

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY  
COLLEGE OF HUMANITIES AND SOCIAL SCIENCE  
SCHOOL OF BUSINESS**

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**ENTERPRISE RISK MANAGEMENT (ERM) AMONGST INSURANCE  
FIRMS IN GHANA**

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**(BBA MARKETING)**

A THESIS SUBMITTED TO THE DEPARTMENT OF ACCOUNTING AND FINANCE,  
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## DECLARATION

I hereby declare that this submission is my own work toward the award of the Master of Science in Insurance and Business Continuity and that to the best of my knowledge, it contains no material previously published by another person, nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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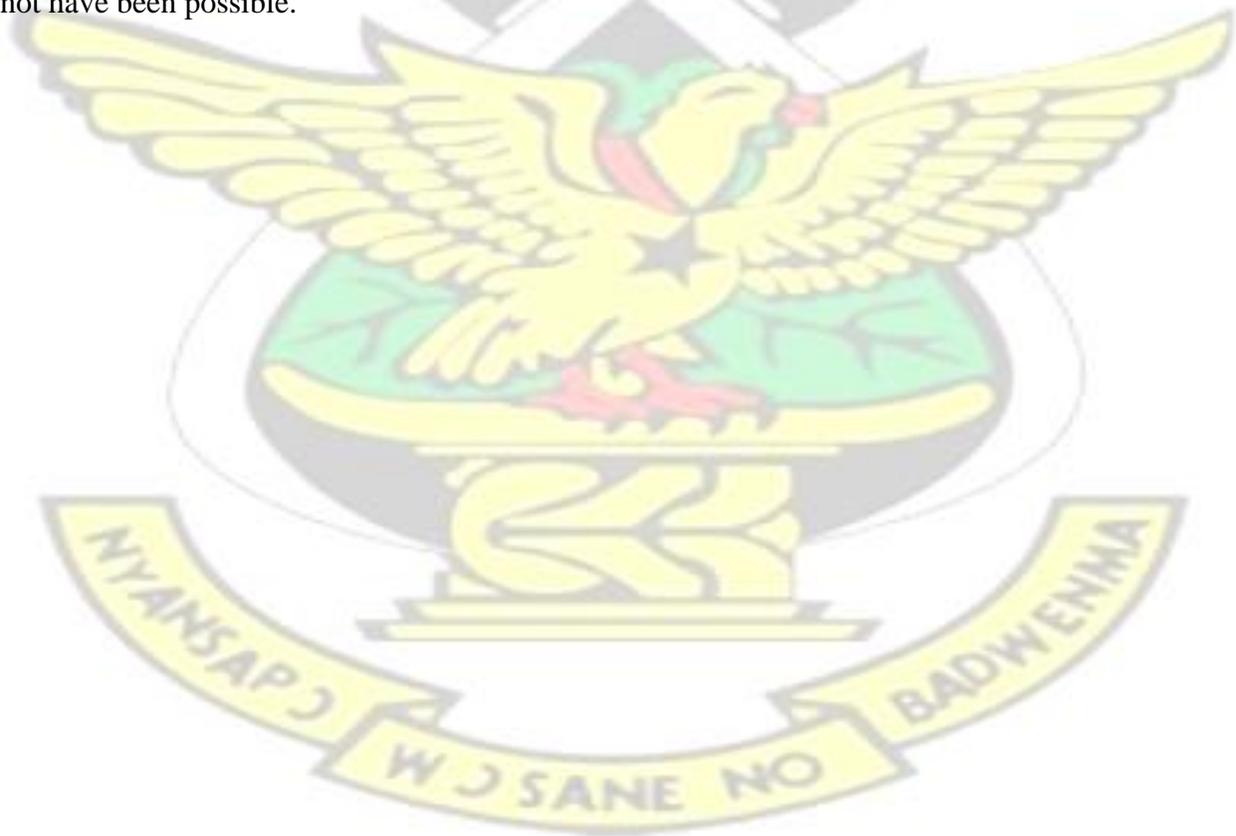
## DEDICATION

I dedicate this work to my wife, for teaching me that knowledge is best learnt when it is learnt simply for the sake of learning, and also to my mother for making me understand that by approaching every activity one step at a time, I am, in fact, capable of overcoming even the most seemingly difficult task like this research project.



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## ABSTRACT

This study investigates enterprise risk management (ERM) activity amongst insurance companies in Ghana by focusing on three key issues: degree of ERM implementation; organizational factors that determine ERM implementation; and relationship between ERM implementation and financial performance. To gather empirical evidence on these three related areas, a conceptual model was developed that linked organizational-level factors including Firm Size, Industry Diversification, Board Independence, and Type of Auditor to ERM, which is in turn linked to Financial Performance. A quantitative correlational research design was adopted, utilizing a standardized questionnaire to collect research data from Chief Risk Officers, Chief Audit Officers, and other managers of 34 firms in Ghana's insurance sector. The questionnaire amassed self-report data on eight dimensions of COSO-ERM activities, organizational-level antecedents, financial performance, and demographic variables. Employing Ordinary Least Square regressions, Descriptive Statistics and Factor Analysis in analyzing research data, some interesting findings emerged. Regarding extent of ERM implementation, none of the eight COSO-ERM dimensions was implemented robustly by the sampled insurance companies, with overall implementation being ad hoc at best. Regarding organizational factors associated with ERM implementation, although adding firm size, industry diversification, board independence, and type of auditor into the equation changed the percentage of explained variation in the predicted level of ERM by 11.4 percent, none of the regression coefficients is statistically significant. Finally, a positive, insignificant relationship was found between financial performance and ERM.

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## LIST OF ACRONYMS

ERM	ENTERPRISE RISK MANAGEMENT
CAS	CASUALTY ACTUARY SOCIETY
IIA	INSTITUTE OF INTERNAL AUDITORS
NIC	NATIONAL INSURANCE COMMISSION
FIN	FINANCIAL PERFORMANCE
BIN	BOARD INDEPENDENCE
AUD	TYPE OF AUDITOR
DIV	INDUSTRY DIVERSIFICATION
REV	REVENUE
SPSS	STATISTICAL PACKAGES FOR THE SOCIAL SCIENCES
OLS	ORDINARY LEAST SQUARE
COSO	COMMITTEE OF SPONSORING ORGANIZATIONS
SIZ	FIRM SIZE
BIG4	PWC, KPMG, ERNST & YOUNG AND DELOITTE & TOUCHE
RIMS	RISK & INSURANCE MANAGEMENT SOCIETY



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

In the increasingly sophisticated commercial environment of today, risk management represents a high-profile notion with strategic importance for organizations. Traditionally, organizations have adopted frameworks in which risks inherent in activities pertaining to different functions are managed separately and exclusively. Stated differently, in the traditional risk management frameworks different departments of the firm managed their function-specific risks, and therefore each department developed discrete processes, routines and practices (Florio & Leoni, 2017; Callahan & Soileau, 2017).

Lately, however, this siloed approach to risk management is blamed for causing inefficiencies, and therefore calls came from several sources including but not limited to standards setting organizations, legislative bodies, professional associations, rating agencies and regulators for an integrated risk management. With regards to this, the concept of Enterprise Risk Management (henceforth ERM) was introduced to describe an integrated and systematic way of managing the total risks an organization faces. ERM, which can be viewed as a system designed to grow short- and long-term returns to shareholders through assessing, controlling, exploiting, financing and monitoring all risks (Lundqvist & Vilhelmsson, 2018), emphasizes three important points.

Firstly, that efficiency is likely to result as firms manage portfolio risks or the risks facing the organization as a whole compared to separately managing the risks pertaining to each activities or

parts of the corporation. Secondly, this integrated way of managing risk goes beyond such traditional risks concerns as accidents and product liability to include risks areas that typically are strategic in character like competitor actions and product obsolescence. In this sense, the ERM perspective positions risk management as an important aspect of the decision-making process in the organization. Thirdly, an important premise of the ERM perspective is that a risk management capability likely confers on the firm a competitive advantage over rivals firms without such capability and so it challenges firms to view risks as not simply a problem to mitigate but also a base on which competitive advantages could be built (Bohnert, Gatzert, Hoyt, & Lechner, 2019).

From the perspective of ERM, a more holistic approach to managing risk enhances interdepartmental coordination and natural hedges that are available between the various risk departments can be exploited by the firm. This is true because, by stressing the whole portfolio of risks in the firm, the ERM perspective draws the attention of decision makers to the interdependencies between risk sources, thus facilitating comprehensiveness in the process of risk identification and measurement (Lundqvist & Vilhelmsson, 2018).

Stressing comprehensiveness reduces inefficiencies because all risk classes are covered in decision-making, and this prevents actors from duplicating some risk management activities. As a result, ERM should lead to better resource allocation decisions and thus contribute to an overall improvement in capital efficiency (Lundqvist & Vilhelmsson, 2018). Additionally, with ERM the risk profile of the firm is more effectively communicated to all stakeholders including regulators and investors, thus reducing asymmetric information flow, and making it possible the evaluation of the risks and financial situation of the firm by outside stakeholders. Both regulatory and external

costs of capital may be reduced directly or indirectly through the reduction of information gap between insiders and outsiders which is made possible by ERM (Lechner & Gatzert, 2016).

Furthermore, the literature suggests that ERM's benefits do not elude shareholders. In firms with ERM frameworks in place, the board of directors and the upper echelons are supported with a tool to adequately monitor and manage the whole risk portfolio of the organization, which leads to enhanced value to shareholders (Florio & Leoni, 2017; Lechner & Gatzert, 2016; Lundqvist & Vilhelmsson, 2018; Ojeka, Adegboye, Adegboye, & Alabi, 2019). That is, the ERM perspective emphasizes that risks of the firm be measured and managed consistently and that managers be properly informed and incentivized, all of which are assumed to be effective in creating superior long-run value for the organization and thus shareholders (Florio & Leoni, 2017).

Many studies have been undertaken on ERM, and recent review of the empirical literature has grouped extant studies along three strands of research (Gatzert & Martin, 2015). One group of studies focuses on the degree, extent, or rate of ERM implementation (e.g., Aleisa, 2017; Lundqvist, 2014). The focus of another group of studies is on the antecedent factors for ERM implementation (e.g., Bohnert et al., 2019; Farida et al., 2019), whilst the last group of studies addresses questions regarding the value of ERM activities to the firm and its shareholders (e.g., Anton, 2018; Florio & Leoni, 2017). Although the majority of these studies found a positive relationship between ERM and financial and market performance, the empirical evidence is still inconclusive, with scholars calling for more research in this area (Lechner & Gatzert, 2016; Ojeka, et al., 2019).

## **1.2 Statement of the Problem**

The collapse of some leading banks and microfinance companies affected liquidity and investment assets of insurance companies (National Insurance Commission or NIC, 2019). Yet, although the literature suggests that variability of earnings, negative surprises in the financial markets, and cost of financial distress may all be reduced by implementing an ERM system (Florio & Leoni, 2017; Lundqvist & Vilhelmsson, 2018; Ojeka et al., 2019), the question of whether insurance companies in Ghana have effectively implemented such a system, as opposed to siloed risk management frameworks, has not received adequate research attention in the country. Therefore, it is difficult to make any sweeping statements about the extent of ERM implementation by insurance firms in Ghana, organizational-level factors associated with ERM implementation in these firms, and how ERM is related to the performance of these firms.

## **1.3 Objectives of the Study**

This study aims at understanding ERM practices of insurance companies operating in Ghana by focusing on implementation, antecedents, and consequences. Specifically, the following are the objectives of the study:

- i. To ascertain the extent of ERM implementation by insurance companies operating in Ghana.
- ii. To investigate the organizational factors that determine ERM implementation amongst these insurance companies.
- iii. To examine the relationship between ERM implementation and the financial performance of these insurance companies.

## 1.4 Research Questions

In accordance with the objectives articulated in the previous section, the following three research questions were investigated by this study.

- i. What is the extent of ERM implementation amongst insurance companies operating in Ghana?
- ii. What are the organizational-level determinants of ERM implementation amongst insurance companies operating in Ghana?
- iii. Does ERM activity affect financial performance of insurance companies operating in Ghana?

## 1.5 Significance of the Study

The present research is important on both theoretical and practical grounds. Theoretically, the present study seeks to extend research on ERM implementation, its antecedents and consequences from more developed market economies to a relatively underdeveloped one (that is, Ghana), where the attention to risk management frameworks by regulatory bodies has heightened greatly recently, particularly after that the financial sector crises that led to the collapse of some of the leading banks and microfinance companies. As Ghanaian insurance companies have different characteristics compared to companies in the US, Europe, and Asia, for example, where much of the existing empirical studies on ERM were conducted, the findings of the present study in Ghana could enrich the international literature on ERM implementation in new contexts.

In addition, the results should provide insights into the firm-specific factors affecting ERM implementation amongst firms operating in a developing country context (Ghana). It is argued that this specific finding should be insightful for two reasons as follows. First, as a developing country, the empirical context –that is, Ghana –shares a lot of common features with many other developing countries in sub-Saharan Africa, where some of the sampled insurance companies also operated. This should increase the generalizability of the finding to those contexts, therefore making it possible for researchers to extrapolate the findings in future.

Second, a comparison of the present study's results to those of previous studies on determinants of ERM conducted in Western countries should make it possible for researchers to understand how context affect the ability of some reported variables to influence firm ERM implementation. This should go a long way in helping to develop a more nuanced theory of the organizational-level drivers of ERM, but also of the ERM–financial performance relationship by highlighting the latter's sensitivity to the inclusion of context variables.

From a practical standpoint, first, the finding on the ERM–financial performance relationship should draw managers attention to why ERM implementation matter. Although abundant developed-country empirical evidence exists extoling the beneficial effects of ERM on financial performance, for many companies operating in Ghana (especially the financial services companies) the decision to implement ERM tends to be driven largely by the need to comply with corporate governance requirements imposed by regulators. Perhaps, this has been so because few studies have demonstrated empirically that even where the financial market is relatively underdeveloped ERM implementation can be beneficial, and that the benefit extends beyond

gaining regulatory relief. By demonstrating the latter effect through a systematic empirical analysis with data collected on insurance companies, the present study's results is expected to galvanize interests in ERM implementation amongst not only insurance companies but also other firms that operate in the Ghanaian business environment.

Second, by studying the determinants of ERM implementation amongst insurance companies in Ghana, the present study should draw managers' attention to the firm-specific variables that enhance or impede ERM implementation. Knowledge of the latter should go a long way in helping the understanding of ERM practices requiring urgent and sustained managerial attention.

### **1.6 Scope of the Study**

Twenty-nine non-life insurance firms, twenty-four life insurance firms, three reinsurance firms, ninety insurance broking firms, and four reinsurance brokers make up the insurance sub-sector of the financial services sector of Ghana (NIC, 2019). In the present study, the scope was limited to only 56 companies comprising life and non-life insurance and reinsurance companies, because the lack of adequate resources (e.g., time and funds) precluded studying all the categories of companies in the industry. A sample of 56 (the effective sample, though, was reduced to 34 after several respondent organizations failed to return their questionnaires) companies was not only manageable for the independent student researcher, but also adequate for conducting statistical inferences.

In addition, the present study was conducted in the Accra metropolitan area. Thus, the researcher made efforts to get key informants working with their firm's head offices in Accra. Finally, and

very important for the review of previous studies, in keeping with extant literature that has outlined three strands of research within the literature on ERM (Gatzert & Martin, 2015), the present study was limited to only variables concerning ERM activity implementation, ERM Determinants and ERM Outcomes. In this connection, any other emerging themes within the ERM body of research – other than the three mentioned above – were not part of this study.

