



**FACULTY OF COMMERCE**  
**DEPARTMENT OF BANKING AND FINANCE**

**AN INVESTIGATION INTO FACTORS INFLUENCING THE ADOPTION AND  
IMPLEMENTATION OF ENTERPRISE RISK MANAGEMENT BY BANKS IN  
ZIMBABWE.**

**By**

**TAFADZWA MANDIMUTSIRA**

**STUDENT NUMBER: R121553G**

**SUPERVISOR: DR.N.NKOMAZANA**

*This dissertation is submitted in fulfilment of the requirements of the Bachelor of Commerce  
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**APPROVAL FORM**

The undersigned certify that they have supervised the student Mandimutsira Tafadzwa dissertation entitled: **An investigation into factors influencing the adoption and implementation of enterprise risk management by banks in Zimbabwe** submitted in partial fulfillment of the requirements of the Bachelor of Commerce in Banking and Finance Honours Degree at Midlands State University.

.....

**SUPERVISOR**

**DATE**

.....

**CHAIRPERSON**

**DATE**

.....

**EXTERNAL EXAMINER**

**DATE**

**RELEASE FORM**

**NAME OF STUDENT**

TAFADZWA MANDIMUTSIRA (R121553G)

**DISSERTATION TITLE**

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**N484B Area C Dangamvura  
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**November 2015**

## **DEDICATION**

I dedicate this dissertation to my family and friends who are always there for me.

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## **ABSTRACT**

This research focuses on the factors that influence the adoption and implementation of enterprise risk management practices by banks in Zimbabwe. In the recent years a lot of bank failures have been recorded and this is as a result of failure to monitor or acknowledge the risks that an institution is exposed to in the dynamic environment. Therefore the research intends to identify the internal and external factors that are making banks consider the adoption of a holistic approach to risk management. It has been noted from the literature that surrounds the area of the study that there are a lot of factors that influence the adoption and implementation of ERM amongst which are firm size, complexity, asset opacity, leverage, regulation, independence of board and culture. Different authors also highlight that there are challenges that are faced in the process and these are the inventory of risks, inappropriate system and challenges related to the process. It is also said that if adopted and implemented ERM had a positive relationship with firm performance which is realized in the long run. The research adopted both the explanatory and descriptive research designs in a quest to understand the relationship between the various factors and ERM adoption and to have a clear understanding of the challenges faced and the significance of ERM on banks respectively. The research made use of questionnaires directed to branch managers and secondary data obtained from annual reports of the banking institutions and the monetary policy statements. Factor analysis and logistic regression were used to obtain the results for the research. It was observed that some of the banking institutions in Zimbabwe have adopted ERM and the main factors influencing adoption were size, complexity and leverage and opacity. It was also noted that banks are faced with challenges in ascertaining the aggregate risk that they are exposed to and also they highlighted that ERM requires a lot of resources and commitment. The researcher recommend banks to consider the use of simple frameworks that are less complex and try and minimize the resources needed for the adoption and implementation process. It is also important to realize that ERM is a continuous movement that has to be taken seriously with each stage as the organization grows.

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## LIST OF ACRONYMS

CAS	:Casualty Actuarial Society.
COSO	:Committee of Sponsoring Organizations of the Treadway Commission.
CRO	:Chief Risk Officer.
ER	:Enterprise Risk.
ERM	:Enterprise risk management.
FC	:Firm complexity.
FS	:Firm size.
FS	:Financial Slackness.
IOB	:Independence of Board.
LEV	:Financial leverage.
OP	:Asset opacity.
RBZ	:Reserve Bank of Zimbabwe.
REG	:Regulation.
VC	:Value Change.

# **CHAPTER ONE: INTRODUCTION**

## **1.1 Introduction**

The purpose of this study was to investigate the factors that influence the adoption of enterprise risk management (ERM) practices by banks in Zimbabwe. There are traditional ways of managing risk and the researcher is concentrating on the factors leading to the adoption and implementation of enterprise risk management. This chapter will look at the background to the study which will give an account of what has been happening in relation to ERM. This will be followed by the problem statement which will highlight the main cause of concern and a comprehensive justification of the study is also described to clearly define the research objectives and research questions. The significance of the study is also considered outlining the stakeholders who will benefit from the study and how they will benefit. Delimitations of the study follow the significance ensuring that resources are channeled to specific target population so that valid conclusions can be drawn. Definition of terms will be mentioned followed by the organization of the study that will summarize what has been covered in this chapter and what to expect in the next chapters.

## **1.2 Background of the Study**

According to Dickinson (2001) risk management can be traced back to the 1880s where banks recognized the importance of the role of risk management and adapted the same by creating a risk function in their banks. Government bodies realized it and accordingly enacted several regulations to control risks that arise in the banking sector and its operations according to Kavala and Vaidyula (ND: pg3). This led to the development of the risk function and there raised the need to measure and quantify risk for comparative analysis and for presentation purposes. The need for the quantification of risks also resulted in the development of Basel norms by the Bank by the Bank for International Settlements (BIS) committee, (Kavala and Vaidyula, ND: pg 3). The Basel norms were meant to guide the central banks and the banks they govern to adapt and align to the risk management norms over a period in time. The Basel norms are focused on operational, credit and market risk which helped banks to quantify the risks they are exposed to and to standardize their management practices.

Although banks have adapted the Basel 2 norms they fail to understand how market forces are influencing their risk appetite and that their risk management systems are not efficient enough to

identify and report how the risk culture is being influenced by the internal and external forces (Kavala and Vaidyula, ND:pg9). They also mentioned that risk management is viewed as a noncontributing asset which is in place to meet regulatory requirements and this leads to the underestimation of the role of risk management in the growth and survival of an organization and this means that banks takes priority of business over risks they are exposed to.

Financial risks have grown over the past years and there has been an emergence of new risks because of the changes in environment and globalization. Advancements in technology, accelerating pace of business, globalization, increasing financial sophistication and uncertainty of irrational terrorist activities all contribute to the growth and complexity of risks. According to Holton (1996) in recent years numerous organizations have suffered staggering losses as evidenced by cases of Orange County (November 1994), Barings Bank (February 1995), Daiwa Bank (September 1995) and Sumitomo Corp (June 1996). Other banks including the Bank of New England failed and all this was as a result of poor risk management. It can be said that banks had limited understanding of the risks that they were exposed to and therefore it affected their financial health.

Given the fact that the financial environment is not constant and there are internal and external forces that are attacking the stability of the banking sector. Managers are now considering moving from the traditional way of managing risks that is having a risk management division to the integrated way of risk management known as Enterprise Risk Management (ERM). According to Dickinson (2001) ERM can be traced back to the 1990s and it is as a result of high profile company failures and preventable large losses. The other factors are the introduction of shareholders value models and creating a greater role in strategic planning.

According to Calmes (2004) the business of banks has changed over the past 15 to 20 years resulting in banks expanding their activities to investment, insurance and brokerage amongst others and this also increases the bank's exposure to the risks faced in the markets. According to Kleffner, Lee and McGannon (2003) Canadian banks have also faced risk exposures and they have diversified it in different ways moving from the traditional ways to seeing the importance of the chief risk officers to control the risks of an organization as a whole.

In a study carried out in Dubai by Rao, (2007), it was noted that the businesses are now aware of the risks that institutions are facing and therefore are integrating to the idea of enterprise risk management. According to Fadun(2013) although ERM is known as a useful and effective risk management tool not all firms have embraced it and this is evidenced by banks in Nigeria and they are still working on identifying the best practices on how to manage their risk exposures.

In Zimbabwe according to the Reserve Bank of Zimbabwe (RBZ) (2010) midterm monetary policy a circular was on 28 April by the RBZ requesting updated risk management frameworks incorporating the Enterprise-wide Risk Management (ERM) concept. This was after they realized the trends in risk management and the weaknesses reviewed by the global financial crisis which made them instruct banks to manage risk in a more comprehensive, coordinated and integrated way across the entire business spectrum as opposed to focusing only on regulatory compliance. There was continuous awareness to having a sound management practice from then until now.

