themselves.

Table 3
Correlation Matrix

Variables	*FRQ*	*BDRM*	*CFL*	*VALR*	*FS*	*LEV*	*FG*
FRQ	1.000						
BDRM	-0.377	1.000					
CFL	-0.492	0.874	1.000				
VALR	0.381	-0.524	-0.288	1.000			
FS	-0.439	0.806	0.875	-0.290	1.000		
LEV	-0.259	0.786	0.739	-0.235	0.680	1.000	
FG	-0.178	0.280	0.229	-0.053	0.276	0.194	1.000

Source: STATA 11

The result in Table 3 shows the degree of association between FRQ and all pairs of independent variables individually (BDRM, CFL and VALR) as well as between independent variables themselves of the study in the conglomerate firms listed in Nigeria. The table presents a negative relation between financial reporting quality (FRQ) and all other independent variables except value at risk (VAL) from the correlation coefficient of -0.337 and 0.492 respectively. While, FS, LEV and FG are control variables and also negative relationships emerge. On the other hand, the relationship of the independent variables and themselves is mixed (positive and negatives). However, to conclude on the relation and the effect of the dependent variable and all the triple proxies of the independent variable in conglomerate firms listed in Nigeria will be given by the estimators from the regression model as under:

This following section presents the regression result of the dependent variable financial reporting quality (FRQ) and the independent variables of the study (board risk management, cash flow and value at risk). The presentation is followed with the interpretation, analysis and the discussion of the results. The section also discusses the cumulative results.

Table 4
Summary of Regression Result

Variables	*Coefficient*	*t-value*	*p-value*
BDRM	3.016	2.820	0.007
CFL	-2.515	-3.610	0.001
VaR	0.636	3.690	0.001
FS	-0.189	-0.260	0.792
LEV	-0.047	-0.050	0.964
FG	-0.074	-1.320	0.193
Constant	1.305	3.420	0.001
F-statistics			6.490
F-prob			0.000
R Squared			0.424

Source: STATA 11

The cumulative R^2 (0.424) which is the multiple coefficient of determination gives the proportion or percentage of the total variation in the dependent variable FRQ as explained by the independent variables jointly. Hence, it signifies 42% of total variation in financial reporting quality (FRQ) of conglomerate firms listed in Nigeria is caused by the collective effort (interaction) of board risk management, cash flow and value at risk.

This result further indicated that the model is fit and the variables properly selected in the study, as confirmed by Fisher's statistics of 6.490 which is significance at 1%.

The regression result reveals that board risk management has a t-value of 2.820 with regression coefficient of 3.016 which is statistically significant at 1% level. This implies that board risk management (BDRM) has significant effect on the financial reporting quality of conglomerates firms listed in Nigeria. However, the result is not surprising because the prior expectation is that existence of risk committee on the board is expected to improve the efficiency of management dealings with the company's resources. Thereby, achieving high quality financial statement by being prudent from the part of management while reporting the company's earnings in order to avoid being queried by the risk management committee. In addition, risk management committee is expected to have vast business, investment and risk management experience which will enable them monitor managers self-benefiting motives which are mostly contrary to the firm's value maximization objective which may affect the firm's financial reporting quality positively. Thus, hypothesis one is hereby rejected.

The regression result reveals that cash flow as depicted in table 4 above has a t-value of -3.610 and a coefficient beta value of -2.515 with a significant value of 0.001. This signifies that cash flow has a negative and significant impact on the financial reporting quality of conglomerates firms listed in Nigeria. This indicates that for every 1% increase in the cash flow of conglomerates firms listed in Nigeria. Therefore, financial reporting quality will decrease significantly. This also implies that an increase in the percentage of cash flow, the financial reporting quality of conglomerates firms decreases significantly by the coefficient value. Another explanation is that the lesser the cash inflow the lesser the incentive for enhancement of the financial reporting quality (FRQ) of conglomerates firms listed in Nigeria. This finding supports the rejection of the second null hypothesis of the study.

From the Table 4, it was observed that the t-value for value at risk is 3.690, while the coefficient is 0.636. The variable is statistically significant at 1% level. This result signifies that value at risk has significant positive effect on financial reporting quality (FRQ) of conglomerates firms listed in Nigeria. This implies that for every increase in the percentage of value at risk by management of conglomerates firms, their financial reporting quality will increase by the coefficient value of 0.636. Thus; hypothesis 3 is rejected.

5. CONCLUSION

Based on the findings of the research, this paper has provided both empirical and statistical evidence on the utility of three components that constitute enterprise risk management i.e. board risk management committee, cash flow and value at risk of the firms under investigation. On the whole, the study concludes that enterprise risk management has an important role in improving financial reporting quality of non-financial firms listed in Nigeria. Therefore, in line with the findings and conclusion, the study recommends that; the board of non-financial firms listed in Nigeria should pay serious attention while composing and or selecting the members of risk management committee. This is in order to improve the quality of financial reporting. Again, the regulatory agencies like FRCN, SEC, and NSE to ensure that listed firms in Nigeria strictly adhere with code of best practice of corporate governance, COSO frameworks and all other enactments in terms of managing risk, so that the quality of financial reports is protected and enhanced so that the contents do not mislead both existing and prospective investors which influences their investment decisions as well as the cost of raising funds especially among the listed Nigerian non-financial firm.

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