### **1.7 Summary of Methodology**

A quantitative research design approach was adopted. Therefore, consistent with previous empirical studies where the use of primary (as opposed to secondary) data was more appropriate (e.g., Aleisa, 2017; Lundqvist, 2014), the present research was based on a survey of 34 Ghanaian insurers between March and August 2020 using as key informants Chief Risk Officers, Chief Audit Officers, and other managers of the sampled insurers. With the aid of SPSS (that is, Statistical Package for the Social Sciences), Factor analysis, Descriptive Statistics and Ordinary Least Square (OLS) Regression were employed to analyze the collected data. More details on the methodology are provided in chapter three.

### **1.8 Limitation of the Study**

The weaknesses of the present research revolve around utilizing self-report data and cross-sectional sample. First, the problem of self-report data is that it can be highly subjective, such that two different people representing the same organization were likely to rate the organization differently on the same subject matter. Moreover, self-report surveys often suffer from common method variance (CMV), although this latter concern was attenuated in this study by performing Herman's one factor test. Second, and perhaps more importantly, because the method used in this

quantitative study is correlational not longitudinal research, the relationships observed in the study are associational not causal. This emphasizes the need for caution to be exercised when trying to conclude about the relationships amongst firm characteristics, COSO-ERM implementation and financial performance based on the observations of this study.

## **1.9 Structure of the Study**

This research work is structured into five distinct chapters. The first chapter comprises the study's general introduction, which explains the importance of ERM and indicates the research problem, objectives, research questions, significance, scope, summary of methods as well as limitations of the study. Following immediately is chapter two, which contains a review of conceptual, theoretical, and empirical literatures. It also explains the study's conceptual framework. The next chapter, that is, chapter three, details the research design, data, analytical methods, model specification, and variable description and measurement. Subsequently, chapter four presents data analysis and discusses results of the study with respect to the study's objectives, comparing the results to the literature. Finally, chapter five summarizes the study, draws relevant conclusions, and makes recommendations.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

This chapter reviews literature to gain scholarly knowledge on ERM implementation, ERM determinants, and ERM consequences. Five major sections are addressed here. In the first section, that is, 2.1, conceptual literature is reviewed. The second section, that is, 2.2, reviews theoretical literatures. The third section, that is, 2.3, reviews empirical literature, providing overview of studies that examined firm ERM design choices, antecedent factors for ERM system implementation amongst organizations, and value-effect of ERM systems implementation. The fourth section, that is, 2.4, presents and explains the conceptual framework of the study, and section 2.5 summarizes the chapter.

#### 2.1 Conceptual Literature Review

To understand ERM better, this section begins by presenting some of the oft-cited definitions and descriptions of the concept in the literature. According to Dickinson (2001), ERM is a systematic and integrated approach of the management of the total risks a company faces. The Institute of Internal Auditors (IIA, 2001) defines ERM as a rigorous and coordinated approach to assessing and responding to all risks that affect the achievement of an organization's strategic and financial objectives. Liebenberg and Hoyt (2003) assert that ERM enables firms to benefit from an integrated approach to managing risk that shifts the focus of the risk management function from primarily defensive to increasingly offensive and strategic.

Kleffner et al. (2003) concur with Liebenberg and Hoyt (2003) by asserting that the ERM perspective requires a company-wide approach to be taken in identifying, assessing, and managing risk. Miller and Waller (2003) also agree stating that integrated risk management is consideration of the full range of uncertain contingencies affecting business performance. While all these definitions are useful in understanding the ERM concept, the best cited definitions are offered by The Casualty Actuarial Society (CAS) and The Committee of Sponsoring Organizations (COSO) (2004). CAS defines ERM as follows:

The process by which organizations in all industries assess, control, exploit, finance and monitor risks from all sources for the purpose of increasing the organization's short- and long-term value to its stakeholders [Casualty Actuarial Society (CAS), 2003].

In a similar vein, the COSO (Committee of Sponsoring Organizations of the Treadway Commission), defines ERM as (see COSO, 2004, p. 2) “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 language of these groups of professionals suggests that ERM considerably differs from traditional risk management concepts. ERM defines a process that combines the corporate’s entire risk management activities in one integrated, holistic framework to achieve a comprehensive corporate perspective. Traditional approaches, in contrast, are generally based on a silo-based risk consideration and a department-by-department perspective (Kleffner, Lee, & McGannon, 2003) where risks are measured in isolation. ERM aggregates all the risks across the entire firm, thereby

taking into account interdependencies between risks, which allows for a better assessment of the firm's risk situation and further improves the decision process with respect to strategic and operative developments (Pagach & Warr, 2011; Hoyt & Liebenberg, 2011).

Furthermore, risk handling in traditional approaches is generally rather defensive in that it concentrates on the protection of the firm against adverse financial scenarios. In ERM, the focus is shifted towards a more offensive handling through the integration of ERM into the corporate strategy and the decision process and is explicitly intended to contribute to increasing shareholder value (Liebenberg & Hoyt, 2003). ERM thus does not only attempt to minimize risk but explicitly accounts for potential opportunities.

Due to the fact that ERM is part of the corporate strategy and the high relevance of an ERM implementation, ERM is directed top-down by the senior management (COSO, 2009, p. 4). The senior management is therefore responsible for defining the objectives of the ERM and for integrating them into an integrated corporate strategy, ensuring that the company's defined risk appetite will not be exceeded whilst taking into account opportunities as discussed above. ERM thereby typically includes the appointment of a CRO or a committee of experts serving as a supervisor and coordinator of risk management, a position that in general does not exist in traditional approaches. The appointment of a CRO is thus intended to ensure an effective and efficient integrated risk management, which also includes a communication function with direct reporting to the executive board and shareholders concerning the corporate firm's risk situation and profile. Thus, information asymmetries between the company representatives and shareholders can be reduced (Liebenberg & Hoyt, 2003; Beasley, Pagach, & Warr, 2008).

To understand the objectives of ERM better, it is important to trace its conceptual roots, which is what the next subsection outlines.

### **2.1.1 Conceptual Roots of ERM**

As noted previously, historically different forms of risk were managed separately by the firm. The reason for this disintegration is that different parts of risk management were catered for by different functions within the organization. A clear example is that interest rate variation or currency risks are tackled by finance, safety and quality risks are managed by operation, and liability and natural catastrophes are handled by insurance. In this context, each of these departments within the organization would tend to develop idiosyncratic processes, routines, and practices for managing those overly function-specific risks. A more coordinated approaches for managing all these risks were advocated by practitioners who described concepts that are now associated with ERM. These practitioners were of the view that multiple disciplines are required to work together in managing “future uncertainty”, and so they rejected the notion of silo-based risk management amongst several department of the same organization in favour of a multidisciplinary one.

The idea that risk management is a multidisciplinary phenomenon is rooted in system engineering, in which risk management is seen as a key part of the whole decision-making process, not a detached act (Bromiley et al., 2015). In the landscape of system engineering, multiple-criteria decision making was preferred to single-objective decision-making not only because the former aids in accomplishing universal and multidisciplinary risk management but also in optimizing the allocation of organizational resources. The system engineering’s perspective contrasted sharply with earlier thinking in mainstream finance, in which scholars had challenged the requirement for

corporate risk management by asserting that shareholders only care about systematic risk (beta), and therefore it was needless to allocate corporate resources to unsystematic risk reduction (Bromiley et al., 2015).

Recent years has seen a paradigm shift, however, as new arguments accumulate within finance that seek to justify the allocation of resources to unsystematic risk reduction by asserting that such risks impose costs on the firm (Lundqvist & Vilhelmsson, 2018). This perspective draws attention to the advantages of integrated risk management and suggests theory needs to expand beyond the traditional goal of “variance minimization” that tends to overemphasize the downside of risk. In this perspective, organizations have been encouraged to minimize activities that expose them to risks that they are incapable of deriving any comparable advantage from, and vice versa. In this sense, a “coordinated risk management” is advocated because it gives organizations focus by allowing them to hedge exposure to activities with low returns, whilst increasing exposure to activities with high returns (Lundqvist & Vilhelmsson, 2018).

### **2.1.2 Frameworks of ERM Implementation**

Increased attention to ERM has led to the emergence of several frameworks attempting to guide organizations in their bid to implement it. That is, several frameworks are in existence acting as guidepost for firms implementing ERM. These include but not limited to COSO’s ERM Integrated Framework, the Joint Australia/New Zealand 4360-2004 Standards, ISO 31000-2009, the Turnbull Guidance, the Casualty Actuarial Society Framework, the International Association of Insurance Supervisors Framework, and Basel II (Lundqvist, 2014). The underlying ideas of ERM are

consistent in these frameworks, but each seems to differ in terms of structure of components, definition, and the process of implementing ERM.

There has been an extensive discussion of the COSO-ERM Framework following its year 2004 release. The framework is widely cited by both academics and practitioners, and many existing ERM frameworks build upon the core premise of the COSO framework. Eight dimensions of ERM are presented in the COSO framework as follows:

- a) Internal environment, which has to do with the mode of governance, organizational cultures, and risk management philosophies (including the risk appetite of the organization). The risk appetite is an important facet of ERM and greatly determines whether ERM would be a success or not.
- b) Objective setting, which reflects the strategic goals of the organization's compliance activities, reporting and operations.
- c) Event identification, which involves determining material events that are likely to impact the ability of the organization to accomplish planned targets. These may range from internal factors like unexpected plant breakdowns or employee strike actions to external factors like earthquake, political unrest, or technological discontinuities.
- d) Risk assessment, which involves considering the degree to which the ability of the organization to meet planned targets is affected by potential risk events. This component of ERM entails making a lot of quantitative evaluations.

- e) Risk response, which has to do with the formal policies outlined by managers for responding to and managing risk. Broadly speaking, policies for responding to risk may take the form of sharing, reducing, accepting, or avoiding.
- f) Control activities, which reflect the policies and procedures outlined by managers for ensuring that articulated risk responses are undertaken.
- g) Information and communication, which involves active interaction of all elements of the ERM in a process of information sharing and coordination between the various actors.
- h) Monitoring, which reflects the measures undertaken to ensure that all the key elements of ERM are being applied as they should so that successful implementation is consistently achieved.

From the perspective of COSO, ERM effectiveness hinges on the presence and proper functioning of all the eight dimensions (Lundqvist, 2014). Thus, effective risk management is premised upon properly implementing the eight elements of COSO-ERM framework articulated above.

### **2.1.3 Benefits of Implementing ERM**

When capital market is frictionless and there is no information asymmetry, amongst other things, the net present value (NPV) of risk management is expected to be negative for the firm. Conversely, a risk management activity could offer positive NPV for the firm when capital market operation is interfered by information asymmetries, market imperfections, and agency costs (Pagach & Warr, 2011). In these contexts, firms are concerned about negative outcomes resulting from missing earning targets such as declining debt ratings as results of violating debt covenants and loss of reputation. Therefore, any potential value creation role for risk management is in the

minimization or eradication of these negative outcomes. The value of risk management for the firm then depends on its capacity to help in avoiding the costs associated with financial distress. ERM takes a holistic view of risk management and attempts to reduce the probability of large negative earnings and cash flows by coordinating and controlling offsetting risks across the firm.

## **2.2 Theoretical Literature Review**

Although the notion that ERM is an important aspect of effective governance is widely accepted amongst practitioners, a great deal of variability is observable amongst firms as far as ERM adoption is concerned. Whilst investment in ERM systems is sophisticated in some firms, others are reliant instead on ad hoc responses to risks. This section draws from the resource-based perspective, institutional and agency theories, both to understand why firms adopted and to pinpoint some antecedent factors for ERM practices across organizations. Each of these theoretical bases is sketched below.

### **2.2.1 Agency Theory**

In agency theorizing, a fundamental assumption is that ownership and control are separated such that shareholders mandate executives to manage their investments on their behalf. Because chances are that executives or managers might frame business objectives consistent with their own personal interests rather than with interests of the firm owners, conflict of interest on the part of executives creates agency problems when ownership is separated from control. Therefore, certain instruments are proposed for reconciling owners' interests and those of managers. Some of these instruments are monitoring by large shareholders, monitoring by non-executive directors, executive share

ownership, implementation of internal controls, and execution of statutory audit in which the appropriateness of management's annual reports is determined by independent external auditors.

Agency theory emphasizes the importance of protecting owners from conflict of interest by the executives through establishing effective mechanisms for controlling and monitoring the latter's actions. In this regard, corporate governance codes have been created and ERM has been considered an important aspect of corporate governance. In this connection, the literature on ERM determinants suggests that board independence – a corporate governance structure characteristics – is an important factor (Desender, 2007). As would be seen in the section on empirical literature review, some studies across many contextual settings have found that board independence has a positive effect on effective ERM implementation.

### **2.2.2 Institutional Theory**

From institutional theory perspective, standardized organizational behaviours are based upon ideas, values, and beliefs emanating from the institutional environment. Institutional theory is premised upon the notion that organizations adapt to environmental expectations of appropriate behaviour to gain legitimacy and therefore have better chances of surviving (Jabbour & Abdel-Kader, 2015). That is, pressures from the institutional environment lead organizations to adopt similar organizing templates, and there are three primary mechanisms, namely coercive, mimetic, and normative, by which firms adopt similar organizing templates such as ERM systems. The institutional perspective is particularly important for understanding why ERM has not diffused to all firms in all sectors. From this perspective, the reason might be that different firms operating from different sectors may face different forms of isomorphism.

Institutional theory suggests that organizational practices such as ERM are more likely to be adopted by organizations that operate in sectors where coercive, normative, and mimetic pressures are pronounced. Consistent with this view, empirical studies on the diffusion of ERM have found that in the banking, insurance, energy, and education sectors, for example, the extents of ERM implementations are exceedingly high and that ERM implementations in those sectors are at advanced stages, because there are strong coercive and normative processes at work. Banking, for instance, is a highly regulated activity, with practitioners belonging to several professional associations that adhere to numerous ethical standards. In this regard, research has indicated that an important determinant of ERM implementation is the type of industry, and the rationale resonates with the institutionalists argument regarding coercive isomorphism.

Other antecedent variables for ERM implementation that can be discerned within the institutional analysis include having a Big4 external auditor or being rated by a Big4 rating agency such as *S&P*. Regarding the former, for example, auditing firms (whether as a Big4 or not) inexorably work with many organizations (through consulting and conducting audits) within an organizational field and become exposed to the best practices, such as ERM systems, prevailing in high-performing organizations within this field and are therefore likely to suggest those practices to their clients, thus acting as envoys in facilitating the diffusion of the practices in a process of mimetic isomorphism.

### 2.2.3 Resource-based View

The RBV (also known as the competence-based view) explains inter-firm performance differences using as its unit of analysis the resources and capabilities possessed by the firm. According to this perspective, although firms usually have many capabilities, only those capabilities that are rare, non-substitutable, inimitable, and unique can be used to derive competitive advantage. In this regard, the concept of “core competencies” has been used to refer to the mixture of key strategic asserts and capabilities including the shared knowledge of the firm (Espino-Rodríguez & Padrón-Robaina, 2006).

Since most firms are confronted with several potential risks, the resource-based perspective indicates that a risk management framework such as ERM is a capability for setting priorities in a complex business environment. This ERM capability allows an organization to generate positive NPV through eliminating and mitigating both direct and indirect costs brought about by the presence of information asymmetries, market imperfection, and agency costs. Importantly, the resource-based perspective also suggests that firm-specific characteristics would be an important source of variation in the degree of ERM implementation amongst organizations within an organizational field such as the insurance industry (Lundqvist & Vilhelmsson, 2018).

Consistent with the latter suggestion, research on ERM determinants has argued and reported strong support for the role of firm size in the implementation of ERM framework (Hoyt & Liebenberg, 2011). Size as well as other firm-specific variables such as profitability and board structure are arguably resources that satisfy the quality of uniqueness, inimitability, non-

substitutability and rareness, and therefore can help distinguish between firms with comprehensive degree of ERM implementation and those with superficial degree of ERM implementation.

In the next section of this chapter, empirical literature providing support for these overly theoretical explanations are detailed.