It has been observed that credit risk remain a key challenge as evidenced by the average nonperforming loans to total loan ratio of 16% as at 31 December 2014 compared to 20% as at 30 September 2014 (Reserve Bank of Zimbabwe (RBZ), 2015). According to the Reserve Bank of Zimbabwe (2015) the country's banking sector has 19 operating institutions comprising of 14 commercial banks, one merchant bank, three building societies and one savings bank. This was after a closure of Capital Bank Limited, Afrasia Kingdom Bank and Allied Bank limited.

In the local banking sector there have been some developments as to the ways of risk management the central bank has been promoting the banks to meet their capital requirements that is to comply with the Basel requirements. However the banks in Zimbabwe are still struggling to fully implement Basel 2 guidelines. As a result of the dynamic banking industry there has been the development of Basel 3 that covers liquidity risks and banks are already employing the ideas to solve their risk exposures though they had not adopted it. Much has not been said after the 2010 report about the movement to an integrated approach and therefore this study aims to identify the factors that are influencing banks to adopt and implement ERM in Zimbabwe.

### **1.3 Problem Statement**

Enterprise risk management is a holistic or integrated management of risks facing an institution. It was born out of the realization that financial institutions are operating in a dynamic environment which consists of complex, ever present and rapid changes which requires a more integrated approach to risk management. The banking crises that occurred previously underscored the importance of senior management taking an integrated firm wide perspective to risk exposure. It is of greater importance that managers are aware of the internal and external factors influencing the adoption of enterprise risk management. Therefore this study is on investigating the various factors that are leading banks in Zimbabwe to adopt and implement Enterprise risk management.

### **1.4 Objectives of the Study**

The main objective is to determine the factors that influence banks to adopt and implement ERM. It is accompanied by the following sub objectives:

- ❖ To investigate if there is a relationship between the adoption of ERM and firm performance.
- ❖ To evaluate the significance of ERM on the survival of banks.
- ❖ To identify the challenges faced by banks in implementing ERM.

### **1.5 Research questions**

The research aims to provide answers to the following questions:

- ❖ Which factors influence the adoption of enterprise risk management by banks in Zimbabwe?
- ❖ What is the relationship between the adoption of enterprise risk management and firm performance?
- ❖ Does the implementation of enterprise risk management predict the survival of banks?
- ❖ What challenges are banks in Zimbabwe facing in the implementation of enterprise risk management?



## **1.6 Significance of the Study**

The study on the factors influencing the adoption of enterprise risk management will yield a better understanding of risk management practices used by banks. A lot of beneficiaries can be mentioned and these include policy makers and shareholders amongst others.

The finance ministry of the government will benefit from this study by understanding the importance of a holistic approach to risks that they are exposed to and therefore they will be able to proactively manage the opportunities at both the strategic and tactical level. In this case they will be able to plan on the national budget taking into consideration the risks involved in each and every objective they need to achieve in the course of the year for the betterment of the economy. The government through the Reserve Bank will benefit by identifying that there is need to consider enterprise risk management as an important aspect as a risk management tool.

Shareholders will benefit from this study in the sense that after understanding the factors that influence banks to adopt ERM they will consider implementing it since it has a positive relationship with the value of their investments. Since shareholders are the owners of the investments they will consider hiring a Chief Risk Officer who will be able to oversee their risk exposures for the benefit of the organization.

Banks themselves will be enlightened to better understand the concepts of ERM which will help them in the implementation process and also to consider the move from the traditional way of risk management to a holistic and integrated view. They will also be able to identify some of the weaknesses of using the traditional approach to risk management.

## **1.7 Delimitations of the Study**

The research will focus on the financial services sector of Zimbabwe that is taking a look at the 18 banking institutions as highlighted by the Reserve Bank of Zimbabwe (2015). In order to get full insights on the factors influencing banks to adopt ERM practices the research will be conducted on banks in Gweru. Gweru is selected because it has 11 commercial banks out of the 13 in existence which makes it possible to yield reasonable results.

## **1.8 Assumptions**

This study consists of some assumptions that guide the study which include,

- Most of the financial institutions are moving from the traditional way of risk management to enterprise risk management
- Management in the financial institutions has knowledge concerning enterprise risk management.
- There is a positive relationship between bank performance and ERM.

### **1.9 Limitations of the Study**

In carrying out this research the researcher experienced the following as challenges to the attainment of the set objectives:

- The researcher encountered problems in obtaining the information needed to fulfill the study and this was as a result of confidentiality on the part of other banks. For the sake of fulfillment of the research the researcher based some of the arguments by the calculation of ratios from the readily available secondary data that is annual reports.
- To obtain the results the researcher used branch managers to answer however there was also need to consult head offices. This was due to the fact that ERM is considered an enterprise wide risk management and everyone will be having the knowledge of how it operates.

### **1.10 Organization of the Study**

This chapter laid a foundation to the study on the factors that influence banks to adopt enterprise risk management. It looked at the background of the Study which highlighted the issues surrounding risk management and the developments to the need for an Enterprise firm-wide approach to risk management. The objectives of the study together with the research questions needed to fulfill the study were highlighted in this chapter. Assumptions, delimitations, limitations and beneficiaries to the study were also included. Chapter two covers theoretical and empirical works related to the factors that influence the adoption of enterprise risk management. Chapter three looks at the research methodology and chapter four works on research results and interpretations. Lastly the researcher will make some conclusions and recommendations in chapter five.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Introduction

This chapter is concerned with review of related literature that is related to the factors that influence firms to adopt and implement enterprise risk management concepts and literature that the researcher has employed in the study. It also seeks to unveil the overview and various benefits that can be enjoyed by a bank as a result of adopting and implementing ERM. The challenges that are encountered in the process of adopting enterprise risk management are also discussed in the chapter. The objective is to bring together the ideas of other authors and experts on the subject on the subject. A comparison will be drawn from the factors as highlighted by the different authors to ensure a better understanding of the issues surrounding enterprise risk management.

### 2.2 Definition and overview of ERM

Enterprise risk management has no universally accepted definition and there are various definitions from different authors as explained below. According to Committee of Sponsoring Organizations of the Treadway Commission (COSO) (2004:2) ERM “is a process effected by an entities board of directors, management and other personnel, applied in strategy setting and across the enterprise designed to identify potential events that may affect the entity and manage risks to be within the risk appetite to provide reasonable assurance regarding the achievement of entity objectives.” This shows that ERM is an ongoing process that starts at strategic levels and is concerned with the achievement of the organizations objectives.

The Casualty Actuarial Society (CAS) (2003) argues that ERM is the discipline by which an organization in any industry assesses controls, exploits, finances and monitor risks from all sources for the purpose of increasing the organization’s short and long-term value to its stakeholders. According to Lam (2000) ERM is an integrated framework for managing credit risk, market risk, operational risk, economic capital and risk transfer in order to maximize firm value.

Razal and Tahir (2011) postulates that ERM can be defined as a systematically integrated and disciplined approach in managing risks within the organizations to ensure that firms achieve their objective which is to maximize and create value for their stakeholders. From the above definitions

it can be observed that they all focus on two main things, that is, ERM integrates and coordinates all the risks that organizations are exposed to and to identify any potential incidents that may affect the organization, also knowing the organization's risk appetite.

Various models or frameworks have been developed in order to support ERM and these are explained as follows. COSO (2004:pg5) argue that their framework on enterprise risk management has all the components that help a bank to stand a chance to derive business value while meeting compliance requirements and these are;

- ❖ Internal environment - the firmness of the organization and the basis on which risk is reviewed and addressed by the people including the risk management philosophy and risk appetite, integrity and ethical values and the environment in which they operate.
- ❖ Objectives setting - ERM ensures that the objectives that have been set are in line with overall mission of the entity and are within the risk appetite
- ❖ Events identification - the evaluation of both internal and external factors affecting the entity's objectives identifying the opportunities and threats and channeling back opportunities to management strategy or objective setting process.
- ❖ Risk assessment - analyzing the risk profile of the firm and determining how they will be managed and it will be based on the residual or inherent basis.
- ❖ Risk response -management selects risk responses for example avoiding, accepting, reducing, sharing risk and develop actions to align risks to the entity's risk tolerance and appetite.
- ❖ Control activities -policies and procedures are established and implemented to help ensure risk responses are effectively carried out.
- ❖ Information and communication-relevant information is identified, captured and communicated in a form and time frame that enable people to carry out their responsibilities and it will be flowing in all the directions in the organization.
- ❖ Monitoring - the entire ERM is monitored and modifications made where necessary and is accomplished through ongoing management active or separate evaluations or both.

According to the International Organization for Standardization (ISO) (2009) in their framework on risk management principles and guidelines they developed a model with five key activities to risk management. These five key components are;

- ❖ Communication and consultation - it is an integrated part of all risk management activities that should take place at all the stages of the risk management process, (ISO, 2009). It should ensure that everyone is aware of what is expected of them and how to deal with various risks that they encounter. ISO (2009) states that the framework promotes consultative team approach in order to facilitate good communication with key stakeholders from the outset.
- ❖ Establishing the context -according to ISO (2009) risk management context defines the organization (goals, objectives and strategies) to which the management process is to be applied. This is a process of making boundaries around the organization's risk appetite taking the general external factors and the internal factors into consideration. Fadun(2013) also mentions that the context for the risk management process itself has to be developed which include establishing a risk management policy, process, methodologies, plans, risk rating criteria, roles and responsible training and reporting processes.
- ❖ Risk assessment-ISO (2009) argues that it involves comparing the level of risk, determined during the risk analysis and risk evaluation with the defined risk criterion to prioritize the implementation of adequate measures for treatment and or mitigating of risks.
- ❖ Risk treatment-this where risk treatment techniques are decided and these are risk avoidance, tolerance, transferring or retention. This activity involves identifying the risk levels that are considered acceptable.
- ❖ Monitoring and review -this is the last activity that has to be done regularly to see if the risks have changed and that the framework is still relevant to the changing environment. There is also ability to identify new risk and action to be taken against them.

The CAS (2001) argues that the useful way to conceptualize ERM is along two dimensions the types of risks and the various management steps. They are of the opinion that under processes

there is establishing context (identifying risks, analyze or quantify risk) and integrate risks (assess/prioritize risk, treat/exploit risks and monitoring and review). The other dimension on risks consists of hazard, financial, operational and strategic risks.

It can be observed that the different bodies are in the same line of thinking that for ERM to be successful a framework should consist of the identification, analysis, evaluation, monitoring and review of risks. There is also need to communicate between stakeholders. More-so there is need to continuously monitor the environment to note changes in risk and to see if the model adopted is still suitable with the environment in which the organization is operating.

### **2.3 Benefits of Enterprise Risk Management.**

It is of greater importance to appreciate the benefits that arise due to the implementation of ERM and these according to Fadum (2013) are:

- ❖ Improved corporate governance through delivery of risk assurance.
- ❖ Improved decision-making (setting corporate strategy).
- ❖ Reduced exposures in key areas.
- ❖ Improved compliance.
- ❖ Greater efficiency of operations and profitability.
- ❖ More effective business processes.
- ❖ Enhanced capital allocation.
- ❖ Development of a risk-matured culture within the organization, recognizing that risk exists in all levels of the firm but that risk can and should be managed proactively in order to deliver benefits.
- ❖ Facilitate proactive management of opportunities as an integral of business processes at both strategic and tactical levels rather than reacting too little and too late as often happens.
- ❖ Minimizing threats and maximizing opportunities that is increases the likelihood of achieving both strategic and tactical objectives.
- ❖ Maximizing shareholder value

According to Baxter (2013) there are several benefits that are obtained in adoption and implementation of ERM. The benefits include ensuring consistent treatment of and risk responses

to risk, encouraging companies to take longer term outlook and greater awareness of the trade-off between risk and return amongst others. It also allows companies to react more quickly to emerging risks capital requirement can be more accurately determined and may reduce. Enables decision making to be based on a better understanding of the risks. Enterprise risk management may lead to an increase in risk-adjusted profits as a result of more effective risk management practices involves proactive risk management as opposed to reactive risk control.

Kreiser (2013) mentioned that ERM programs provide a combination of both qualitative and quantitative benefits but amongst them all they focused on five of the benefits. These are creation of a more risk focused risk culture for the organization, standardized risk reporting, improved focus and perspective on risk, efficient use of resources and effective coordination of regulatory and compliance matters.

- ❖ Creation of a more risk focused culture for the organization- ERM is said to be able to allow the increased focus of senior levels to risk resulting in more risks discussions at levels. This resulting cultural shift allows risk to be considered more openly and breaks down silos with respect to how risk is managed (Kreiser, 2013).
- ❖ Standardized risk reporting- ERM supports better structure, reporting and analysis of risks. Standard reports that track enterprise risks can improve the focus of directors and executives by providing data that enables better mitigation decisions. The variety of data helps leadership understand the most important risk areas. These reports can also help leaders have a better appreciation of their risk appetite, thresholds and tolerances.
- ❖ Improved focus and perspective on risk -ERM develops indicators to help detect a potential risk event and provide an early warning. Key metrics and measurements of risks further improve the value of reporting and analysis and provide the ability to track potential changes in risk vulnerability or likelihood, potentially alerting org to changes in their risk profile (Kreiser, 2013).
- ❖ Efficient use of resources -according to Kreiser (2013) in organizations without ERM many individuals may be involved in managing and reporting risk across operational units. Developing an ERM program does not replace the need for day to day risk management it can improve the framework and tools used to perform the critical risk management functions in a consistent manner.

- ❖ Efficient coordination of regulatory and compliance matters- bond rating agencies, financial statements auditors and regulatory examiners have begun to enquire about test and use monitoring and reporting data from ERM programs. Since this data involves identifying and monitoring controls and mitigation efforts across the organization this information can help reduce the effort and cost of such audits and reviews.

It should be noted that ERM has got a lot of benefits that it can offer which are significant for the survival of a bank. As seen above with the opinions of the different authors ERM adoption and implementation helps the organization to be aware of the environment in which it operates therefore making it flexible to adapt to the changes that may arise.

## **2.4 Factors influencing firms to adopt enterprise risk management**

There are various factors that influence firms to adopt enterprise risk management and this is as a result of the business and regulatory environments which has become increasingly complex which is raising institutional risk profiles. According to Belaert and Hollard(ND:pg2) in enterprise risk management in colleges and universities they summarized the issues driving focus on ERM as high risk profiles, high expectations and consequences. Under high risk profiles there is increasing scope and complexity of business activity, increasing risks from technologies (data vulnerability, speed execution), continuous changes in regulatory environment and the challenging and uncertain environment. For the higher expectations regulators are expecting risk infrastructure to be similar to the scale of business activity and also banks and rating agencies are also evaluating risk management program effectiveness. Higher consequences include strategic consequences whereby institutions are unable to manage risk compliance and control requirements effectively, financial losses or damaged reputation, regulator action or legal noncompliance resulting in damaged reputation.

### **2.4.1 Firm size**

When an organization's size is increasing, the nature, timing and extent of events it will be exposed to changes. According to Beasley et al (2005) in Malik and Holt (2013) larger organizations are able to dedicate greater resources for the implementation of ERM. This is



because the process of ERM implementation requires a lot of resources and changes within the organization. Colquitt, Hoyt and Lee (1999) are also in the same line of thinking when they say larger firms are more likely to implement ERM than smaller firms. It can also be observed that small firms because of their size are not exposed to many risks since they operate on a small scale and they are not able to hire a Chief Risk Officer (CRO). According to Pagach and Warr (2011) large firms have a greater risk of financial distress and more volatile operating cash flows as a result they are more likely to adopt enterprise risk management practices. Hoyt and Liebenberg (2003) mentioned that larger firms are more likely to engage in ERM since they will be exposed to a variety of risks they are also able to meet the administrative cost of ERM practices.

#### **2.4.2 Firm complexity**

The complexity of a firm can be defined as the number of segments within a firm, the higher the number the more complex the firm is. It can be industrial diversification of a firm in related or unrelated industries or international diversifications in other countries. The more complex a firm is the more likely it is to be exposed to more risks and therefore this calls for an integrated way of risk management. Hoyt and Liebenberg (2010) highlighted that international diversifications are positively related to engaging into ERM frameworks because of the multifaceted risks that they face.