## **2.3 Empirical Literature Review**

Empirical studies on ERM addressed questions about extent of ERM implementation, the determinants of (or antecedent factors for) ERM implementation, and the consequences of ERM implementation. Some researchers descriptively study the stage of the ERM implementation (Beasley et al., 2010; Paape et al., 2012; Lundqvist, 2014). A second group of studies quantitatively examine the factors that significantly influence the rate of ERM implementation by making use of multivariate methods (see Beasley et al., 2005; Bohnert et al., 2019; Desender, 2007; Golshan & Rasid, 2012; Hoyt & Liebenberg, 2008 & 2011; Lechner & Gatzert, 2016; Liebenberg & Hoyt, 2003; Paape & Speklé, 2012; Pagach & Warr, 2011; Razali et al., 2011). Lastly, several quantitative studies shed light on the effects of ERM on shareholder value and financial performance (see Anton, 2018; Beasley et al., 2008; Bohnert et al. 2019; Callahan, & Soileau, 2017; Florio & Leoni, 2017; Grace et al., 2015; Hoyt & Liebenberg, 2011; Lechner & Gatzert, 2016; McShane et al., 2011; Pagach & Warr, 2010; Ramlee & Ahmad, 2015).

### **2.3.1 Research on Degree of ERM Implementation**

Regarding implementation, how ERM effectiveness is impacted by design choices has been studied by researchers. As seen under the section on concepts overview, some frameworks exist

acting as guidepost for firms in their ERM implementation drive, with the COSO-ERM framework as a notable example. As a normative tool, integrated risk management frameworks such as the COSO-ERM are tacitly best practices. Thus, some studies within this strand of the literature examine how the effectiveness of risk management is affected by the specific guidelines of COSO-type frameworks. This kind of empirical study is important as it serves to provide valuable insights that assist firms in making good quality, science-based decisions concerning their ERM designs.

One of the most influential research works on this issue is Paape et al.'s (2012) examination of the impact of several ERM configuration options on ERM systems' perceived quality in a survey of 825 directors and CFOs of Dutch-based companies. These researchers found that in general firms are subscribing to the core premise of the COSO-ERM that suggests that all of the risks affecting the organization's strategic, operational, reporting, and compliance objectives be addressed, albeit effectiveness of ERM is not improving as firms apply the COSO-ERM framework. Perhaps the reason for this undesirable outcome may be found in Beasley, Branson, and Hancock's (2010) study.

In a survey involving 460 individuals involved in leading ERM practices of their organization, Beasley et al. (2010) found that about 42 percent of informants described their firm's level of functioning ERM processes as "very immature" or "somewhat mature" and that about a 35 percent acknowledge that they are "Not at All Satisfied" or are "Minimally" satisfied with the nature and extent of reporting to senior executives of key risk indicators. Furthermore, Beasley, Branson, and Hancock's (2010) observed that, although majority of informants believed that the COSO-ERM Framework offers a common language for ERM and describes clearly important

dimension of a comprehensive ERM process, they felt that it is too theoretical and that the guidance it provides is largely vague.

To overcome these problems, Lundqvist (2014) undertook a descriptive study of 153 Nordic firms to determine the important elements of ERM based on how ERM components are implemented by firms. This research was able to identify four distinct pillars of ERM implementation. Amongst these pillars, two prerequisite components related to the general internal environment and control activities of the firm, one component identifying risk management activities of the firm and one component with the defining attributes of ERM implementation. Although implementation of all four components must be done to have a robust ERM, ERM firms are separated from non-ERM firms by only one component. This researcher emphasizes the importance of challenging existing frameworks to adapt to better reflect how firms implement ERM.

### **2.3.2 Research on Organizational-Level Antecedents of ERM Activity**

A growing number of studies examine the determinants or antecedent factors for ERM implementation (for a review, see Gatzert & Martin, 2015). However, this section focuses on quantitative studies that made use of multivariate analytical techniques to detect significant statistical results on the relationship between ERM and organizational-level determinants. Some twelve selected empirical studies on this issue are discussed in this subsection, focusing on, amongst other things, data, methods, instrumentation, and main findings. The review shows that the majority of these studies collected data on firms operating in the US and that these studies tended to rely on CRO appointment or existence and/or ERM activity key words (that is, phrases

or words within the same paragraph indicating an implemented ERM system) as a proxy instrument for ERM system implementation.

The supposed determinants or antecedent factors for ERM implementation encompass organizational-level variables such as structural, ownership, or financial characteristics. Each of these studies is briefly described along the stated parameters in the ensuing.

Liebenberg and Hoyt (2003) analyzed data on 26 firms in the US over the period 1997 to 2001 to examine the relationship between ERM implementation and its determinants using logistic regression techniques. These researchers found that ERM implementation is significantly associated with firm size and financial leverage, although the coefficient of the former is negative. Other factors that were also analyzed such as stock price volatility, earning volatility, growth opportunity and institutional ownership did not have any significant influence on ERM implementation.

In a 2004 correlational study, Beasley et al. (2005) analyzed survey data involving 123 firms in the US to examine the stage of ERM implementation in a logistic regression model, finding a significant positive relationship between the stage of ERM adoption and the size of adopting organizations. Another correlational study, that is, Desender (2007), of 100 US pharmaceutical firms conducted in the same year as Beasley and colleagues', also confirmed the significant influence of size on ERM implementation. In addition, Desender (2007) reported significant positive coefficients for board characteristics such as presence of audit committee and separation

of the CEO and the Chairman but found insignificant relationship between financial leverage and ERM implementation, contradicting Liebenberg and Hoyt (2003).

Using a maximum likelihood or ML model, Hoyt and Liebenberg (2008) examined factors associated with ERM adoption in a sample of 125 US insurers over the period 2000 to 2005. Using ERM or Chief Risk Officer key word search to measure ERM implementation, these researchers found positive coefficient for institutional ownership and firm size, but negative coefficient for financial leverage. Hoyt and Liebenberg (2011) repeated this insurance industry study, this time dating the period back to 1998 through to 2005 and covering only 117 insurers but applying similar analytical method and same measure for ERM. Although Hoyt and Liebenberg (2011) found that several other variables such as earning volatility, stock price volatility, asset opacity and diversification may also impact the ERM practices of the insurance companies studied, their most important findings largely resonated with observations made in the 2008 study. That is, in the 2011 study, significant coefficients were reported only for firm size (+), institutional ownership (+), and financial leverage (-), thereby echoing the 2008 results.

Pagach and Warr (2011) studied the same antecedent variables, as in Hoyt and Liebenberg (2011), to examine ERM implementation amongst US firms covering the period 1992 to 2005. Again, they also adopted similar measures for ERM. Like the two Hoyt and Liebenberg's studies summarized in the previous paragraph, Pagach and Warr's (2011) study also found significant positive coefficient for institutional ownership and firm size. Unlike Hoyt and Liebenberg's studies, however, Pagach and Warr's (2011) study found positive coefficient for stock price volatility, cashflow volatility and financial leverage (although the latter is insignificant).

The first pieces of non-US empirical evidence shaded in this review come from Malaysia and are offered by Golshan and Rasid (2012) as well as Razali et al. (2011). The former surveyed 90 firms and studied the effects of firm size, financial leverage, stock price volatility, and assets opacity, whilst the latter utilized a relatively larger sample comprising 528 firms and studied the impacts of firm size, financial leverage, diversification and institutional ownership. Again, the two adopted different measures for ERM: Golshan and Rasid (2012) relied on CRO key words based on companies' own reporting, whereas Razali et al. (2011) made use of third-party ratings. Interestingly, both Malaysian studies offer results that are somehow inconsistent with those prevailing amongst the growing body studies conducted in the US that has found a consistently significant coefficient for firm size. With Razali et al.'s (2011) study, only the coefficient of diversification is significant. With Golshan and Rasid's (2012), however, statistical significance was achieved for only the coefficient of financial leverage and this was positive, again contradicting the US findings seen in the studies of Hoyt and Liebenberg (2008 & 2011).

Further pieces of non-US empirical evidence on the determinants of ERM come from three European studies, thus Paape and Speklé (2012), Lechner and Gatzert (2016) and Bohnert, Gatzert, Hoyt, & Lechner (2019). Unlike the Malaysian studies sketched in the previous paragraph that have offered findings opposite the US studies' ones, these European studies appear to offer results that in the aggregate appear consistent with those seen in the US studies. Take, for example, Bohnert et al.' (2019) study. These researchers studied 41 European insurers over the period 2007 to 2015 using ERM activity key words search to proxy ERM implementation and examining in a linear regression model how the latter is influenced by firm size, financial leverage and assets

opacity. They found that the regression coefficients are positively significant for firm size, negatively significant for financial leverage and negatively insignificant for asset opacity. As seen above, empirical research in the US (e.g., Hoyt & Liebenberg, 2008 & 2011; Pagach & Warr, 2011) reported similar results for the three variables studied by Bohnert et al. (2019).

Furthermore, the reported results in Bohnert et al. (2019), especially that relating to firm size, echo findings in earlier studies conducted in Germany and Holland, respectively, by Lechner and Gatzert (2016) as well as Paape and Speklé (2012). The former study, which is based on 128 firms and covering the period 2009 to 2013, used static logistic model to analyzed how ERM is impacted by five determinants, namely, firm size, financial leverage, assets opacity, diversification and type of auditor (that is, whether the company's external auditors belonged to the big four auditing firms or not). Although the relationship was positive for all the five variables, only the coefficients of firm size and diversification were significant.

Paape and Speklé (2012) also related ERM to growth opportunities, institutional ownership, type of auditor and board independence in a study of 825 Dutch firms, using ERM activity key words search to proxy for ERM implementation and applying logistic regression procedure to test key hypotheses. They found similar results as in the latter study, that is., a regression coefficient that is positive for all the variables, albeit only the coefficient of firm size is statistically significance.

In summary, review of studies on ERM determinants conducted in this subsection indicates that the results of empirical studies are anything but consistent. Therefore, further studies, especially

from contexts other than US and Europe, would be a welcome addition to this inconclusive body of research.

### **2.3.3 Research on Consequences of ERM Implementation**

Focusing on studies that provide statistical test results, this subsection has identified thirteen studies dealing empirically with the consequences of ERM. These selected empirical studies are summarized here, focusing on, amongst other things, data, study period, methods, instrumentation, and main findings. The review shows that for most (i.e., seven) of the studies, the objective has been to link ERM to shareholder value (Anton, 2018; Beasley et al., 2008; Bohnert, Gatzert, Hoyt, & Lechner, 2019; Hoyt & Liebenberg, 2011; Lechner & Gatzert, 2016; McShane et al., 2011). That said, however, five studies link ERM to financial or operational performance of the studied organizations (Callahan, & Soileau, 2017; Florio & Leoni, 2017; Grace et al., 2015; Pagach & Warr, 2010; Ramlee & Ahmad, 2015), whilst one study focuses on the underlying mechanism through which value effect of ERM is realized by addressing its effects on credit default risk (Lundqvist & Vilhelmsson, 2018).

Studies focusing on the value of ERM to shareholders mainly utilized Tobin's Q as the proxy for the dependent variable. Tobin's Q is widely used because of its forward-looking quality, that is, the future expectation of shareholders is captured by Tobin's Q (Hoyt & Liebenberg, 2008). The only exception is Beasley et al.'s (2008) study, which focused on equity market reactions following the firm announcing that it has hired a CRO. Studies assessing the effect of ERM on financial or operational performance, utilized excess stock market returns (Gordon et al., 2009), revenue and cost efficiency (Grace et al., 2015) or numerous indicators of financial health, like return on assets

(ROA), return on equity (ROE), financial leverage, and volatility of cash flow (Callahan, & Soileau, 2017; Florio & Leoni, 2017; Ramlee & Ahmad, 2015; Pagach & Warr, 2010).

In terms of the methodology, Beasley et al. (2008) made use of OLS regression to examine the effect of implementing ERM on shareholder value. ERM was proxied with equity market reactions following the firm announcing publicly that it has hired a CRO, whilst shareholder value was proxied with cumulative abnormal return following the announcement. They surveyed 120 financial and non-financial firms in the US, covering the period 1992 to 2003. Hoyt and Liebenberg (2008 & 2011) made use of ML model to examine whether ERM is related to shareholder value using as ERM proxy CRO and ERM key words. In addition, Tobin's Q was their proxy for shareholder value. In the 2008 study, Hoyt and Liebenberg sampled 125 firms covering the period 2000 to 2005, whilst in the 2011 study, they sampled 117 firms covering the period 1998 to 2005. In both cases, however, the sampled firms were insurance companies based in the US.

McShane et al. (2011) also made use of OLS regression model to examine the relationship between the application of *S&P's* ERM rating and Tobin's Q based on data collected on 82 stock exchange listed insurance companies in the US in the year 2008. Tahir and Razali (2011) adopted a similar research design as the latter's in their Malaysian study of 528 stock exchange listed firms in 2007. Lechner and Gatzert (2016) used a combination of linear regression and static logistic model in their investigation of the effect of ERM, which they measured with ERM activity key words, on shareholder value, anchored by Tobin's Q. The study includes 128 German firms.

Bohnert et al. (2019) applied linear regression technique in a study of 41 European insurers over the period 2007 to 2015, using ERM activity based on S&P's ERM rating to measure ERM implementation and Tobin's Q to measure shareholder value. Anton 's (2018) study of 65 Romanian firms over the period 2001 to 2011 also used linear regression model to analyze data, an ERM index to measure ERM implementation and Tobin's Q to measure the value due to shareholders.

Studies addressing the relationship between ERM and financial performance show much diversity in their contextual settings, with three studies from US, two from Europe and one from Asia. Gordon et l. (2009) analyzed data in the year 2005 for 112 US companies to test the hypothesis that the ERM–performance link is contingent upon the interaction between ERM and firm-specific factors. Similarly, Grace et al.'s (2015) study examined the effects on revenue and cost efficiencies of ERM implementation in a survey of 523 insurance companies in the US covering the period 2004 to 2006.

Callahan and Soileau (2017) examined whether operational performance differ between firms having mature COSO-ERM framework and those having less mature ones. They relied on a survey of internal auditors' responses to the COSO-ERM four objectives to measure ERM implementation and firm level archival data on industry adjusted ROA and Tobin's Q to measure operational performance. The data covered 162 US and other Western country firms over the period 2006 to 2008, and they were analyzed by means of an OLS regression.

Florio and Leoni's (2017) study made use of OLS regression to examine the ERM–financial performance relationship. Focusing on ERM activity survey of 154 stock exchange listed Italian non-financial firms based on the years from 2011 to 2013, they utilized an array of features to measure ERM system sophistication and gauged financial performance with ROA and Tobin's Q. Ramlee and Ahmad (2015) analyzed, in an OLS model, the financial performances of 148 non-financial companies in Malaysian that have implemented ERM over the period from 2009 to 2013. They studied annual reports to gather research data on 74 companies having board-level risk management committee (RMC) and another 74 companies not having board-level RMC as a control sample. Implementation of ERM was anchored on a ERM index and ROE, ROA as well as Tobin's Q were used to measure financial performances.

Finally, Lundqvist and Vilhelmsson's (2018) mobilized a panel data making up 78 of the world's largest banks and covering the period from 2005 to 2007 to examine whether default risk is impacted by the degree of ERM implementation. They created a new proxy based on ERM key words to measure the degree of ERM implementation and measured default risk with credit default swap spread. An OLS regression was used to examine the relationship between the two variables, in addition to some control variables.

In terms of main results of the empirical studies, both the shareholder value and financial performance studies show that ERM has a positive effect the outcome variables. But the effect varies from context to context and tend to depend on the specific objective of the studies (see Table 3). Amongst the seven studies that analyzed the relationship between ERM and shareholder value, Hoyt and Liebenberg (2011), for example, reported a significant positive coefficient for the sample

of insurance companies in the US, showing that shareholders could expect to appropriate a value of at least 20 percent. Most of the European-based studies also reinforce the US-based studies results (see Lechner & Gatzert, 2016; Bohnert et al., 2019; Anton, 2018).