#### **2.4.3 Firm industries**

There are various industries that exist and amongst them is the banking and financing industry. Regulations differ in each and every industry and therefore according to Pagach and Warr (2011) regulated industries have been at the forefront of ERM adoption for example financial firms are influenced by the Basel requirements. This differs in other industries for example mining or energy industries where some of them are not even aware of the risk management practices available that is it's optional to them. Competition intensive industries affect the firm's ability to earn sustainable level of profits and therefore there is high risk and therefore it leads to the adoption of ERM. However, in monopolistic situations the firms have a lower risk since as long as there is demand for their products or service they will always earn profits.

#### **2.4.4 Country of domicile for the whole firm as well as subsidiaries**

Different rules and regulations exist in different countries or markets and therefore it acts as an external pressure for firms to adopt ERM. According to Beasley et al (2005) ERM frameworks were invented in United Kingdom (UK), Australia, New Zealand and South Africa before the COSO's and therefore firms in these countries are more likely to adopt ERM. Liebenberg and Hoyt (2003) also highlighted that the subsidiaries of an institution also determines if ERM practices can be adopted this is because if ERM is adopted at the headquarters it is also the same with the subsidiaries.

#### **2.4.5 Presence of the big four auditors**

The auditor type in an organization also determines if the company is able to adopt ERM. According to Knechel and Willikens (2006) there is a positive relationship between disclosing a high level of risk management and audit fees which tend to be high when the company uses one of the big four auditors. PrinceWaterHouseCoopers LLP and Deloitte Touche Tohmotsu Ltd are the two of the big four auditors. Beasley et al (2005) also highlighted that the auditor type also determines if a firm or company can adopt ERM because hiring an external auditor is expensive and therefore if a firm can do that it is able to meet the administrative cost of adopting ERM.

#### **2.4.6 Independence of the board of directors**

The more the independent the board of directors is, the more seemingly the firm adopts ERM. There is always a clash between the objectives of the management and those of the board as highlighted by Malik and Holt (2013) management is responsible for developing strategies and business plans that are consistent with the board's risk-taking approach and the board directs the firm's management. The board sets or agrees on the corporate risk tolerance for risk appetite, approves capital plan and ensures corporate governance whilst the management develops business strategy, sets financial targets, determines overall capital, allocates capital and manages the business (Malik and Holt 2013). Though the management situation guides the organization to embed some risk frameworks there is always different risk perspectives between them and the board. Beasley et al (2005) also indicated that the independence of the board of directors also influence the firm to adopt ERM the more the board is independent to make decisions they can

create a Risk Management Committee (RMC) on which they appoint a Chief Risk Officer (CRO) and therefore implement ERM. Lam (2000) also highlighted that the managers view matters in adopting ERM since from their perspective risk is an opportunity. He also talks about the regulatory oversight factors perspective for example the appointment of CRO and the establishment of RMC.

#### **2.4.7 External pressures**

CAS(2004) highlighted that the well publicized catastrophic failures of companies, risk management regulators, rating agencies, stock exchanges, institutional investors and corporate governance oversight bodies have come to insist that company senior management take a greater responsibility for managing risks of an enterprise. Due to the financial crisis and other factors that have been recorded it has brought attention to regulators and policy makers to ensure they pressurize firms towards ERM.

#### **2.4.8 Financial Leverage**

According to Pagach and Warr (2011) financial leverage falls under the financial characteristics that determines the adoption of ERM together with the cash ratio and operating cash flow volatility. They hypothesize that firms with greater leverage are more likely to suffer from financial distress than firms with a lower leverage. Liebenberg and Hoyt (2003) observed that firms with more leverage are more likely to appoint a Chief Risk Officer. A CRO is evidence of the adoption of ERM.

#### **2.4.9 Opacity**

Pagach and Warr (2011) states that firms that have opaque assets may have difficulty selling these assets at purchase cost to avert financial distress and they are associated with more information asymmetry and are more likely to be undervalued. Firms with opaque assets are more likely to adopt ERM. According to Liebenberg and Hoyt (2003) in Liebenberg and Hoyt (2011) firms that are relatively more opaque should derive greater benefit from ERM programs that communicate risk management objectives and strategies to outsiders.

#### **2.4.10 Financial Slackness**

According to Pagach and Warr (2010) in Liebenberg and Hoyt (2011) ERM users may have higher levels of financials lack due to an emphasis of risk management on reducing the probability of financial distress. However, they also note that ERM users may be able to reduce the level of financial slack because of the improvement in risk management.

#### **2.4.11 value change**

According to Pagach and Warr in Liebenberg and Hoyt (2011) ERM might be related to sharp declines in shareholder's value if firms feel the pressure to convey to shareholders that they are taking corrective steps to prevent continued value reduction. Dickinson (2001) also mentioned that ERM can be traced back to the need for shareholders value models and creating a greater role in Strategic planning. This was done in the way to cater for changes in value to ensure that shareholder returns are maximized.

It can be observed that there are various ideas and suggestions made by different authors and it can be seen that the traditional way of managing risk is getting weaker and weaker as the business environment is changing bringing about complicated and interdependent risks. The above explained are the factors that influence the adoption and implementation of ERM.

### **2.5 Challenges faced by banks to implement ERM**

To have a better appreciation of the challenges faced in ERM it will be of great importance to appreciate the implementation process of ERM. According to the American Society for Healthcare Risk Management (2006), in Dornberger, Oberlehner and Zadrazil (2014), to be able to implement ERM an organization has to educate its staff and to know their goals and objectives before management can identify events that might interfere with the entity's objectives. Dornberger, Oberlehner and Zadrazil (2014) are of the opinion that to have an effective enterprise risk management and ERM function should be established headed by the Chief Risk Officer who coordinates risk management efforts and reports to the board of directors. According to Kennedy (2008) in Dornberger, Oberlehner and Zadrazil (2014) there are five steps to follow ERM right which are establishing governance and expect it to change, starting the conversation inside and

outside, use of risk management tools and methods, keep line of sight from actions to root causes to risk and sharing of findings across domains.

According to Nocco and Stulz (2006) in order to implement ERM it is critical that people understand how it creates value. They also say that it should not be seen as an academic exercise but a critical tool for executing the firm's strategy. It should be "sold" to and "bought into" by all the levels of the organization (Nocco and Stulz, 2006). With reference to Fadun (2013) the process of ERM implementation is complex and not easily understood therefore it is the duty of internal auditors to ensure that the organization can achieve solid ratings that will reduce the financing costs. It can be observed that there is need for communication and a lot of effort for the implementation of ERM to be successful. The challenges faced will be explained as follows.

### **2.5.1 Inventory of risks**

According to Nocco and Stulz (2006) the first step in implementing ERM is to identify the risks to which the company is exposed to. In the early days of cooperate risk management a common approach by banks was to classify risks into market, operational and credit risk. However developments have been made and attempts have been to measure reputational, liquidity and strategic risks. The bank is supposed to know the risks that they are exposed to in order to implement ERM. According to Nocco and Stulz (2006) for an inventory of risks to be useful the information possessed by people within the organization must be collected, made comparable and continuously updated. They are of the opinion that organizations that have grown through acquisitions or without centralized IT departments typically face the problem of incompatible computer systems. The companies should be able to aggregate common risks across all their businesses to analyze and manage those risks effectively (Nocco and Stulz, 2006). The main goal is to identify all the risks that a bank is exposed to however it is said to be complex and time consuming.

According to Baxter (2013) for the implementation of ERM to be successful there can be a challenge in sourcing the appropriate data to fully understand the risks that an organization is exposed to. More so it can result in a change in the way people operate in the organization in order to suit the requirements of the adoption and implementation process. Reporting must be timely and insightful in order to support proactive decision making. They are of the opinion that

the implementation of ERM requires the use of information on risks that is continuously upgraded and this means its time consuming and more demanding and also it is difficult to ascertain the overall risk an organization is exposed to.

According to Louw (2007) some of the most important challenges for implementing an effective and value adding ERM process include lack of standardized risk terminology (language), valuation methods, reporting and coordination within organizations. They are also of the opinion that the cost of implementing ERM is very high and also there is need to maintain the stamina needed for ERM.