In Germany, for example, Lechner and Gatzert (2016) reported that companies having an ERM system exhibited much higher Tobin's  $Q$  of 41 percent, and in Romania Anton (2018) showed a Tobin's  $Q$  premium of 46.5 percent, although this tend to be so pre-economic crises, but not post-economic crises. Amongst European insurers, Bohnert et al. (2019) found strong relationship highlighting that insurance companies having a high-quality RM system exhibit a Tobin's  $Q$  premium of 6.5 percent.

Regarding the relationship between ERM and financial performance, a significant positive association has been reported in at least two of the empirical studies in Table 3. For example, in Grace et al.'s (2015) study of insurance companies in the US, the coefficient is significant and positive, although this is contingent upon the type of ERM activity. Also, Florio and Leoni's (2017) study of Italian non-financial firms recorded a coefficient that is significant and positive, indicating that more sophisticated implementation of ERM leads to significant improvement in both accounting and market-based measures of financial performance, especially ROA and Tobin's  $Q$ .

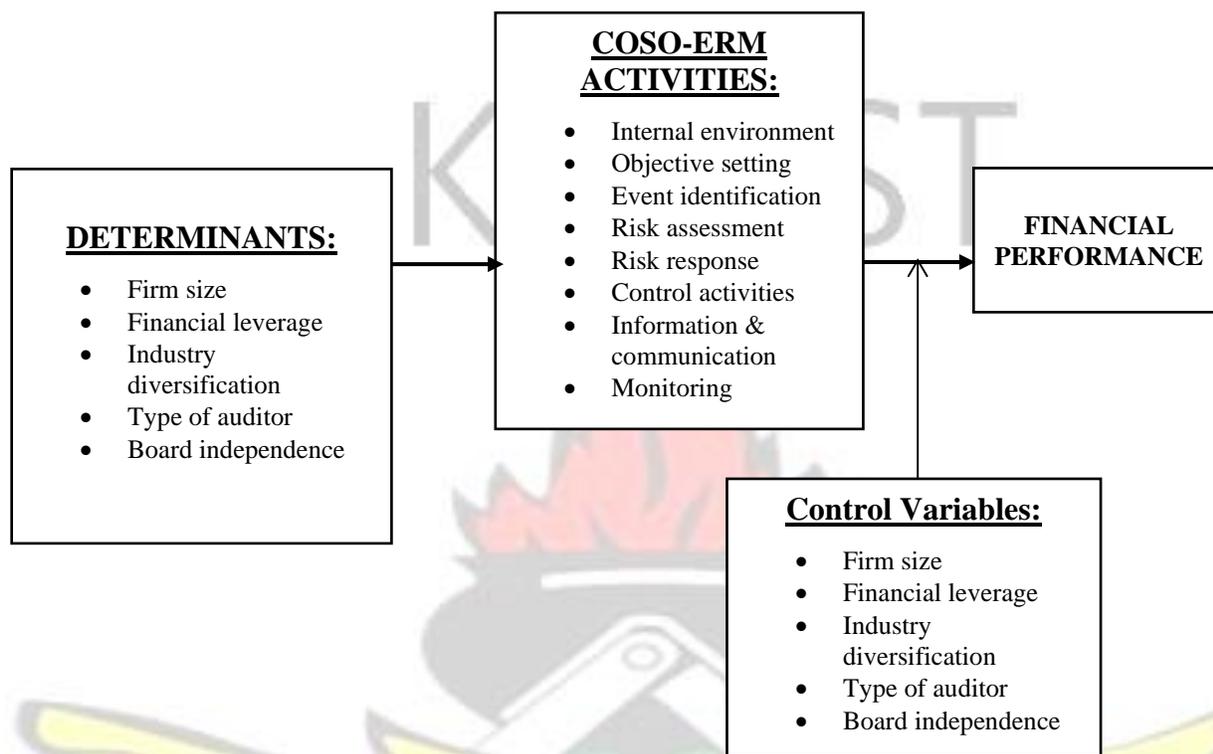
In summary, whilst many studies have been conducted in diverse contexts examining the ERM–financial performance relationship, so far, the findings have not been always consistent. Although the developed Western country studies of US and Europe have largely reported significant positive

coefficient indicating that the ERM–financial performance link is strong, replications of these studies in non-Western contexts have largely produced mixed findings. It seems therefore that further replications of the ERM–financial performance relationship in non-Western context is required if confidence in the robustness of the theory underlying this relationship is to increase.

## **2.4 Conceptual Framework**

Based on insights generated from the previous sections, this section suggests a conceptual framework of ERM implementation, its antecedents, and consequences (Figure 1). Following previous studies, the COSO-ERM framework is adopted to gauge the extent of ERM implementation amongst insurance companies operating in Ghana. Consistent with past studies, the implementation of the framework is expected to be shaped by several organizational factors. Also, in keeping with extant conceptualization of the value-effect of implementing an ERM system, in the present study, it is conjectured that ERM system should lead to improved financial performance for the adopting organizations. In the following passages, the various elements of the conceptual framework are explained briefly.

Previous studies examining the degree or stage of ERM system implementation mainly adopted the COSO-ERM framework that has suggested eight key dimensions of an effective ERM system. As discussed earlier in this chapter, the eight dimensions are: objective setting, internal environment, risk assessment, event identification, control activities, risk response, monitoring, and information & communication. These dimensions were described in detail earlier, and further discussion around them is clearly irrelevant here. Therefore, in the passages following, the conjectured determinants of ERM system implementation are detailed.



**Figure 1: Framework of ERM Activity, Antecedents & Consequences**

Source: Author's own construct based on literature

Again, following previous studies, the extent of implementation of the COSO-ERM framework is expected to be determined by firm size, financial leverage, board independence, industry diversification, and type of auditor. The underlying rationales for adopting each variable are detailed briefly in turn.

#### 2.4.1 Firm Size

The scope and complexity of risks are growing for most firms. Based on the principle of proportionality, the number of risks a firm faces varies directly with its size, and therefore the

likelihood that ERM will be implemented by the firm (Hoyt & Liebenberg, 2011). In addition, ERM implementation might require significant investment in finance, technology, and labour, which larger firms are more capable of affording (Golshan & Rasid, 2012). Consistent with this reasoning, firm size is the most important predictor of ERM in the literature presented under section 2.3. Thus, it is conjectured that the size of insurance companies in Ghana will most likely influence their COSO-ERM implementation.

### **2.5.2 Financial Leverage**

One of the variables shown by the empirical studies reviewed in this chapter to have a determining influence on ERM is financial leverage, even though the findings have not been consistent. The underlying argument about financial leverage is that ERM implementation tends to be robust amongst high-leverage firms as it enables these firms to minimize not only the cost of debt but also the risk of bankruptcy. This is made possible through ERM's signaling effects, that is, the establishment of ERM assures the capital market of the existence of appropriate strategy and adequate risk policy in place for safeguarding the interests of creditors and bondholders (Beasley et al., 2008). But as noted early on empirical findings on this relationship are mixed as both negative (e.g., Hoyt & Liebenberg, 2011) and positive (e.g., Golshan & Rasid, 2012) coefficients are reported by previous studies.

### **2.4.3 Industry Diversification**

Diversified firms tend to have many principal areas of specialization and therefore spread business risks across many segments. In diversified firms financial and operational risks may be minimal because of diversification within the firm but having many business units or segments can increase

the complexity of risks (see Hoyt & Liebenberg, 2011). As the firm begins to face an increasingly complex risks portfolio as a result of having many business segments, it makes much sense for it to implement an integrated risk management framework to ensure harmonious measurement and management of all risks from the diverse business segments. This indicates that ERM should vary directly with diversification. In support of this assertion, empirical studies in the US (Hoyt & Liebenberg, 2011) and Malaysia (Razali et al., 2011) found that industry diversification is positively related to ERM. Therefore, it is conjectured that, in the present study of insurance companies in Ghana, firms that are more diversified should have more desire to implement the COSO-ERM, all else being equal.

#### **2.4.4 Auditor Type**

Accumulating empirical evidence (see Desender, 2007; Farida et al., 2019; Paape & Speklé, 2012) has given attention to the importance of audit tasks outsourcing in the diffusion of ERM systems. The underlying argument of this body of studies is that companies that outsource audit tasks to the Big4 auditing firms (that is., PWC, KPMG, Ernst & Young, and Deloitte) will have more desire to implement ERM system compared to those that outsource audit tasks to non-Big4 auditing firms (Paape & Speklé, 2012). Whilst this argument is premised upon the notion that auditing firms are envoys in the diffusion of ERM, the Big4 auditing firms play that role better as they tend to be extra careful when conducting audit work because they have a global reputation to protect. Consistent with this view, in the present study of insurance companies in Ghana, it is conjectured that the type of auditor should help distinguish between superficial and robust implementation of ERM amongst the companies.

#### **2.4.5 Independence of Board of Directors**

The corporate governance literature emphasizes the importance of having an independent board of directors in ensuring effective and efficient governance. A board that is autonomous and shielded from executive influence can establish effective internal controls to safeguard the assets of the company and therefore protect the interest of shareholders (Farida et al., 2019). Because of its emphasis on internal controls, the board that is independent is likely to embrace ERM because ERM is an important element of internal controls. Not surprisingly, empirical studies found that board independence is an important determinant of ERM (Desender, 2007; Farida et al., 2019; Paape & Speklé, 2012). Therefore, it is conjectured that, in the present study of insurance companies in Ghana, board independence will vary directly with COSO-ERM implementation amongst these companies, all else being equal.

In short, studying the five antecedent variables described above should help in distinguishing between insurance companies in Ghana with superficial ERM implementation from those with robust ERM implementation (Lundqvist & Vilhelmsson, 2018). Like previous studies, this study also aims to understand whether ERM system implementation contribute to the performance of the adopting organizations by relating ERM to financial performance. Therefore, the next subsection presents the justification for the conjectured link between ERM implementation and the chosen outcome variable, that is, financial performance.

#### **2.4.6 Financial Performance**

In the conceptual model, ERM is conjectured to affect financial performance based on three main reasons. First, because of its holistic approach ERM facilitates inter-functional coordination and

this makes it possible for exploiting natural hedges between various risk departments. For example, a longitudinal study of 523 insurance companies in the US found that ERM activity led to significant improvement in revenue and cost efficiencies (see Grace et al., 2015). Second, both regulatory and external costs of capital may be minimized for the firm because of reduced information gap between inside and outside stakeholders that increases the latter's confidence in the firm (Lechner & Gatzert, 2016). Third, the ERM perspective emphasizes that risks of the firm be measured and managed consistently and that managers be properly informed and incentivized, all of which are assumed to be effective in creating superior long-run value for the organization and thus shareholders (Florio & Leoni, 2017). Indeed, several empirical studies (e.g., Lechner & Gatzert, 2016; Bohnert et al., 2019; Anton, 2018) have found that companies having an ERM system exhibited much higher Tobin's Q, a popular measure of shareholder value.

## **2.5 Chapter Summary**

In this chapter, scholarly learnings about ERM, its antecedents and consequences were reviewed in great details. Specifically, the chapter presented a conceptual overview, described relevant theories, and reviewed various empirical studies. Lastly, a conceptual model linking firm characteristics, ERM activity and financial performance was proposed.

## CHAPTER THREE

### METHODOLOGY

#### 3.0 Introduction

This chapter details all methodological decisions and actions undertaken to gather empirical evidence to shed light on ERM activity amongst insurance companies in Ghana. There are six major sections to this chapter. First, research design is explained in section 3.1. Explanation of data followed immediately in section 3.2, before section 3.3 presents analytical methods. Subsequently, model specification is presented in section 3.4 and variable description and measurement detailed in section 3.5. Finally, section 3.6 closes the chapter with a summary.

#### 3.1 Research Design

In the present study, the goal was to generate empirical insight into the relationships between firm characteristics, ERM, and financial performance amongst insurance companies in Ghana. In this connection, a literature review was undertaken and following an appreciation of the received literature a conceptual model was developed to be subjected to empirical testing with new dataset. Because the conceptual model employed in the present study is based on accumulated theoretical and empirical evidence, albeit in different contexts, the present research cannot be said to be exploratory (Creswell, 2007). Nor can it be portrayed as descriptive (Creswell, 2007). Instead, the present study was aimed at studying cause-effect relationship between a set of organizational variables and ERM activities and between the latter and financial performance. For this reason, the present study should be viewed as an explanatory research.

Again, the present study has drawn upon previous studies to propose a causal model of the relationships between a set of firm characteristic variables, ERM and financial performance. This approach involved operationally defining concepts and conjecturing cause-effect relationships based on insights gleaned from extant studies conducted in other contexts. Thus, the present study should be viewed as quantitative research because observations were treated as entities, the observer was separated from the entities observed and, based on the received literature presented under chapter two, an objective criterion by which to evaluate the findings was provided (Creswell, 2007).

Finally, this present study of insurance companies in Ghana has research questions that comprised mainly of “what” questions, and therefore could dovetail neatly into either a survey or case study strategy. Surveys attempt to describe attitudes, opinions, behaviours or characteristics of a group by studying an aspect of the group. A survey makes use of large samples that are examined by developing instruments to test a theory developed based on existing studies. In case studies, however, researchers normally seek to understand the dynamics that are present within a single empirical setting (Creswell, 2007).

Considering the nature of two strategies, the survey was chosen over the case study because the latter suffers from the problem of generalizability. In this study, given the emphasis on ERM activities amongst insurance companies in Ghana, generalizability is an extremely important consideration, hence the adoption of a quantitative survey design. In this survey, the study examined the characteristics of Ghanaian insurers quantitatively by drawing upon a representative

sample. This is consistent with the prevailing practices in the ERM literature (Florio & Leoni, 2017; Callahan, & Soileau, 2017; Ramlee & Ahmad, 2015; Lundqvist & Vilhelmsson, 2018).

## **3.2 Data**

This section describes the sampling technique, questionnaire design and field data collection. Each of these issues is discussed in turn.

### **3.2.1 Sampling**

According to the National Insurance Commission, twenty-nine non-life insurance firms, twenty-four life insurance firms, three reinsurance firms, ninety insurance broking firms, and four reinsurance brokers make up the insurance sub-sector of the financial services sector of Ghana (NIC, 2019). In other words, there were 150 potential firms to study. Because of limited time and financial resources, however, it was difficult for the independent student researcher to study all these firms. Using a purposive sampling technique, the researcher therefore selected 56 firms comprising life and non-life insurance and reinsurance companies. The firms not sampled were all intermediaries. This practice is consistent with previous insurance industry studies about ERM conducted in the United States and Europe in which researchers focused on insurers and not intermediaries like brokers and loss adjusting companies (Bohnert, Gatzert, Hoyt, & Lechner, 2019; Grace et al., 2015; McShane, Nair, & Rustambekov, 2011).

### **3.2.2 Data Collection Instrument**

Literature review in chapter two indicated that researchers studying ERM empirically made use of several methods to collect quantitative data. These methods include, but not limited to, using third-

party (e.g., e.g., S&P) ratings, using questionnaires, or obtaining data from published reports of companies. Scholars have, nonetheless, cast doubts on the use of the latter approach. It is suggested that data obtained from published reports of companies may be inaccurate because the details provided are limited as far as reporting of ERM engagements by companies is concerned (Lundqvist, 2014). This problem of underreporting or inadequate disclosure on ERM practices from published reports of companies made scholars to assert that making use of surveys in investigating ERM practices helps to gather comparatively more reliable data (Aleisa, 2017).

The present study made use of a self-report questionnaire to collect responses directly from informants. The unit of analysis is the firm, and the key informants (or participants) were the Chief Risk Officers (CRO) of the sampled firms. When the position of CRO is not available in the firm, the Chief Financial Officer (CFO) or the most relevant senior position indicated by the Managing Director (MD) of the firm is chosen as the informant. A standardized survey questionnaire that exposed informants to the same questions as well as the same response coding system was utilized. Therefore, differences in informants' responses were treated as indicating differences amongst the sample of respondent organizations.

The questionnaire contained demographic information requesting participants to provide information on their job title, when their organizations entered into the Ghanaian insurance market, the values of their company's total assets and debt as well as the name of their company's external auditors. These questions were framed based on insight derived from extant studies such as Lechner and Gatzert (2016) that suggested the relevant demographic questions to pose to respondents when trying to study the organizational determinants of ERM.

In addition, the questionnaire contained some 29 questions leveraged from Lundqvist (2014), which asks respondents to rate to what degree some ERM dimensions were carried out throughout their organizations based on a four-point scale with end points of 0=“does not exist” and 3=“robustly implemented”. Further sets of Likert-scale type questions were built into the questionnaire to capture financial performance (drawing from Rasid et al., 2014’s insight), industry diversification and board independence (drawing from Lechner & Gatzert, 2016’s insights). The full questionnaire is included in this document as an appendage. Meanwhile, section 3.5 describes measures of each variable as well as the source.

### **3.2.3 Data Collection**

A cross-sectional data was collected on the 56 Ghanaian insurers between March and August 2020. The use of cross-sectional – but not longitudinal or time series – data in the present study is consistent with research where the use of primary (as opposed to secondary) data was more appropriate (e.g., Lundqvist, 2014; Aleisa, 2017). Before proceeding with the administration of the designed questionnaire, the researchers first sought the consent of the sampled companies. A letter was sent to the MD of each sampled firm, requesting his/her approval for sampling his/her firm and for him/her to elect the most appropriate person to act as key informant. After this, the key informant was contacted, and all issues involved in the research relevant to him/her explained. Informants were made to understand that participation is voluntary and that all responses they provide shall be held confidentially. Dates and times for administering of questionnaire were also fixed. Subsequently, data for the research study were collected in two waves.

The survey questionnaire was piloted on five key informants in the sampled firms to gauge the clarity and understandability of the questions in the first wave of data collection. The draft survey questionnaire was then revised based on participants' feedbacks. The final survey questionnaire was self-administered to all 56 key informants in the second wave of data collection in a process that involved scheduling a meeting with the informants, presenting the questionnaire to them directly, and collecting the questionnaire immediately after completion. However, most of the participants requested for the questionnaire to be left with them and promised to complete and return the questionnaire later. Following numerous follow-ups for participants to return completed questionnaire, 34 completed questionnaires were returned resulting in a response rate of about 60 percent, which compares favourably to the response rates achieved in previous ERM studies.

### **3.3 Methods of Data Analysis**

Considering the objectives of the study, the researcher wanted to apply the empirical data in a way that would shed light on three key issues, namely (1) the rate of implementation of ERM by the sampled companies, (2) the organizational-level factors associated with ERM implementation, and (3) the relationship between ERM implementation and financial performance of the sampled companies. This section described the analytical methodology used to gain insights into these three issues.

With respect to the first issue, this study followed the lead of scholars that have studied ERM activities with a Likert-scale (e.g., Lundqvist, 2014; Aleisa, 2017). Generally, within this line of studies the practice has been for researchers to (1) conduct a factor analysis to understand the factorial structure of the scale determining the items to retain (and therefore the ones to remove),

and (2) compute descriptive statistics to enable them assign weight to each item as well as the underlying dimensions of ERM. Because previous studies have all confirmed the eight-factor structure of the COSO-ERM construct the present did not made us of factor analysis for the purpose of dimension reduction. Instead, as will be seen under the sub-section on measurement reliability, the approach was employed to rule out the presence of common method variance (CMV).

With respect to the second issue, this study sought to identify organizational-level determinants of ERM implementation, where a composite score for ERM was computed based on the average score of the dimensions tabulated during the first stage of the analysis. This is done via ordinary least square (OLS) regression, with the researcher regressing ERM activity against firm characteristics. An OLS regression technique was preferred over other techniques such as logistics regression because in the present study the adopted ERM scale is not binary (Bohnert et al., 2019). Moreover, the use of OLS regression technique in estimating the association between ERM and organizational-level factors is consistent with prior empirical studies where ERM was measured with a Likert scale (e.g., Bohnert et al., 2019).

With ERM as the dependent variable, the OLS regression technique utilized here provides values for the firm characteristic explanatory variables explaining the largest share of variance in the predicted variable. The mathematical model of OLS regression technique is represented in equation (1), with  $Y'$  being the predicted or dependent variable,  $\beta_0$  the intercept,  $\beta_{1-n}$  the regression coefficients, and the  $X_{1-n}$  the explanatory variables.

$$Y' = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n \dots \dots \dots 1$$

The last issue concerns the examination of the effect of ERM activities on financial performance. To examine this relationship, an OLS regression technique with financial performance as the predicted variable and firm characteristics and the composite ERM measure as explanatory variables was applied. The coefficient of the composite ERM measure gives indication about this relationship. Thus, the same OLS regression technique shown in Model (1) above could be used to shed light on the third objective, which focuses on the ERM–financial performance linkage.

### 3.4 Research Model Specification

In this study, three regression models were estimated to test the relationships between organizational-level factors and ERM activity as well as the relationship between the latter and financial performance based on the hierarchical regression approach. For the determinants of ERM activities, a base model, that is Model (2), was first developed, in which the ERM of firm *i* is expected to be influenced by firm *i*'s revenue. This model essentially gauges the level of explained variation in firm *i*'s ERM in the absence of theorized independent firm *i*'s characteristic variables. Thus,  $R^2$ , a regression statistic which represents this explained variation, was recorded at this stage, giving the researcher specific knowledge about the perfectness of the OLS regression model when the theorized variables were excluded.

$$ERM_i = \beta_0 + \beta_1 REV_i + \varepsilon_i \dots 2$$

where,  $ERM$  , enterprise risk management;  $REV$ , revenue;  $\beta_0$ , constant;  $\beta_1$ , regression coefficient;  $\varepsilon$  , error term or unexplained variations; and  $i$ , the  $i$ th firm ( $i=1; \dots ; 34$ ).

Then, after establishing the predicted level of ERM in the absence of the theorized independent variables, the researcher next introduced all firm  $i$ 's characteristic variables into Model (3). That is, at this stage, the main independent variables, namely (firm  $i$ 's) size, financial leverage, industry diversification, board independence and auditor type, were added into the equation and their influence – along with that of firm  $i$ 's revenue – on firm  $i$ 's ERM estimated. The  $R^2$  value in Model (3) was recorded, and the  $R^2$  change between Models (3) and (2) was also recorded. If the  $R^2$  change is significant, then depending on the  $p$ -value of regression coefficients it would be concluded that a certain independent variable is an important consideration in firm  $i$ 's decision to engage in ERM activities.

$$ERM_i = \beta_0 + \beta_1 REV_i + \beta_2 SIZ_i + \beta_3 LEV_i + \beta_4 DIV_i + \beta_5 BIN_i + \beta_6 AUD_i + \varepsilon_i \dots 3$$

where,  $ERM$ , enterprise risk management;  $REV$ , revenue;  $SIZ$ , firm size;  $LEV$ , financial leverage;  $DIV$ , industry diversification;  $BIN$ , board independence;  $AUD$ , auditor type;  $FIN$ , financial performance;  $\beta_0$ , constant;  $\beta_{1-6}$ , regression coefficients;  $\varepsilon$  , error term or unexplained variations; and  $i$ , the  $i$ th firm ( $i=1; \dots ; 34$ ).

With respect to the impact of ERM activities on financial performance, the researcher followed the same steps as in above. Namely, firstly, all the variables used to predict ERM level in Model (3) were entered in Model (4) to predict firm  $i$ 's financial performance. This model essentially

estimates the level of explained variation in financial performance of firm  $i$  in the absence of firm  $i$ 's ERM. Also, the respective  $R^2$  was recorded to gain insight into the perfectness of the OLS regression model when the measure of firm  $i$ 's ERM was excluded.

$$FIN_i = \beta_0 + \beta_1 SIZ_i + \beta_2 LEV_i + \beta_3 DIV_i + \beta_4 BIN_i + \beta_5 AUD_i + \varepsilon_i \dots 4$$

where,  $FIN$ , financial performance, and the remaining terms remain as defined before in above.

Then, after controlling for the influences of (firm  $i$ 's) size, financial leverage, industry diversification, board independence and auditor type, Model (5) adds firm  $i$ 's ERM into the equation to estimate the level of its financial performance. The  $R^2$  value in Model (5) was recorded, and the  $R^2$  change between Models (5) and (4) was also recorded. If the  $R^2$  change is significant, then depending on the  $p$ -value of regression coefficient for firm  $i$ 's ERM it would be concluded that ERM has an influence on the financial performance of the firm.

$$FIN_i = \beta_0 + \beta_1 SIZ_i + \beta_2 LEV_i + \beta_3 DIV_i + \beta_4 BIN_i + \beta_5 AUD_i + \beta_6 ERM_i + \varepsilon_i \dots 5$$

### 3.5 Variables Description and Measurement

Drawing upon the conceptual framework, measures were developed for *dependent, independent, and control variables*. As noted under section 3.2 a self-report survey was used for all these variables. The advantages associated with this approach – as opposed to the more conventional use of objective measures based on archival secondary data – were detailed under section 3.2. Here, the variables and their respective measures are explained.

**Financial Performance:** This study views financial performance in terms of the extent to which a firm was able to attain its planned targets. The study focused on perceived performance, and therefore measured informants' perception of their firm's performance anchored on a seven-point Likert-type scale with endpoints 1 (very poor) and 7 (excellent). This measurement is based on instrument derived from Rasid et al. (2014).

**ERM Activity:** ERM was measured with a 29 survey questions leveraged from Lundqvist (2014). The questions assessed the degree of implementation of each of the eight COSO-ERM dimensions in the sampled firm. As stated earlier, the scale has endpoints 0 and 3, with 0 indicating superficial implementation and 3 indicating robust implementation.

**Firm Size:** Size is a measure of scale. Large-scale enterprises are generally expected to exhibit a higher tendency to implement ERM compared to small-scale enterprises. Following the work of Lechner and Gatzert (2016), in the present study, informants were asked to write the value of total assets of their companies in the last financial year and the natural logarithm of the furnished figure was computed and used as a measure of firm size.

**Financial Leverage:** Financial leverage reflects the extent to which a firm uses borrowed funds to finance its assets. In the event of bankruptcy, high-leverage firms are at a risk of bankruptcy if they are not able to repay the debts. Therefore, the literature suggests that ERM implementation tends to be robust amongst high-leverage firms because of its positive impacts described under chapter two. In this study, financial leverage is the ratio of long-term debt to equity capital. Following

Lechner and Gatzert (2016), informants were asked to indicate the book values of their long-term liabilities and shareholders' funds in the last financial year. Financial leverage was then derived by using the latter to divide the former.

**Industry Diversification:** Diversification is seen as an important way in which the growth trajectory of a firm is renewed and broadened. It is a reflection of whether the firm has many principal areas of specialization, with more diversified firms being less sensitive to the ups and downs associated with the business cycle because risk is spread more evenly across a number of segments. With diversification, even if some segments are suffering, other stronger segments will help the firm maintain healthy growth. To capture industry diversification of the sample, this study asked informants to indicate the extent to which a set of four underlying questions regarding diversification truly reflected their company, in keeping with Lechner and Gatzert (2016). These questions are based on a five-point Likert -type scale with endpoints 1=disagree completely and 5=agree completely.

**Board Independence:** Board independence is defined in terms of the proportion of the board members that are regarded as being insulated from any significant relationship with the firm's senior executives. The literature suggests numerous criteria for assessing whether a board is likely to be independent. These include but not limited to family affiliation, tenure, composition, and structure (Desender, 2007). In this study, five questions reflecting some of these areas were posed to respondents requesting them to indicate the extent to which those questions truly reflected the directors of their company. These questions are based on a six-point Likert-type scale with endpoints 1=not at all and 6=very great extent.

**Auditor Type:** Auditor type is said to be associated with the stage of ERM adoption. In this study, respondents were asked to write the name of the company's external auditors during the last financial year. A measure for auditor type was then derived based on whether the named external auditor belong to the Big4 auditing firms (that is, KPMG, PWC, Deloitte and Ernst & Young) or not using the dummy variable 1 for Big4 and 0 for non-Big4. This idea is based on the literature (e.g., Lechner & Gatzert, 2016)

**Control Variable:** Revenue is the main control variable used in this study. Revenue, a powerful metric that strongly predicts cash flows, is the income generated from normal business operations. Given the focus of this study on insurance firms, gross written premium was used to gauge revenue. A question was included in the survey that directly request this information from survey participants. A natural logarithm of this figure was computed.

### **3.6 Summary of Chapter**

In this chapter, the adopted research design was explained in great details and the data collection process was detailed by highlighting key areas such as sampling process, the survey design and survey administration. In addition, the data analysis methods were explained, and empirical research models were specified. The final part of the chapter described all research variables and explained how each was measured.

## CHAPTER FOUR

### RESULTS AND DISCUSSIONS

#### 4.0 Introduction

This chapter presents and discusses results of statistical data analysis conducted to understand ERM activity amongst insurance firms in Ghana. The chapter has five major sections. First, section 4.1 presents a preliminary analysis of data focusing on demographic characteristics of the sample, reliability of the measures, constructs descriptive statistics and multicollinearity tests. Next, section 4.2 presents and discusses statistical results for the extent of COSO-ERM implementation amongst the sample. Then, section 4.3 presents and discusses multiple regression analysis results for the determinants of ERM activity in the sample of insurance companies. Subsequently, multiple regression analysis results for the ERM–financial performance linkage are presented and discussed in section 4.4 and summary of the chapter presented in section 4.5.

#### 4.1 Preliminary Analyses of Data

This section addresses four issues: first, demographic features of the sample; second, reliability of the measurement variables; third, constructs descriptive statistics; and fourth, multicollinearity between the independent variables. Each of these issues is discussed in detail next.

##### 4.1.1 Sample Distribution

The demographic features of the sample are summarized in Table 1 below. Amongst the respondent insurance companies, about 47 percent of them were non-life insurers. Life insurers constituted about 44 percent of the respondent insurance companies, with reinsurance companies

constituting almost 9 percent of the sample. The overwhelming majority (that is, almost 71 percent) of these respondent insurance companies entered the Ghanaian insurance market in the 21<sup>st</sup> century, with just about 29 percent having operated in the industry since the 20<sup>th</sup> century. There, thus, seems to be a proliferation of insurance companies in Ghana from the year 2000 onwards.

**Table 1: Demographic Characteristics of the Sample**

Variable	Classification	Frequency	Percentage
Respondent's Job Title	Chief Risk Officer	11	32.4
	Head of Audit	9	26.5
	General Manger	5	14.7
	Others	9	26.5
Year of Entry into Insurance Industry	Within the last 4 years	4	11.8
	Between 5 and 9 years ago	9	26.5
	Between 10 and 19 years ago	11	32.4
	20 years or earlier	10	29.4
External Auditors	BIG Four	18	52.9
	Others	16	47.1
Category of Insurance	Non-life	16	47.06
	Life	15	44.12
	Reinsurance	3	8.82

Notes: N=34

Source: based on survey data

Table 1 further shows that most (that is, approximately 53 percent) of the respondent insurance companies were audited by the Big4 auditing firms, with insurance companies audited by non-Big4 external auditors constituting about 47 percent of the sample. Finally, in terms of the key informants themselves, Table 1 indicates that most (that is, about 32 percent) of the respondent insurance companies were represented by Chief Risk Officers. Still, approximately 27 percent of the respondent insurance companies were represented by Chief Audit Officers, and individuals

with working titles such as operation manager, human resource manager, underwriting manager, amongst others, were found to represent the same percentage of the sample as the latter group.