### **2.5.2 Inappropriate system**

According to Dornberger, Oberlehner and Zadrazil (2014) a bank can face a challenge in ERM implementation because of the use of an inappropriate system. This can be as a result of the potential error tools for example the selection of the appropriate framework to use in an organization. This includes the selection of an appropriate risk framework and the implementation into the organization and also the auditors to evaluate which are the best suited to the organization's needs (Dornberger, Oberlehner and Zadrazil, 2014). They also mention that the technological part is important because many risk management packages use a methodology that is not specifically based on the framework and in this case the deficiencies can lead to difficulties. According to Dornberger, Oberlehner and Zadrazil (2014) technology should be built around the methodology and used in several ways. Another challenge also arises when the Human Resources (HR) is not integrated into the ERM system. This is because from the HR's view specific goal setting tied to the success of ERM must be part of an individual's performance management plan without this the exercise can fail (Dornberger, Oberlehner and Zadrazil, 2014).

Baxter (2013) states that the management of operational risk is often particularly different and therefore the use of ERM may not cater for it. Operational risk is the risk that arises due to human errors and other natural disasters. According to Dornberger, Oberlehner and Zadrazil (2014) the human effort has to be reduced and therefore everyone should at the same page, there should be clear definition of risks, risk assessment and risk management. There should also be effective

monitoring to ensure that risk response is actually implemented and working. They also mentioned that there should be a risk aware culture so that the risk process becomes institutionalized into the organization. In order to achieve this there should be greater and clear communication and also team work failure to do brings challenges into the adoption and implementation of ERM. Baxter (2013) also mentioned that strong leadership and clear commitment from senior levels is essential.

### **2.5.3 Challenges related to the process of Enterprise Risk Management.**

The process from risk identification to monitoring carry its own challenges and according to Dornberger, Oberlehner and Zadrazil (2014) there is need to have a risk management team that oversees the process. They are of the opinion that there is need to systematically collect information on all risks and the types of risks more so there is need to understand the techniques used to identify the risks. On the assessment of risks it is important to take the significance and the likelihood of risk events into account through the use of qualitative, semi-quantitative and quantitative techniques available to assess risk the best way. The challenge will be of identifying the appropriate technique or combination of techniques such that various risks are taken care of. More so there is need to know that it's difficult to quantify risk for example the governance risk cannot be quantified easily although governance activities can highly influence an organization (Dornberger, Oberlehner and Zadrazil, 2014). After the assessment there is need for risk evaluation comparing with the established risk tolerances. On risk treatment the challenge is there is need to have a comprehensive list of all the risks and their tolerances which is difficult to obtain moreover the risk tolerance options are individualized to the organization itself (Schanfield and Helming, 2008).

Kavala and vaidyula (ND:pg7) mentioned that there challenges to the adoption and implementation of ERM are lack of support from top management, insufficient resources in terms of cost and trained professionals, lack of expert knowledge in risk management and the need to focus on the implementation without losing team in the middle.

Louw (2007) is also of the opinion that lack of alignment between risk management and existing planning process is a challenge to the implementation of ERM. For the implementation of ERM to be successful there is need for coordination between the board and management with clearly

defined roles, accountability and information flows. He also mentioned that if there is a lack of strong support from the top management and insufficient resources it is a barrier to the successful implementation of ERM

It can be observed that the authors agree that the implementation of ERM is complex and it requires a lot of commitment together with the resources needed. Team work is of great importance for the successful implementation of ERM.

## **2.6 The effect of ERM adoption on the performance of banks.**

According to Pagach and Warr (2010) to specifically examine the effect of ERM on firm performance there is need to look at a range of characteristics which are risk, financial, asset, market and bank characteristics.

### **2.6.1 Risk characteristics**

The goal of ERM is to reduce operational surprises and a reduction in earnings and stock price volatility is expected for firms adopting ERM. This is because successful implementation of ERM should lead to smoother earnings and a reduced probability of experiencing a lower tail outcome (Pagach and Warr, 2010).

### **2.6.2 Financial characteristics**

According to Pagach and Warr (2010) the financial characteristics that have to be considered include leverage, the availability of cash (financial slack) and other profitability measures. With leverage it is said that firms with a higher leverage are more likely to suffer from financial distress and it can also limit the flexibility of a firm when pursuing additional profitable investments (Pagach and Warr, 2010). They also say the effect of ERM adoption on leverage is unclear since a company may decide that due to the fact that they implement ERM they can shoulder more risk or it needs to lower its risk exposures in these areas.

Financial slack provides a measure of a company's ability to persist during a period of operating cash short fall (Pagach and Warr, 2010). It is said that firms adopting ERM may decide to



increase financial slack to provide a greater cushion against financial distress or may feel less financial slack is needed given that they are managing risks more thoroughly.

According to Pagach and Warr(2010) they examined various profitability measures however as it is said that ERM result in better overall management of the firm they saw that profitability could suffer if ERM results in increased operational costs. This means that the effect of ERM on profitability is not clear as more coordinated management and loss avoidance may boost profits by reducing avoidable losses. However greater emphasis on risk management may lead to a reduction in upper tail outcomes and also profitability may also be endogenously determined with ERM adoption (Pagach and Warr, 2010).

### **2.6.3 Asset characteristics**

There is need to the degree to which firms assets are likely to be impaired in financial distress and there is need to focus on opacity and growth options. In a period of financial distress brought on by an operating shortfall firms that derive much of their operating income from opaque assets may have difficulty quickly liquidating these assets at fair market value in order to raise capital to avert financial distress (Pagach and Warr, 2010). This is due to the information asymmetries normally associated with opaque assets and the relative lack of marketability for such assets. According to Pagach and Warr (2010) Firms with growth options have much of the firm's value tied to future and because of the uncertain nature of the payoff from such assets the value of these investments is unlikely to be fully realizes in bankruptcy. If a firm adopts ERM and considers financial distress to be less likely through a reduction in lower tail outcomes a greater investment in opaque assets and assets with growth options is expected (Pagach and Warr,2010).

### **2.6.4 Market characteristics**

According to Pagach and Warr (2010) these provides information about the degree to which a firms equity benefits from the reduction in the expected costs associated with financial distress. They examined the stock price return volatility to see if ERM reduces operational surprises and stock price volatility. It was observed that since ERM reduces the likelihood of lower tail surprises there should be a more stable stock price as risk will be reduced and also a firms market risk cannot be affected by ERM unless a firm changes its fundamental business lines Pagach and

Warr(2010). Enterprise Risk Management is said to give impact in lowering the cost of debt (Aabo et al 2005). According to Yow et al (2007) the implementation of ERM reduces the volatility of financial performance and the impact of the financial cost. Under marketing it can be observed that ERM adds on to the firm's ability to respond with a superior ability to identify market risks and stabilize earnings (Anderson, 2008).

### **2.6.5 Managerial perspective**

According to Abdhullal et al (2012) the impact of enterprise risk management of firm performance can be grouped into three managerial perspectives, financial compliance and marketing. Under managerial perspectives different authors are of the opinion that ERM builds the confidence and promotes teamwork among the managers to the achievement of the organization's goals. ERM is said to add value to a firm by lowering the interest conflicts between managers and shareholders thus decreasing the dead weight losses that is impact on reducing managers risk (Ryu, 2008 in Abdhullal et al, 2012).

It can be summarized from the above discussion that the different authors both agree that Enterprise risk management affect the performance of a firm as highlighted above.

## **2.7 Empirical literature**

The empirical literature shows the evidence of the applicability of the research topic and highlighted below are different case studies from both developed and developing countries in support of the literature reviewed above.

### **2.7.1 Empirical Literature in Developed Countries**

According to Liebenberg and Hoyt (2011) on their study of US insurers they found out that there is a positive relationship between the adoption of ERM and firm value. They simultaneously modeled the determinants of ERM and the effect of ERM on firm value. For their research they estimated the effect of ERM on the Tobin's Q a standard proxy for firm value. It was observed that firms with ERM activities had a higher estimate for the Q values. And also that ERM enhances firm value. It was also noted that size, leverage, opacity, institutions, reinuse and value change are significantly related to ERM. The univariate results obtained supported the contention

that ERM enhances firm value. Both the mean and median values of Tobin's Q are significantly high for firms with ERM.

According to Liebenberg and Hoyt (2003) in a study of 26 firms in the United States(US) they focused on the determinants of ERM implementation and these were firm size, industry, earnings volatility, stock price volatility, average leverage, average market book value ratios, financial opacity, average institutional ownership and subsidiaries countries.

Beasley et al (2005) also did a study of 123 firms in US on the influential factors to extend of ERM adoption and these are the independence of the board of directors, management commitment, auditor firm type, firm size, industry and country.

Pagach and Warr (2011) focused on the characteristics of firms that hire chief risk officers and the characteristics include perspectives of managerial, asset and market perspectives. Asset characteristics measures the potential costs of financial distress such as inability to pursue growth options, market characteristics measure the potential costs associated with volatile security performance such as higher cost of capital and managerial measure the degree to which the CEO's stock and option based compensation which encourages risk taking or risk avoiding behavior. In their study they used univariate statistics of the CRO hiring firms with all other firms for which they were able to obtain data. Presentation of summary statistics and comparisons of sample means and medians in tables was produced. They also acquired the use of the Cox proportional hazard function and the results of the hazard model showed that large firms with more risk as measured by SDCF (cash flow volatility) and SDRET (return volatility) are more likely to hire chief risk officers supporting the hypothesis that firms facing greater risk will reap greater benefits from ERM,(Pagach and Warr, 2011). There was no relationship between tax save (which measures exposures to a convex tax code) and the likelihood of ERM.

According to Seamer, Choi and Lee (ND: pg1) in their study the determinants of the rigour of ERM strategies in Australia it was observed that corporate governance has an impact on the rigour of ERM adopted. They focused on board independence, segregation of the roles of Chief Executive Officer (CEO) and board chair and audit committee structure and effectiveness. The data used was obtained from the Annual Report and web based disclosures of 316 companies

listed on the top 400 Australian stock exchange listed companies for each of the year ended 30 June 2006, 2007 and 2008.

Similarly, in a study carried in Canada by Kleffner, Lee and McGannon (2003) on the effect of corporate governance on the use of ERM it was observed that 31% of the selected sample adopted ERM and the reasons being encouragement from board of directors (51%) influence of the risk manager (61%) and compliance to the Toronto Stock Exchange (TSE) guidelines (37%). The data used was obtained from a survey sent to Canadian Risk and Insurance society as well as telephone interviews with 19 of the respondents. A test was also carried out to test for any characteristics differences between firms that used ERM versus those that did not. A wilcoxon rank-sum tests was run on a number of variable interactions and the results showed that energy firms were more likely to be users than all other industries and firms whose risk management function was organized with dedicated personnel in the finance treasury department were less likely to be users than all other functional organizations amongst others.

Rao (2007) in a study of ERM in Dubai an emerging economy found out that the drivers of ERM are the management's alignment of risk appetite and strategy enhancement of risk response decisions, reduction of operational surprises and losses, identification and management of multiple and cross enterprise risks, seizing of opportunities and improved deployment of capital. Primary data was collected from 92 business executives from various sectors that include finance, banking, insurance, Islamic finance, trade, manufacturing and hospitals and other service providers. It was also mentioned that companies selling poor quality products or unnecessary service environmental disasters and inadequate controls assuming enormous risks, trading in complex derivative instruments without understanding the risks involved, mergers destroying shareholder value and insurance salesperson churning customers all calls for the adoption of an integrated risk management practice.

### **2.7.2 Empirical study in Developing Countries**

In a study carried out by Golshan and Rashid (2012) on the determinants of ERM on Malaysian public listed company they observed that firm size, firm complexity, country of domicile for the headquarters, independence of board, asset opacity, stock price volatility and institutional ownership are the determinants of ERM. The study was carried out on the Malaysian Bourse database on 993 firms. 379 results were obtained with 142 firms having adopted ERM. Sample t tests were used to identify the significance of mean differences and logistic regression was used to see the relationship between determinants and ERM. The findings were that the most influential factors are financial leverage which was significant at 10% and the availability of the big four auditors (auditor type) which were significant at 5% significance level.

In a previous study carried out by Kanhai (2014) on the factors influencing the adoption of ERM by banks in Zimbabwe it was observed that adequacy of risk governance structure, quality of organizational structure and size of a bank have a positive relationship with the adoption of ERM. Intensity of bank regulation is said to have a negative relationship with the adoption of ERM. The researcher adopted a multiple regression model and the use of a 5 scale likert based questionnaire for obtaining and analyzing the data needed to achieve research objectives. Factor analysis was also part of the study where the author highlighted the most influential factors with their significance to the study.

In a study carried out by Serife and Husseyin (2012) on the determinants of enterprise risk management in Turkey on the companies listed on the Istanbul Stock Exchange, they modeled a logistic regression equation with profitability, leverage and company size. It was observed that profitability did not have any significance in ERM applications while most important that affect application were found to be leverage and company size.

It can be observed that from the variety of studies carried out by different authors all firms in different industries are moving away from the use of traditional methods of risk management to ERM.

## **2.8 Summary**

It can be observed that from the evidence highlighted in the chapter though some of the firms are still using the traditional risk management practices a lot of efforts and emphasis is being put to adopt an integrated risk management practice which is ERM. The chapter looked at the factors that influence companies to adopt ERM, the challenges faced in implementing ERM, the relationship or effect of ERM adoption and firm performance and the possible benefits of adopting ERM. The following chapter will look at the methods used to obtain the data needed in order to meet the research questions.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter outlines the research methods that will be utilized in the study and the justification for their use. In this study the researcher will be looking at the factors that influence the adoption and implementation of ERM. The main aim is to outline the research methods used to gather the necessary information and data based on the research topic. An analysis of the methods used will be done and it will be made up of the research design, data collection methods, data presentation and analysis plan then a summary will conclude the chapter.

### **3.2 Research Design**

The research adopted an explanatory research design together with the descriptive research design. An explanatory design is defined as an attempt to connect ideas to and understand cause and effect, meaning researchers want to explain what is going on (Maxwell and Mittapalli, 2008). The explanatory research design was adopted because the researcher would like to connect the ideas and understand the relationship between various independent variables, firm size and leverage amongst others and the adoption and implementation of ERM. This research design allows the use of secondary data and the ability to econometrically analyze the factors that influence the adoption and implementation of ERM. The research also explores if there is a relationship between ERM and bank performance. The descriptive research design is used in order to have a clear understanding of the factors that influence the adoption and implementation of ERM. It is also used to identify the challenges that banks are facing in the adoption and implementation of ERM.

### **3.3 Research Population**

The intention of this research is to obtain information on the factors that influence banks to adopt and implement ERM and therefore the targeted respondents were the branch managers of commercial banks in Gweru. These were targeted since they oversee the activities that happen in the bank branches and are also concerned with the achievement of the overall objectives of the organization. The researcher did not go to the head offices after the assumption that since ERM is a holistic approach that calls for everyone in the organization to participate branch managers will be well equipped with reliable information that will make the research successful.

### **3.4 Research Sample**

In order to carry out the study the respondents were selected based on the number of banks in Gweru. The respondents were the branch managers and the expected research sample was a total of 11 respondents which are functional banks in Gweru.

### **3.5 Data Collection Methods and Instruments.**

The researcher made use of both primary and secondary data sources. Primary data was obtained from the administered questionnaires. Secondary data was obtained from the annual reports and the monetary policy of the commercial banks in Zimbabwe.

#### **3.5.1 Primary Data**

The research used primary data to obtain the responses needed to satisfy the study. Primary data is raw data that which is not processed and it matches the research objectives making it easier to analyze the data. Primary data was used because it enables the researcher to obtain the information needed to satisfy the objectives of the study on which factors influence the adoption and implementation of ERM. It enables the researcher to fulfill on the challenges that banks are facing in the implementation of ERM and also if there exists a relationship between bank performance and ERM. Primary data used was obtained using questionnaires.

##### **3.5.1.1 Questionnaires**

The questionnaires constructed included both open and closed questions. Open-ended questions gave room to the respondents to express their views on what they considered to be the challenges they face in the adoption and implementation process of ERM. Closed questions were also used giving boundaries as to what is expected from the respondents especially on the ranking of factors that influence the adoption and implementation of ERM. Questionnaires are a good way to receive information since most of the times the respondents will be occupied attending to them when they are less occupied. More so the use of questionnaires is a cheaper way of data collection and covers a wide range of respondents. The questionnaires are intended to the branch managers of commercial banks.