In short, because past ERM activity studies reviewed under chapter two mainly sampled Chief Risk Officers and Chief Audit Officers, and also considering the fact that respondent insurance companies represented by these two groups of informants together accounted for the majority (that is, 59 percent approximately) of this study's sample, it is reasonable to assert that the sampled informants were appropriate for learning about the ERM activities of the respondent insurance companies.

#### **4.1.2 Measurement Reliability**

Because the research data came from a single source, this study needed to establish that common method variance (CMV) was not a problem. Equally, it was important to establish that the data were not associated with large random errors. CMV was ruled out by conducting Herman's-type one factor test. This involves running a factor analysis based on principal component using all the scale items as factors. The results of this analysis (see Table 11 under Appendix III) did not provide any evidence of a general factor drawing a larger share of the covariance between the measures. Broadly, there were thirteen factors having eigenvalues surpassing 1. The first four factors explained 18.72 percent, 18.70 percent, 8.63 percent, and 7.53 percent (cumulatively 53.57 percent) of variance explained.

**Table 2: Constructs Cronbach's Reliability Analysis Results**

Construct	Measure*	Not of	Scale	Cronbach's	Source**
		Items	Type	Alpha	
Internal environment	Q6-Q10	5	Likert	.738	<i>Lundqvist (2014)</i>
Objective setting	Q11-Q14	4	Likert	.682	<i>Lundqvist (2014)</i>
Control activities	Q15-Q17	3	Likert	.875	<i>Lundqvist (2014)</i>
Information communication	Q18-Q20	3	Likert	.870	<i>Lundqvist (2014)</i>
Monitoring	Q21-Q23	3	Likert	.826	<i>Lundqvist (2014)</i>
Risk identification	Q24-Q28	5	Likert	.714	<i>Lundqvist (2014)</i>
Risk assessment	Q29-Q31	3	Likert	.822	<i>Lundqvist (2014)</i>
Risk response	Q32-Q34	3	Likert	.860	<i>Lundqvist (2014)</i>
Board Independence	Q42-A47	6	Likert	.689	Desender (2007)
Industry diversification	Q48-Q51	4	Likert	.884	Lechner & Gatzert (2016)
Financial performance	Q35-Q41	6	Likert	.631	Rasid et al. (2014)
Type of auditor	Q4	1	Dummy	N/A	Lechner & Gatzert (2016)
Size	Q3	1	Index	N/A	Lechner & Gatzert (2016)
Financial leverage	Q5	1	Ratio	N/A	Lechner & Gatzert (2016)

Notes: N=34

\*This refers to the questions on the survey that were used to capture the domain of the construct.

\*\*Citations in italics indicate that the questions were adopted. Others mean adapted or modified.

Source: based on survey data

The reliability of the measures was tested by undertaking Cronbach's reliability analysis. Because the present study was investigating the COSO-ERM framework in a relatively new, understudied empirical settings, a threshold of .60 and above was adopted in keeping with extant guidelines. The recorded values for Cronbach's alpha reported in Table 2 above ranged from .63 (financial performance) to .88 (control activities), which indicates that the reliability of these measure were reasonably acceptable.

### 4.1.3 Descriptive Statistics

Table 3 shows mean and standard deviation (and other estimates) for all the research constructs apart from dummy variables and financial leverage. Take note that because of significant missing values, financial leverage could not be computed and therefore it has been removed from the balance of this discussion.

**Table 3: Constructs Mean and Standard Deviation**

Construct	N	Min.	Max.	Mean	SD
Financial Performance (FIN)	34	1.33	6.21	4.8571	.46921
Enterprise Risk Management (ERM)	34	.15	2.85	1.3539	.7276
Board Independence (BIN)	34	1.27	5.01	3.5882	.71684
Industry diversification (DIV)	34	1.43	4.19	3.5147	.70695
Type of auditor	34	NA	NA	N/A	NA
Firm Size (SIZ)	34	56.11m	722.13m	174.76m	177.41m
Revenue (REV)	34	21.08m	360.20m	78.98m	90.58m

Source: based on survey data

As seen from Table 3 above, the average firm in the sample had a total assets of about GH¢174.76m and posted approximately GH¢78.98m in gross written insurance premium, although the dispersion around these figures tends to be quiet high, that is, 177.41m for total assets and 90.58m for revenue. Again, mean score for the financial performance construct is 4.8571 (approximately 5), indicating that the level of financial performance amongst the sampled insurance firms is satisfactorily above average. This above average achievement in financial performance appears consistent across the sampled firms, considering that the standard deviation score is around .5, a figure that indicates low variability.

In addition, the mean score recorded for the ERM construct is 1.3539 with a standard deviation of .7276, together appearing to suggest that implementation of the COSO-ERM framework by the sampled insurance companies is ad hoc. The latter assertion will be dealt with later. Furthermore, the mean score recorded for the board independence construct is 3.5882 with a standard deviation of .71684, and these seem to indicate that the board of directors of the average firm in the sample was not sufficiently autonomous. Finally, the mean score recorded for the industry diversification construct is 3.5147 with a standard deviation of .70695, and these seem to suggest that the average firm in the sample was less diversified or tended to have fewer business segments.

#### **4.1.4 Test of Multicollinearity**

As stated early on, this section also gauges multicollinearity amongst the sets of explanatory variables. Multicollinearity arises when independent variables are highly correlated (Vatcheva, Lee, McCormick, & Rahbar, 2016). Table 4 below report results of correlation analysis showing bivariate Pearson product movement correlation coefficient for all variable measures. As seen in chapter three, theorized main independent variables for models predicting ERM activity are firm size (SIZ), financial leverage (LEV), industry diversification (DIV), board independence (BIN) and auditor type (AUD), with revenue (REV) as the control variable. However, as stated earlier, because of significant missing values, financial leverage could not be computed and was thus removed from the balance of this discussion.

**Table 4: Constructs Corrections**

Construct	SIZ	REV	BIN	DIV	BIG4	Non-BIG4	ERM	FIN
FIRM SIZE (SIZ)	1							
REVENUE (REV)	.706**	1						
BOARD INDEPENDENCE (BIN)	.000		1					
INDUSTRY DIVERSIFICATION (DIV)	-.575**	-.764**		1				
AUDITING FIRM IS A BIG4 (BIG4)	.000	.000			1			
AUDITING FIRM IS NOT A BIG4 (Non-BIG4)	-.381*	-.379*	.174	-.210	-1.000**	1		
ENTERPRISE RISK MANAGEMENT (ERM)	.026	.042	.324	.233	.000		1	
FINANCIAL PERFORMANCE (FIN)	.113	-.102	-.028	-.007	.181	-.181		1
	.526	.599	.875	.968	.305	.305		
	-.189	-.506**	.532**	.010	-.200	.200	.012	
	.284	.005	.001	.956	.256	.256	.947	

Notes: \*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

Source: based on survey data



In detecting multicollinearity between independent variables, the literature suggests a threshold of .80 and above (Vatcheva, et al., 2016). Viewing from Table 4 above, the correlation coefficients between the antecedent factors for ERM activity ranged from -.095 to -.764, indicating that the risk of multicollinearity was not unreasonably high for regression models using these independent variables as predictors of ERM activity of the sampled insurance companies (Vatcheva et al., 2016).

Again, in models predicting financial performance, ERM activity, the set of antecedent variables mentioned in the preceding paragraph, and some additional control variables including revenue (REV) are the main independent variables. Table 4 also reports the correlation coefficients between these variables, and these ranged from -.007 to -.764, indicating that the risk of multicollinearity was not unreasonably high for regression models using these factors to predict the level of financial performance of the sampled insurance companies (Vatcheva et al., 2016). In short, the problem of multicollinearity is alleviated by the results of correlation analysis in Table 4 showing that correlation coefficients between all the independent variables ranged from -.007 to -.764, which are well below the accepted threshold.

#### **4.2 COSO-ERM Activity amongst Sampled Insurance Companies**

This section seeks to ascertain the extent of ERM activity amongst the sampled insurance companies. Consistent with previous studies on implementation of ERM (Beasley et al., 2010; Paape et al., 2012; Lundqvist, 2014), descriptive statistics technique was employed. In particular, mean and standard deviation (along with other parameters) were computed for each individual

item on the COSO-ERM scale. Again, same were computed for each of the eight COSO-ERM dimensions as well as the composite COSO-ERM measure. In keeping with previous studies, superficial ERM implementation of COSO-ERM scale item, its dimension, or the composite measure is assumed for means scores close to 0, whereas robust ERM implementation of same is assumed for mean scores close to 3. Table 5 reports relevant results of the descriptive statistics.

Results presented in Table 5 below suggests that, with respect to the individual scale items, mean scores ranged from 0.7273 (a standard deviation of .6742) for the item “alternative risk response for each significant event” to 1.8824 (a standard deviation of .6859) for the item “formal mission (vision/purpose) statement”. The standard deviation is below 1 for all items indicating low variability. In other words, the COSO-ERM rating seems consistent across all the sampled insurance companies.

Similarly, mean scores for the dimensions ranged from .8485 (a standard deviation of .6738) for risk response to 1.7647 (a standard deviation of .6793) for objective setting. These dimensions aggregated to a composite COSO-ERM construct that recorded a mean score of 1.3539 (a standard deviation of .7276).

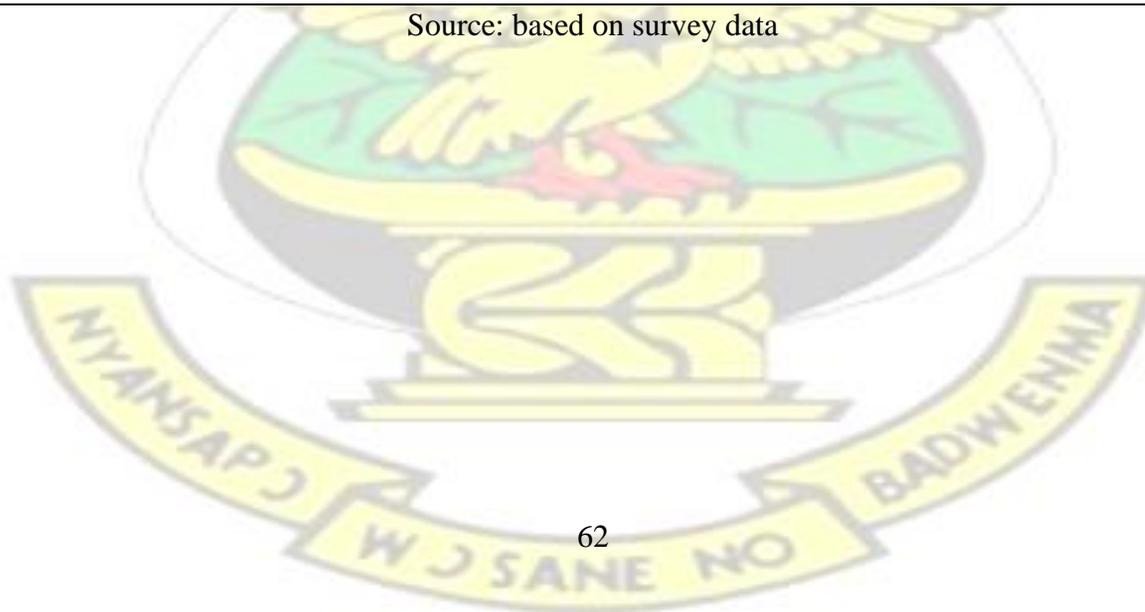
**Table 5: Descriptive Statistics for COSO-ERM Scale**

	N	Min	Max	Mean	SD
	Statistic	Statistic	Statistic	Statistic	Statistic
Code of conduct/ethics	34	1.00	3.00	1.8235	.67288
Training in ethical values for employees of all levels	34	1.00	3.00	1.7353	.70962
Compensation policies intended to align the interests of managers and shareholders (i.e., balance short- and long-term)	34	.00	3.00	1.4706	.70648
Formally defined audit committee	34	.00	3.00	1.7059	.79884
Written document describing the role, structure, and responsibilities of the board	33	.00	3.00	1.6970	.58549
Formal mission (vision/purpose) statement	34	1.00	3.00	1.8824	.68599
Formal strategy to pursue the mission	34	1.00	3.00	1.7353	.66555
Formal business objectives/plan in place to execute the strategy	34	.00	3.00	1.7941	.59183
Performance goals set to assess whether the firm is achieving its objectives/plan	34	.00	3.00	1.6471	.77391
System to ensure that policies and procedures that are in place to manage the achievement of the firm's objectives/plan are functioning and effective	33	.00	3.00	1.3030	.80951
Authorization procedures in place to ensure appropriate individuals review the use of policies and procedures	34	1.00	3.00	1.5588	.61255
Independent verification procedures to ensure the use of policies and procedures	33	.00	2.00	1.4545	.56408
Channels of communication to report suspected breaches of laws, regulations, and other improprieties	34	.00	3.00	1.2941	.79884
Channels of communication with customers, vendors, and other external parties	34	.00	3.00	1.2941	.87141
Formal report submitted to board level at least annually on the current state of risk and effectiveness of risk management	34	.00	3.00	1.4412	1.05000
Monitoring of the firm's internal environment, processes, and control activities	34	.00	3.00	1.3235	.87803
Key risk indicators or indicators aimed at emerging risks (not Historical performance)	34	.00	3.00	1.3529	.77391
Assessment of the firm's risk management function done by an independent/external Party	34	.00	3.00	1.2059	.88006
Consideration of financial events	34	.00	3.00	1.6176	.88813
Consideration of compliance events	34	.00	3.00	1.7353	.66555
Consideration of technology events	33	.00	3.00	1.4848	.66714
Consideration of economical events	33	.00	2.00	1.5455	.56408
Allocated risk owners who have primary responsibility and accountability for managing risk within their respective areas	33	.00	3.00	1.2121	.85723

**Table 5 Continued: Descriptive Statistics for COSO-ERM Scale**

	N	Min.	Max.	Mean	SD
	Statistic	Statistic	Statistic	Statistic	Statistic
Consideration of the likelihood that financial events will affect the firm’s ability to achieve its objectives	33	.00	3.00	.8182	.63514
Consideration of the potential impact that financial events will have on the firm’s ability to achieve	33	.00	3.00	.9091	.63066
Consideration of strategic risk events	33	.00	3.00	1.0909	.63066
Formal policies about how risk should be managed	33	.00	2.00	1.0606	.55562
Risk response plan for all of the significant events the firm has identified	33	.00	3.00	.7576	.79177
Alternative risk responses for each significant event	33	.00	2.00	.7273	.67420
Internal environment	34	0.4	3	1.6864	.6946
Objective setting	34	0.5	3	1.7647	.6793
Control activity	34	0.33	2.67	1.4367	.6620
Information comm.	34	0	3	1.3431	.9067
Monitoring	34	0	3	1.2941	.844
Risk identification	34	0	2.8	1.51906	.7284
Risk assessment	33	0	3	.9394	.6321
Risk response	33	0	2.33	.8485	.6738
ERM	34	0.15	2.85	1.3539	.7276

Source: based on survey data



Consistent with the received view suggesting that items having mean scores close to 0 are superficially implemented whilst items having mean scores close to 3 are robustly implemented (Beasley et al., 2010; Lundqvist, 2014; Paape et al., 2012), the following interpretations in Table 6 below are deemed reasonable as far as the extent of ERM activity of the sampled insurance companies is concerned.

**Table 6: Results for the Extent of COSO-ERM Implementation**

COSO-ERM dimension	Scale score *	Accepted Finding			
		Does not exist	Ad hoc implementation	Implemented but improvement needed	Robustly implemented
Internal environment	2			√	
Objective setting	2			√	
Control activity	1		√		
Information comm.	1		√		
Monitoring	1		√		
Risk identification	2			√	
Risk assessment	1		√		
Risk response	1		√		
Overall COSO-ERM	1		√		

Notes: \*These values were approximated. To be clear, a mean score of 1.2941 is taken as 1, whilst a mean score of 1.7647 is taken as 2.