##### **3.5.1.2 Secondary data.**

For the sake of the fulfillment of the objectives of the study secondary data was used and it was obtained from the annual reports of commercial banks. This data was used to calculate ratios



needed for the variables that estimated the model used. The ratios calculated were Return on assets(ROA),debt to asset ratio and intangible assets to total assets. The 2010 annual reports were used for the sake of this study. Secondary data is readily available however the purpose in which it was presented may differ resulting in biased results.

### 3.6 Data Validity and Reliability Tests

Data validity and reliability ensures that the respondents correctly attend to the questions forwarded to them as expected by the researcher. To test for the reliability the researcher used the Cronbach's alpha test and a reliability of above 0.7 is considered acceptable. Some of the questions that resulted in an unfavorable alpha were removed from the questionnaires for the betterment of the research questions and the achievement of the objectives of the study. The validity of the results obtained was tested using experts in the field that is the help of my academic supervisor.

### 3.7 Model Specification

The research adopted the logistic regression model to analyze the factors that influence the adoption and implementation of Enterprise risk Management. This model was adapted from Serife and Huseyin (2012) and is presented as follows

$$Y_i = \beta_0 + \beta_1 S_i + \beta_2 FC_i + \beta_3 OP_i + \beta_4 LEV_i + \mu_i$$

Where:

$Y_i$  is the dependent variable ERM (a dummy variable assigned 1 when adopted and 0 otherwise).

$\beta_0$  is the constant intercept.

$\beta_1, \beta_2, \beta_3$  and  $\beta_4$  are the coefficients of the estimated relationship between ERM and the independent variables.

$S_i$ =firm size

$OP_i$ = opacity

$FC_i$ =firm complexity

$LEV_i$ =financial leverage

$\mu$  is the random error term.

### **3.8 Justification of Variables**

Both internal and external variables influence the adoption and implementation of ERM as revealed in previous studies. These variables include firm size, firm complexity, financial leverage, value change, opacity and the independence of board. Outlined below are the justification of model variables and the expected coefficients signs of respective variables.

#### **3.8.1 Firm size**

Evidence suggests that large firms are more likely to adopt ERM and therefore the research selected size as an independent variable to see its relationship with the adoption and implementation of ERM. It is argued that the larger the firm, the more exposed it is to risks. However, it also means it will be able to meet the costs associated with the adoption and implementation of ERM. Beasley, Clune and Hermason (2005) were of the opinion that large firms are likely to have ERM programs in place. Size was used in Tobin Q's model to determine the relationship between ERM and firm value by Hoyt and Liebenberg (2011). A positive relationship is expected between size and ERM.

#### **3.8.2 Firm complexity**

This variable is considered because the more complex the bank is the more exposed it is to risk and the more the need to adopt ERM. Hoyt and Liebenberg (2010) highlighted that international diversifications are positively related to ERM adoption because of multifaceted risks that they face. It is expected that there is a positive relationship between firm complexity and ERM.

#### **3.8.3 Leverage**

It is the amount of debt capital in the capital structure of an institution. According to Hoyt and Liebenberg (2011) firms engaging in ERM may have lower financial leverage if they have decided to lower their probability of financial distress by decreasing financial risk. However, they can also assume greater financial risk because of ERM. In 2003 Hoyt and Liebenberg found out that firms that have a greater financial risk are more likely to appoint a Chief Risk Officer (CRO). However, Pagach and Warr (2010) say the relationship between leverage and the adoption of ERM is unclear. The expected sign in this research will be a negative relationship between ERM and financial leverage.

### 3.8.4 Opacity

Pottiera and Sommer (2006) in Hoyt and Liebenberg (2011) explain that relatively opaque firms are those that are harder for outsiders to evaluate. Liebenberg and Hoyt (2003) argue that firms that are relatively more opaque should derive benefits from ERM programs that communicate risk management objectives and strategies to outsiders. Pagach and Warr (2010) hypothesize that ERM adoption is related to the opacity of a firm's assets because assets that are relatively opaque are more difficult to liquidate in order to avert financial distress. A positive result will be expected for the relationship between opacity and the adoption and implementation of ERM.

### 3.9 Data types and sources

This research data was sourced from secondary data sources. The secondary data used in this study was gathered in the form of cross-sectional data of the selected annual reports of commercial banks in Zimbabwe in 2010. 2010 data was used because that was the year when it was highlighted in the monetary policy that banks should adopt ERM. The first variable of firm size was measured using the natural log of the book value of assets as a proxy for firm size. To firm complexity return on assets (ROA) ratio was used. As a proxy for financial leverage the book value of liabilities to the assets ratio is used. Intangible assets to total book value of assets are used as a proxy for opacity. This allowed data mining, model building in the sense that secondary data helps specify the relationship between two variables or more, fact finding and to easily identify and examine the relevant sources to avoid plagiarism. However data may not be readily available and some might be inaccurate resulting to the failure of the data to meet the research needs.

**Table 3.1 Summary of variables and measurements**

Variable	Measurement
ERM	Dummy variable 1 when adopted 0 otherwise
Firm complexity(ROA)	Net income/total assets
Firm size	Natural log book value of assets
Asset Opacity	Intangible assets/total assets
Leverage	Book value of liabilities/ value of assets

### **3.10 Estimation Procedures**

In order to test for the validity and reliability of the data and variable used in this study there is need to carry out different diagnostic tests. Diagnostic tests were carried out in respect to multicollinearity and the model specification test.

#### **3.10.1 Multicollinearity test**

Multicollinearity exists when there is a strong perfect relationship between independent variables. Gujarati (2004) argue that multicollinearity affects econometric model results because coefficients will no longer be estimated with great accuracy. To establish whether there is correlation between explanatory variables, the study used a correlation matrix to assess the need to effect changes onto the model. To eliminate multicollinearity, the researcher had to exclude variables that had a perfect linear relationship. A correlation coefficient that is above 0.8 is evidence that there is multi-collinearity.

#### **3.10.2 Model specification test**

There is need to check if the model estimated is correctly specified that is there are no omitted variables. The researcher will use the link test and a value greater than 0.05 is considered correctly specified. A model with a value less than 0.05 is considered insignificant since it shows the presence of omitted variables.

### **3.11 Summary**

This chapter looked at the research methods or how the research was carried out. The research adopted both the descriptive and explanatory research design. The sample for the research was from the commercial banks in Gweru. To ensure the richness of the study both primary and secondary data sources were used that is questionnaires and annual reports. The chapter briefly outlined how the data was to be organized, assembled and analyzed to present findings from the research topic. It was also built on the justification of the model used, variables and the presentation plan. The next chapter focuses on data presentation, discussion and interpretation of the research findings.

## CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

### 4.1 Introduction

This chapter presents the data that was extracted from the various sources to aid in the interpretation and analysis. This is done in order to come up with conclusions on the factors that influence the adoption and implementation of ERM practices by banks in Zimbabwe. The research used STATA 12 and Microsoft Excel to analyze the data obtained and the results will be presented in the form of tables.

### 4.2 Response Rate Analysis

A total of 11 questionnaires were distributed to the branch managers of banks in Gweru. Out of the 11 distributed 8 responses were obtained making a total of 72.72% response rate. The response rate is considered sufficient because it is above 50% of the total population and this is according to (Bell, 2003).

### 4.3 Reliability tests

The results obtained were reliable and consistent with the research as highlighted by the Cronbach's Alpha tests results obtained.

Average inter item covariance	0.194047
Number of items in the scale	14
Scale reliability coefficient	0.7433

Source : Raw data

This is supported by Nunnally (1978) that for data to be reliable it should have a Cronbach's alpha coefficient of above 0.7 and the results above shows that the data is significant for the study.

### 4.4 Bank ownership.

From the total of the 8 banks where the questionnaires were administered the following are the results of the way in which banks are owned.

**Table 4.1 Bank Ownership**

Ownership	Number of banks	Percentage
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Foreign	4	50
Domestic	3	37.5
State owned	1	12.5
Total	8	100

Source: Raw data

From the results obtained it was observed that from the 8 banks were the respondents completed the questionnaires 4 were foreign banks, 3 domestic and 1 state owned bank. This shows that the banking sector of Zimbabwe comprises of both domestic, state owned (AGRIBANK) and foreign owned banks. This is of greater importance for the study since it was noticed that the ownership of a bank has an influence the adoption and implementation of ERM. Both banks are in the adoption process however foreign owned banks have fully implemented ERM.