Source: based on survey data

The interpretations summarized in Table 6 above suggest that, on average, none of the eight COSO-ERM dimensions was implemented robustly by the sampled insurance companies. Although, on average, all the eight dimensions were found to exist in the sampled companies, the summarized results in Table 6 suggest that implementation of all but three dimensions (that is, internal environment, objective setting and risk identification) is ad hoc at best. Moreover, whilst, on average, internal environment, objective setting and risk identification as dimensions of COSO-ERM framework appear to have been implemented, their implementation is not robust and require some improvement.

Taken together, these individual results translated to an “ad hoc implementation” of the composite COSO-ERM framework by the sample, on average. In this connection, the results presented in this section suggesting that the implementation of the COSO-ERM framework amongst the sample of insurance companies in Ghana is ad hoc seem to resonate with Beasley et al.’s (2010) finding indicating that the ERM process is not mature in many organizations around the world.

#### **4.3 Organizational-level Factors Associated with COSO-ERM Activity of Insurance Companies**

To understand what organizational factors were associated with the COSO-ERM activities of the sampled Ghanaian insurance companies, a conceptual model was developed under chapter two based on the received literature linking a set of organizational factors to ERM implementation. These organizational factors or what were defined formally as firm characteristic variables include firm size (SIZ), industry diversification (DIV), board independence (BIN) and auditor type (AUD). These influences were tested in regression Models 2 & 3. In Model 2, ERM was regressed against a control variable, that is, revenue, and then in Model 3 the proposed determinants of ERM were entered into the equation predicting the level of ERM of the sample. Findings of this empirical tests are presented and discussed in the ensuing.

Table 7 below reports the results for Model 2, which examined the level of ERM in the absence of the proposed firm characteristic antecedent variables. This table reports on the predictive power of the regression model by showing, inter alia, percentage of the explained variation, or  $R^2$ . It also reports on the regression coefficients and regression  $t$ -values and their significant values.

**Table 7: Results for the Influence of Revenue on ERM**

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	2.880	.930		3.096	.005
REV	-.028	.053	-.102	-.531	.599
R Square		.010			
Adjusted R Square		-.026			
Std. Error of the Estimate		.47980			
df		27			
F		.282			
Sig.		.599			

Source: based on survey data

Viewing along the standardized coefficients in Table 7 above, the relationship between ERM and revenue is negatively insignificant ( $\beta = -.102$ ,  $\rho = .599$ ). This indicates that, on average, a unit reduction in their gross written insurance premium led the sample of respondent insurance companies to improve their COSO-ERM implementation by .10 unit. Yet this improvement in ERM implementation is hardly material. This assertion is supported by the  $R^2$  value seen in Table 7 above showing that only 1 percent of the variance in the predicted level of COSO-ERM implementation of the sample was explained by revenue.

Next, the proposed firm characteristic antecedent variables were introduced into the regression equation in Model 3. Table 8 reports the results.

**Table 8: Results for the Influence of Firm Characteristics on ERM**

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	4.253	3.332			1.276	.215
REV	-.196	.136	-.701		-1.441	.163
SIZ	.140	.129	.314		1.086	.289
BIN	-.259	.318	-.364		-.815	.424
DIV	-0.27	.152	-.039		-.175	.862
Non-Big4	-.146	.210	-.156		-.696	.493
R Square		.124				
Adjusted R Square		-.067				
Std. Error of the Estimate		.48912				
df		23				
F		.650				
Sig.		.664				

Source: based on survey data

Similarly, Table 8 reports on the percentage of the explained variation, or  $R^2$ . It also reports on the regression coefficients for the explanatory variables and the regression  $t$ -values, which were used to detect statistically significant relationships between the predicted variable – that is, ERM – and the explanatory variables. Regression  $t$ -values test the hypothesis that each coefficient is not different from 0. Viewing along the standardized coefficients, none of the regression coefficients is statistically significant, although the analysis of variance result suggests that adding the proposed determinants into the equation changed the  $R^2$  by 11.4 percent. The individual findings are analyzed in the following paragraphs.

The relationship is positive for firm size ( $\beta=.314$ ,  $t=1.086$ ,  $\rho=.289$ ), indicating that, on average, a unit increase in total assets led the average organization in this sample to improve its COSO-ERM implementation by .31 units. Studies from US (e.g., Hoyt & Liebenberg, 2011), Europe (e.g., Lechner & Gatzert, 2016; Bohnert et al., 2019) and Asia (Razali et al., 2011; Golshan & Rasid, 2012) have all found consistent positive coefficient for the firm size–ERM linkage, although the Asian-based studies found insignificant effect just like the present study.

The remaining factors, namely, board independence ( $\beta=-.364$ ,  $t=-.815$ ,  $\rho=.424$ ), industry diversification ( $\beta=-.039$ ,  $t=-.175$ ,  $\rho=-.862$ ), and non-Big4 auditor ( $\beta=-.156$ ,  $t=-.696$ ,  $\rho=.493$ ), all associated negatively with ERM. The interpretation for each coefficient is as follows. The negative coefficient for board independence indicates that a unit improvement in the board independence rating, for example, from “small extent (1)” to “some extent (2)” led the average organization in this sample to downgrade its COSO-ERM implementation by .36 units, for example, from “implemented but improvements needed” to “ad hoc implementation”.

In chapter two, three studies also examined the latter relationship, and, in all cases, the coefficient is positive (see, e.g., Paape & Speklé, 2012). Although it is difficult to understand the main reason behind this inconsistent finding, it makes sense to speculate that perhaps the adopted measure for board independence, which is a self-report measure based on Likert-scale in lieu of objective measure based on third-party rating, did not truly capture the domain of this construct. More research is needed to better understand this issue.

The negative coefficient for industry diversification indicates that a unit increase in agreement from respondents that their organizations were highly diversified generated around .04 units increase in agreement that their organizations' COSO-ERM implementation was downgraded. The finding echoes those of US-based studies (Hoyt & Liebenberg, 2008; Pagach & Warr, 2011) who found negatively insignificant relationship between ERM and industry diversification.

The negative coefficient for non-Big4 auditors (interpreted together with the reported statistics for the intercept) indicates that, on average, companies whose annual reports were audited by non-Big4 auditing firms tended to superficially adopt the COSO-ERM framework, whereas companies whose annual reports were audited by Big4 auditing firms tended to implement the COSO-ERM framework with relatively better rigor. The finding that sourcing to non-Big4 auditing firms is likely to impact the firm negatively as far as its COSO-ERM activity is concerned is consistent with some European-based studies (e.g., Lechner & Gatzert, 2016; Paape & Speklé, 2012) that reported insignificant positive relationship between Big4 auditing firms and ERM activity in the companies whose accounts were being audited.

#### **4.4 COSO-ERM Activity and the Financial Performance of Insurance Companies**

This section presents empirical test results for the ERM–financial performance linkage. Models 4 & 5 estimated this relationship. In Model 4, the predicted level of financial performance of the sample was estimated in the absence of ERM using firm size, board independence, industry diversification, and auditor type as control variables. Table 9 below reports the results.

**Table 9: Results for the Influence of Firm Characteristics on Financial Performance**

Model	Unstandardized		Standardized		t	Sig.
	Coefficients		Coefficients			
	B	Std. Error	Beta			
1(Constant)	1.366	1.926			.709	.484
SIZ	.117	.088	.260		1.339	.191
BIN	.473	.127	.723		3.716	.001
DIV	-.125	.110	-.188		-1.132	.267
Non-Big4	.124	.155	.134		.802	.429
R Square		.360				
Adjusted R Square		.272				
Std. Error of the Estimate		.40030				
Df		29				
F		4.085				
Sig.		.010				

Source: based on survey data

In Table 9 above, the analysis of variance results showing, amongst other things, the percentage of the explained variation, or  $R^2$ , are reported. Also reported are the regression coefficients for the explanatory variables. Viewing along the standardized coefficients, the relationship is positively significant for board independence ( $\beta=.723$ ,  $t=3.716$ ,  $\rho=.001$ ) and positively insignificant for firm size ( $\beta=.260$ ,  $t=1.339$ ,  $\rho=.191$ ) as well as non-Big4 auditing firms ( $\beta=.134$ ,  $t=.802$ ,  $\rho=.429$ ). In contrast, the relationship is negatively insignificant for industry diversification ( $\beta=-.188$ ,  $t=-1.132$ ,  $\rho=.267$ ). These results can be interpreted as follows.

The positive relationship between financial performance and board independence indicates that a unit improvement in board independence rating (for example, from “some extent” to “moderate extent”) for the average organization in this sample was likely to have resulted in a .72 unit improvement in its financial performance rating (for example, from “below average” to “average”). This finding is very consistent with the growing body of literature on corporate governance that has consistently found significant positive association between board independence and accounting and market-based measure of financial performance (e.g., Desender, 2007).

Similarly, the positive relationship between financial performance and firm size indicates that a unit increase in total assets led to a .26 unit improvement (e.g., from “below average” to “average”) in financial performance for the average organization in the sample. This finding is in line with the prevailing view regarding economies of scale (see, e.g., Vaxevanoua & Konstantopouloa, 2015).

The positive coefficient reported for non-Big4 auditing firms indicates that, on average, the predicted level of financial performance was similar for all the sampled insurance companies irrespective of whether insurance companies outsource audit tasks to Big4 auditing firms or not. To the best of the researcher’ knowledge, past ERM studies reviewed under chapter two of this dissertation did not examined this relationship, which makes comparison difficult (if not impossible).

The negative relationship between industry diversification and financial performance indicates that, on average, a unit increase in agreement by respondents that their organizations were highly

diversified generated a .19 unit increase in agreement that their organizations' financial performance rating worsen. Although this contradicts the extant understanding in the Western-country studies dominated literature, it nonetheless raises a further question, namely, is the influence of diversification on financial performance affected by context?

Taken together, these four control variables explained 36 percent of the variance in the predicted level of financial performance of the sample, with the fit indices indicating that Model 4 fits the data reasonably well ( $R^2=.360$ ,  $F_{(4, 29)}=4.085$ ;  $p=.010$ ).

Next, Model 5 added ERM into the equation to estimate the level of financial performance of the sample. The results are reported in Table 10 below. Standardized coefficients in Table 10 show that the relationship is positively insignificant for ERM ( $\beta=.027$ ,  $t=.175$ ,  $p=.862$ ). The positive relationship between financial performance and ERM indicates that a unit improvement in ERM implementation (e.g., from “does not exist” to “ad hoc implementation”) generated a .03 unit increase in financial performance levels for the average insurance company in the sample.

The finding of a positive coefficient for the ERM–financial performance linkage in the sample of insurance companies in Ghana is consistent with the overwhelming evidence in the extant literature. To be sure, thirteen empirical studies that reported statistical results were reviewed in chapter two, with all the studies showing a positive relationship between ERM and accounting as well as market-based measures of financial performance. More specifically, although in the present study, the coefficient of ERM is not statistically significant unlike in most of the studies reviewed

in chapter two, the present result is not without precedent. Namely, insignificant positive relationship was reported by Anton (2018), Beasley et al. (2008), and McShaine et al. (2011).

**Table 10: Results for the Influence of ERM on Financial Performance**

Model	Unstandardized		Standardized		t	Sig.
	Coefficients		Coefficients			
	B	Std. Error	Beta			
1(Constant)	1.316	1.980			.665	.511
SIZ	.116	.089	.257		1.303	.203
BIN	.472	.130	.721		3.638	.001
DIV	-.123	.112	-.186		-1.102	.280
Non-Big4	.128	.159	.139		.806	.427
ERM	.028	.160	.027		.175	.862
R Square	.361					
Adjusted R Square	.247					
Std. Error of the Estimate	.40716					
Df	28					
F	.3.165					
Sig.	.022					

Source: based on survey data

The analysis of variance results in Table 10 above suggest that adding ERM into the equation to predict the level of financial performance raised the percentage of explained variation from 36 percent in Model 4 to 36.1 percent in Model 5, a small significant  $R^2$  change of about 0.1 percent.

The analysis of variance results in Table 10 further suggest that the model predicting the level of

financial performance with ERM, firm size, industry diversification, board independence and type of auditor fits the data reasonably well ( $R^2=.361$ ,  $F_{(5, 28)}=3.165$ ;  $\rho=.022$ ).

#### 4.5 Summary of Chapter

In this chapter, preliminary analysis of the research data was undertaken and statistical results for the research objectives presented and discussed. The following are the key points of note as far as the results and discussions chapter was concerned.

First, analysis of the demographic characteristics of the sample indicated that the sampled informants were appropriate for learning about the ERM activities of the respondent insurance companies.

Second, reliability analysis indicated that the reliabilities of the measures were reasonably acceptable.

Third, correlation analysis indicated that the problem of multicollinearity was alleviated since correlation coefficients between all the independent variables were significantly below the accepted threshold.

Fourth, results of descriptive analysis indicated an “ad hoc implementation” of the composite COSO-ERM framework by the sample of insurance companies, even though the extent of implementation tended to vary between individual components.

Fifth, regression results on the determinants of ERM implementation suggested that the inclusion of firm size, industry diversification, board independence, and type of auditor into the equation raised the percentage of explained variation in the predicted level of ERM by 11.4 percent, but none of the regression coefficients is statistically significant.

Finally, regression results on the ERM–financial performance linkage indicated that the relationship is positive, although insignificant.



## CHAPTER FIVE

### SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

#### 5.0 Introduction

This chapter produces a summary of the study, draws conclusions, and makes recommendations. The chapter is thus divided into three key sections. Section 5.1 summarizes the whole study, section 5.2 presents the main conclusions of the study, section 5.3 presents recommendations to practitioners, and section 5.4 presents suggestions to future researchers.

#### 5.1 Summary of Findings

Although in recent times, financial sector crises have drawn the attention of practitioners and scholars to the question of whether insurance companies in Ghana have effectively implemented an enterprise-wide risk management approach, instead of a silo-based frameworks, to date, studies examining the antecedents and consequences of enterprise risk management amongst insurance companies in the country were difficult to come by. This study was aimed at addressing this research gap by investigating three key issues about enterprise risk management amongst insurance companies in Ghana: the extent of ERM implementation by these companies; the organizational factors that determine ERM implementation amongst these companies; and the relationship between ERM implementation and financial performance of these companies.

In order to gather empirical evidence on these three related areas, a conceptual model was developed based on an extensive literature review that linked organizational-level factors including

Firm Size, Industry Diversification, Board Independence, and Type of Auditor to ERM, which is in turn linked to Financial Performance. A quantitative correlational research design was adopted, utilizing a standardized questionnaire to collect research data from Chief Risk Officers, Chief Audit Officers, and other managers of 34 insurance companies operating in Ghana. The questionnaire amassed self-report data on eight dimensions of COSO-ERM activities, organizational-level antecedents, financial performance, and demographic variables. Employing Ordinary Least Square regressions, Descriptive Statistics and Factor Analysis in analyzing research data, some interesting findings emerged concerning the study's three areas of interest.

First, regarding extent of ERM implementation, it was found that none of the eight COSO-ERM dimensions was implemented robustly by the sampled insurance companies. Although, on average, all the eight dimensions were found to exist in the sampled companies, implementation of all but three dimensions (that is, internal environment, objective setting and risk identification) is ad hoc at best. Moreover, whilst, on average, internal environment, objective setting and risk identification appear to have been implemented, their implementation is not robust and require some improvement.

Second, regarding organizational factors associated with ERM implementation, this study found that although adding firm size, industry diversification, board independence, and type of auditor into the equation changed the percentage of explained variation in the predicted level of ERM by 11.4 percent, none of the regression coefficients is statistically significant. More specifically, the following seems to have prevailed:

- Positive relationship between ERM and firm size, such that an increase in the average firm's total assets led to improvement in its COSO-ERM implementation.
- Negative relationship between ERM and board independence, such that an improvement in the average firm's board independence downgraded its COSO-ERM implementation.
- Negative relationship between ERM and industry diversification, such that an increase in the average firm's diversification posture downgraded its COSO-ERM implementation.
- Superficial/ad hoc COSO-ERM implementations were found in companies that outsourced audit tasks to non-Big4 auditing firms, whereas relatively better implementation rates (e.g., implemented but improvement needed) were found in companies that outsourced audit tasks to Big4 auditing firms.

Third, regarding the ERM–financial performance linkage, a positive, albeit insignificant, association was found between the two, such that improvement in the average firm's COSO-ERM implementation (e.g., from “ad hoc implementation” to “implemented but improvement needed”) led to improvement in its financial performance (e.g., from “poor” to “below average”).

Relatedly, amongst the control variables, this study found as follows:

- Positive significant association between financial performance and board independence.
- Positive insignificant relationship between financial performance and firm size.
- Negative insignificant relationship between financial performance and industry diversification.
- Financial performance is not affected by the type of auditor. That is, audit tasks sourcing to Big4 auditing firms does not make a firm in the sample perform better.

## 5.2 Conclusions

The present research was set out to resolve three related research questions, thus: What is the extent of ERM implementation amongst a sample of insurance companies operating in Ghana? What are the organizational-level determinants of ERM implementation amongst these companies? And is there any relationship between the extent of ERM implementation and the financial performance of these companies? In setting out to resolve the aforementioned research questions, the present study joined a growing body of literature wherein debate is ongoing as to 1) whether COSO-ERM implementation amongst companies from different context is robust or otherwise? 2) whether firm characteristics such as size, financial leverage, industry diversification, board independence, assets opacity, institutional ownership, and type of auditor increase or dampen the implementation of COSO-ERM framework, and 3) whether COSO-ERM implementation contributes towards the attainment of better organizational outcomes?

Analyzing these issues with empirical data from Ghana, the present study reached similar conclusion as Beasley et al. (2010) that indicated that ERM process is not mature in many organizations around the world. Specifically, amongst the sample of insurance companies operating in Ghana implementation of the COSO-ERM framework was ad hoc. The latter assertion therefore makes the study of organizational correlates of COSO-ERM framework so important given the potential to uncover barriers in implementing such a framework. Here, the present study was timely.

Although it examined the influence on ERM of only a limited set of organizational-level factors (that is, size, industry diversification, board independence, and type of auditor), and the

relationships it found were largely insignificant, it nevertheless offers preliminary evidence that can guide the practice of ERM amongst practitioners and shape future research efforts into the antecedent factors for ERM implementation. Finally, the present study concludes that although the positive association between ERM and financial performance was insignificant, it will be unreasonable to disregard this relationship considering the accumulated evidence in favour of it in the literature and the fact that sample size achieved in the present study was limited.

### **5.3. Policy Implications and Recommendations**

Over the course of this research, the researcher's attention was drawn to several issues. Based on the understanding of the literature, some of these issues must be given the necessary consideration by organizational actors. Below some of these areas are highlighted.

- There is the need for managers of the sampled insurance companies to pay closer attention to some of the dimensions of ERM such as Risk Response and Risk Assessment, which are currently being overlooked. It is important to note that improving the other dimensions and leaving these ones unattended to might downgrade their overall ERM posture.
- Companies who have not appointed risk officers must take immediate steps to do so. Ideally, the risk officer must be allocated his/her own staff and should be well-resourced to enable him/her carry-out his/her ERM tasks effectively. Moreover, the chief risk officers must take immediate steps to organize training programs for their staff and get them abreast with latest trends in ERM.
- A sensitization program by regulatory bodies such as the NIC can be crucial in disseminating the importance of ERM to the companies so that those not implementing can

start doing so and those superficially implementing can learn to improve the implementation.

- External auditors play important role in disseminating ERM best practices. Therefore, it is important that any initiatives by the regulators to promote ERM implementation amongst the companies must consider what kind of role can external auditors play in the process.
- Companies that are serious about developing robust ERM system can achieve it by merely referring to the COSO-ERM framework. Here, mention can be made of the ERM portion of the questionnaire instrument developed in the present research. This portion of the questionnaire is obviously a good starting point for beginners who want to develop a robust ERM system because it contains all relevant dimensions.
- Companies that are serious about developing robust ERM system should try to make their board of directors more autonomous.

#### **5.4 Suggestions for Further Research**

Despite the researcher's enthusiasm about this research project, at the end of it all it seems that one important question would linger. Namely, why is the present Ghanaian study reporting an insignificant coefficient for ERM–financial performance linkage, when in fact many of the Western-country studies presented under chapter two found significant relationship between the two variables? Perhaps, the ERM–financial performance linkage in the sample of insurance companies in Ghana is not necessarily straightforward.

In other words, the present study might have overlooked some underlying conditions or contingency variables. Or this could plainly be down to the limited sample size? Whatever is it

though one thing is clear, that is, future replications of this study in Ghana or similar countries would have to examine complex models such as mediation and moderation models so as to uncover the boundary conditions that may explain the full range of relationships between ERM and financial performance. Such studies would need to examine larger samples using longitudinal studies so that they can also investigate the relationships between ERM and the set of organizational-level determinants more precisely.



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## APPENDIX I

### LETTER OF CONSENT

KNUST  
P.O. Box LG25  
Legon, Accra

June 20<sup>th</sup> 2020

*To whom it may concern*

Dear Sir/Madam,

#### **REQUEST FOR PERMISSION TO SURVEY YOUR ORGANIZATION**

I am a graduate student of Kwame Nkrumah University of Science & Technology (KNUST), and I am conducting a research on *Enterprise Risk Management amongst Insurance Firms in Ghana*. As one of the registered insurance companies in the country, your organization has been sampled for the study. Thus, your permission is hereby requested for the inclusion of your organization in the survey.

Please the nature of the research is such that primary data will be collected directly from the Chief Risk Officers (CRO) or, if this portfolio does not exist in your organization then, the Chief Financial Officer (CFO) or any senior employee that you think is knowledgeable insofar as the research area is concerned. Therefore, you are again humbly requested to formally instruct this person(s) for him/her to provide full cooperation during the data collection phase of the research.

Kindly take note that, although firm-specific data will be collected throughout the survey, these data are going to be aggregated and analyzed together with those collected from other companies. Therefore, the survey results will reflect all sampled insurance companies, not any specific insurance company.

Looking forward to your kind consideration.

Yours faithfully,

Salifu Abubakar

## APPENDIX II

### SURVEY QUESTIONNAIRE

Dear respondent,

This questionnaire seeks to gauge your opinion on your organization's enterprise risk management. Please accept this invitation to complete the questionnaire taking note that no answer provided by you shall be considered wrong or right as there is no such things. As long as you are concerned, be assured that your identity shall under no condition be revealed. Therefore, try to be very frank with your answers. All information you provide shall remain highly confidential.

#### Section A

1. What is your title/position?

Please specify

.....

2. Your organization entered into this industry

i. Within the last 4 years[  ]

ii. Between 5 and 9 years ago[  ]

iii. Between 10 and 19 years ago[  ]

iv. 20 years ago or earlier [  ]

3. What is the book value of your organization's total assets during the last financial year?

Please specify

.....

4. Who are the external auditors of your company?

i) KPMG[  ]

ii) Pricewaterhousecoopers [  ]

iii) Deloitte [  ]

iv) Ernst & Young) [  ]

v) Others: please specify

.....

5. What is the book value of your company's long-term liabilities during the last financial year?

Please specify,

.....

**Section B:**

To what degree are the following dimensions implemented (as applicable: carried out, understood, applied, enforced, embraced, and/or followed-through) throughout the organization?

	Does not exist	Ad hoc implementation	Implemented but improvements needed	Robustly implemented	Don't know
<b>INTERNAL ENVIRONMENT</b>					
6. Code of conduct/ethics	[ ]	[ ]	[ ]	[ ]	[ ]
7. Training in ethical values for employees of all levels	[ ]	[ ]	[ ]	[ ]	[ ]
8. Compensation policies intended to align the interests of managers and shareholders (i.e., balance short- and long-term)	[ ]	[ ]	[ ]	[ ]	[ ]
9. Formally defined audit committee	[ ]	[ ]	[ ]	[ ]	[ ]
10. Written document describing the role, structure, and responsibilities of the board	[ ]	[ ]	[ ]	[ ]	[ ]
<b>OBJECTIVE SETTING</b>					
11. Formal mission (vision/purpose) statement	[ ]	[ ]	[ ]	[ ]	[ ]

12. Formal strategy to pursue the mission	<input type="checkbox"/>				
13. Formal business objectives/plan in place to execute the strategy	<input type="checkbox"/>				
14. Performance goals set to assess whether the firm is achieving its objectives/plan	<input type="checkbox"/>				
<b>CONTROL ACTIVITIES</b>					
15. System to ensure that policies and procedures that are in place to manage the achievement of the firm's objectives/ plan are functioning and effective	<input type="checkbox"/>				
16. Authorization procedures in place to ensure appropriate individuals review the use of policies and procedures	<input type="checkbox"/>				
17. Independent verification procedures to ensure the use of policies and procedures	<input type="checkbox"/>				
<b>INFORMATION &amp; COMMUNICATION</b>					
18. Channels of communication to report suspected	<input type="checkbox"/>				

breaches of laws, regulations, and other improprieties					
19. Channels of communication with customers, vendors, and other external parties	<input type="checkbox"/>				
20. Formal report submitted to board level at least annually on the current state of risk and effectiveness of risk management	<input type="checkbox"/>				
<b>MONITORING</b>					
21. Monitoring of the firm's internal environment, processes, and control activities	<input type="checkbox"/>				
22. Key risk indicators or indicators aimed at emerging risks (not historical performance)	<input type="checkbox"/>				
23. Assessment of the firm's risk management function done by an independent/external party	<input type="checkbox"/>				
<b>RISK IDENTIFICATION</b>					
24. Consideration of financial events	<input type="checkbox"/>				

25. Consideration of compliance events	<input type="checkbox"/>				
26. Consideration of technology events	<input type="checkbox"/>				
27. Consideration of economical events	<input type="checkbox"/>				
28. Allocated risk owners who have primary responsibility and accountability for managing risk within their respective areas	<input type="checkbox"/>				
<b>RISK ASSESSMENT</b>					
29. Consideration of the likelihood that financial events will affect the firm's ability to achieve its objectives	<input type="checkbox"/>				
30. Consideration of the potential impact that financial events will have on the firm's ability to achieve its objectives	<input type="checkbox"/>				
31. Consideration of strategic risk events	<input type="checkbox"/>				
<b>RISK RESPONSE</b>					
32. Formal policies about how risk should be managed	<input type="checkbox"/>				

33. Risk response plan for all of the significant events the firm has identified	[ ]	[ ]	[ ]	[ ]	[ ]
34. Alternative risk responses for each significant event	[ ]	[ ]	[ ]	[ ]	[ ]

**Section C**

Please indicate the extent to which their organizations have been successful in attaining their planned targets?

	Very poor	Poor	Below average	Average	Above average	Good	Excellent
35. Attainment of target related to productivity	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
36. Attainment of target related to cost	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
37. Attainment of target related to revenue	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
38. Attainment of target related to total assets	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
39. Attainment of target related to market share	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
40. Attainment of target related to profit	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

41. Attainment of target related to return on investment	<input type="checkbox"/>						
----------------------------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Section D

To what extent are the following statements about the directors of your company true?

	Very poor	Poor	Below average	Average	Above average	Good	Excellent
42. Majority of the directors are non-executive							
43. Some or all directors have more than five percent (5%) equity interest directly or indirectly in the firm or in its related companies	<input type="checkbox"/>						
44. Some or all directors were employed in an executive position in the firm or its related company at least two (2) years prior to their appointment date	<input type="checkbox"/>						
45. Some or all directors have relatives employed by the firm or any of its related companies as Key Management Personnel in the last two (2) years	<input type="checkbox"/>						
46. Some or all directors have served as a director in the firm	<input type="checkbox"/>						

continuously for more than two (2) terms							
47. Some or all directors have are related to persons with significant shareholding in the firm	<input type="checkbox"/>						

**Section D**

To what extent are the following statements about the directors of your company true?

	Very poor	Poor	Below average	Average	Above average	Good	Excellent
48. This company has many principal areas of specialization	<input type="checkbox"/>						
49. Even if some segments are suffering, other stronger segments will help this firm maintain healthy growth	<input type="checkbox"/>						
50. This firm is sensitive to the ups and downs associated with the business cycle	<input type="checkbox"/>						
51. In this firm risk is spread more evenly across several segments	<input type="checkbox"/>						

*End of Instruments*

**THANK YOU!**

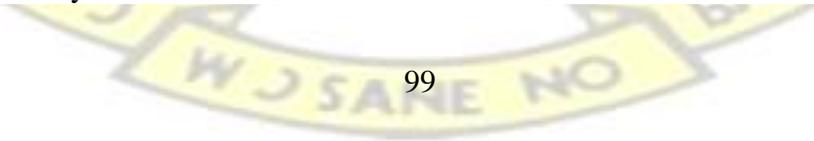
## FACTOR ANALYSIS RESULTS

**Table 11: Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.985	18.719	18.719	8.985	18.719	18.719	5.266	10.970	10.970
2	8.975	18.698	37.417	8.975	18.698	37.417	5.211	10.856	21.827
3	4.143	8.631	46.048	4.143	8.631	46.048	4.350	9.062	30.889
4	3.612	7.525	53.573	3.612	7.525	53.573	4.255	8.866	39.754
5	3.296	6.866	60.439	3.296	6.866	60.439	3.954	8.238	47.992
6	2.893	6.026	66.466	2.893	6.026	66.466	3.530	7.354	55.346
7	2.307	4.806	71.272	2.307	4.806	71.272	2.873	5.986	61.333
8	2.072	4.316	75.587	2.072	4.316	75.587	2.646	5.512	66.845
9	1.718	3.578	79.166	1.718	3.578	79.166	2.500	5.207	72.053
10	1.545	3.218	82.384	1.545	3.218	82.384	2.305	4.802	76.855
11	1.389	2.893	85.277	1.389	2.893	85.277	2.300	4.792	81.647
12	1.163	2.423	87.700	1.163	2.423	87.700	2.065	4.303	85.950
13	1.003	2.089	89.789	1.003	2.089	89.789	1.843	3.839	89.789
14	.889	1.852	91.641						
15	.696	1.449	93.090						
16	.608	1.267	94.357						
17	.561	1.168	95.525						
18	.534	1.113	96.638						
19	.377	.785	97.423						
20	.291	.607	98.030						

21	.271	.565	98.595
22	.236	.492	99.087
23	.179	.372	99.459
24	.129	.268	99.727
25	.082	.171	99.899
26	.049	.101	100.000
27	2.179E-15	4.540E-15	100.000
28	1.618E-15	3.371E-15	100.000
29	1.162E-15	2.421E-15	100.000
30	1.020E-15	2.124E-15	100.000
31	9.866E-16	2.055E-15	100.000
32	5.402E-16	1.126E-15	100.000
33	4.767E-16	9.931E-16	100.000
34	3.631E-16	7.564E-16	100.000
35	3.176E-16	6.616E-16	100.000
36	1.494E-16	3.113E-16	100.000
37	5.562E-17	1.159E-16	100.000
38	-3.393E-17	-7.070E-17	100.000
39	-2.282E-16	-4.754E-16	100.000
40	-3.363E-16	-7.006E-16	100.000
41	-5.574E-16	-1.161E-15	100.000
42	-8.183E-16	-1.705E-15	100.000
43	-1.037E-15	-2.161E-15	100.000
44	-1.241E-15	-2.585E-15	100.000
45	-1.347E-15	-2.806E-15	100.000
46	-1.564E-15	-3.258E-15	100.000
47	-2.651E-15	-5.524E-15	100.000
48	-3.534E-15	-7.361E-15	100.000

Extraction Method: Principal Component Analysis.



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