#### 4.5 Experience of the managers in commercial banks.

Below is the table that shows the experience of the respondents who managed to answer the questionnaires.

**Table 4.2 Branch Managers Experience**

Experience	Number of respondents	Percentage
Below 5 years	0	0
5-10 years	2	25
Above 10 years	6	75
Total	8	100

Source: Raw data

It can be observed that the respondents selected were more experienced in the positions in which they hold as evidenced by the results presented where 2 managers were within the range of 5-10 years and the other 6 above 10 years of experience. This shows that the respondents are aware of the risk management issues going on in the organizations and were present when the issues of ERM adoption were highlighted in the monetary policy of 2010.

#### 4.6 Diagnostic test results

The diagnostic tests were carried using STATA and Excel packages and the results are presented as follows:

##### 4.6.1 Multicollinearity

A test for multicollinearity was carried out in order to identify those factors that are collinear and to solve the problem thereof. A factor was to be rejected on the fact that it had a value that is above 0.8 or below -0.8. The table below shows the results obtained from STATA.

**Table 4.3 multicollinearity results**

Variable	Size	Complexity	Leverage	Opacity
Size	1.0000			
Complexity	0.0891	1.0000		
Leverage	-0.0788	0.0983	1.0000	
Opacity	0.3194	0.1992	0.1762	1.0000

Source: Raw Data

From the multicollinearity test carried out it was observed that the variables were not correlated as evidenced by a correlation coefficient of 0.0891 between size and complexity, 0.0983 between complexity and leverage, 0.1762 between leverage and opacity, 0.1992 between complexity and opacity and 0.3194 between opacity and size. This shows that the variables are fit for the study on the factors that influence the adoption of ERM.

##### 4.6.2 Model Specification Tests.

Model specification tests were carried out using the link test and the results showed that the model produced a Chi-square of 11.13 and hat value of 0.076 .these results show that the model is correctly specified and therefore has no omitted variables.

#### 4.7 Factors influencing the adoption of Enterprise Risk Management

Factor analysis was carried out in order to determine the factors that are significant in influencing banks to adopt and implement ERM and from the results it was noted that five variables had a variance of more than one that shows their significance to ERM. STATA was used to carry out factor analysis and after rotation the following results were obtained. It was noted that all the factors in the study had unique variances that makes them significant for the study. It is shown in the table below:

**Table 4.4 The results showing factors and their uniqueness**

Factor	Uniqueness
Enterprise risk management (Erm)	0.0600
Organizational culture (orgc)	0.1220
Independence of board (iob)	0.0554
Regulation	0.0839
Value change	0.0574
Opacity (op)	0.1782
Financial leverage (lev)	-0.003
Size	0.0052

Source: Raw Data

A uniqueness of less than 0.5 is considered the best for the significance of the factors to explain the dependent variable. It was observed that the factors selected for the study were relevant as highlighted by their uniqueness which ranges from -0.003 to 0.1782. The factors were represented with the following uniqueness: size (0.0052), financial leverage (-0.003), opacity (0.1782), value change (0.0574), regulation (0.0839), independence of board (0.0554), organizational culture (0.1220) and enterprise risk management (0.0600). These results are similar to those of Kanhai (2014) which shows that size, culture and regulation are significant to the adoption of ERM. The other factors are highlighted by other authors like Beasley et al (2005), Pagach and Warr (2010) and Hoyt and Liebenberg (2003) amongst others.



**Table 4.5 Regression results**

<b>Variable</b>	<b>Odd ratios</b>	<b>Z value</b>	<b>probability</b>
<b>Size</b>	<b>2.990782</b>	<b>-0.64</b>	<b>0.524</b>
<b>FC (ROA)</b>	<b>0.498788</b>	<b>-2.12</b>	<b>0.034</b>
<b>Lev</b>	<b>1.088775</b>	<b>0.10</b>	<b>0.924</b>
<b>Op</b>	<b>0.3029538</b>	<b>-1.35</b>	<b>0.175</b>
<b>Constant</b>	<b>959.853</b>	<b>2.00</b>	<b>0.046</b>
<b>Pseudo R<sup>2</sup> =0.3701</b>	<b>Prob(CHI2)=0.0411</b>		

Source: Raw Data

The logistic regression results showed a Pseudo R<sup>2</sup> of 0.3701 and a probability of F of 0.0411 this shows that the model is significant at 5 % level of significance. The R<sup>2</sup> is 0.3701 which means that the variables explain 37% of the variations in relation to ERM. Complexity was statistically significant at 5% with a Z value of -2.12 and a P value of 0.034. Size, leverage and opacity were insignificant at 5% with Z values of 0.64, 0.10 and -1.35 and P values of 0.524, 0.924 and 0.175, respectively.

From the regression model complexity is the most statistically significant factor (p=0.034 and Z=-2.12) and it also have a positive relationship with the adoption of ERM. Hoyt and Liebenberg (2010) highlighted that international diversifications are positively related to engaging into ERM frameworks because of the multifaceted risks that they face. From the results obtained and odd ratio of 0.498788 shows that the more complex a firm is it is influenced to adopt ERM by a probability of 49.88 % .In a study carried out by Golshan and Rashid (2012) they found out the complexity of a company or firm is more complexity the more exposed it is to risk the more the need to have Enterprise Risk Management. A positive relationship was expected and it is relevant to this study.

From the model leverage had a probability of 0.924 and a negative Z value of 0.10. This shows that it is statistically insignificant but it has a positive relationship with the adoption and implementation of ERM. The positive relationship is shown by the odd ratio of 1.088775. This

means that financial leverage has a probability to influence the adoption of ERM by the percentage represented by the odd ratio. Financial leverage relationship to the adoption and implementation of ERM has been unclear as highlighted by Pagach and Warr (2010) in their study of the characteristics of firms that hire a CRO (Chief Risk Officer). Hoyt and Liebenberg (2003) found out that firms that have a greater financial risk are more likely to appoint a Chief Risk Officer. A chief risk officer is associated with the adoption and implementation of ERM. Liebenberg (2011) firms engaging in ERM may have lower financial leverage if they have decided to lower their probability of financial distress by decreasing financial risk. Golshan and Rasid (2012) also observed that leverage is a significant factor in determining the adoption and implementation of ERM at 5% significance level in their study in Malaysia which is contrary to the results of this study.

Opacity as evidenced from the model is statistically insignificant and 5% but it shows a positive relationship with the adoption and implementation of ERM as evidenced by an odd ratio of 0.3029538. this means that the more the assets of a firm are opaque the probability of it adopting ERM is influenced by 30.29%. Pagach and Warr (2011) states that firms that have opaque assets may have difficulty selling these assets to purchase cost to avert financial distress and they are associated with more information asymmetry and are more likely to be undervalued. These are the firms more likely to adopt ERM. A positive relationship is expected and therefore it is relevant to the results of this study.

The size of a firm is insignificant to the adoption of ERM in this study with a p value of 0.524 and a Z value of 0.64. From the model it is also noted that size has a positive relationship with the adoption and implementation of ERM as evidenced by the odd ratio of 2.990182. meaning the more the firm grows its probability of adopting ERM is represented by the percentage represented by 2.990182. This is consistent with other authors for example Golshan and Rasid (2012) in their study of the determinants of ERM adoption on Malaysian Public listed Companies where they found out that size is insignificant for the adoption of ERM level they had a p value of 0.973. Kanhai (2014) in his study concluded that bank size was not significant at 5% but at 10%. This is in agreement with other authors that there is a positive relationship between firm size with the adoption of ERM

#### **4.8 Challenges faced by banks in adopting and implementing ERM**

These results were obtained from the primary data source that is questionnaires administered to the branch managers.

There are various challenges that have been highlighted by institutions as the challenges that they face in adopting and implementing ERM. Amongst these challenges are the inventory of risks, inappropriate system used and challenges related to the process. From the respondents where the questionnaires were administered it was observed that banks suffer from the inability to measure the total risk that they are exposed to. This is evidenced by Dickinson (2001) that it is impossible to measure the total risk that a bank faces because some the risks are insignificant to measure or impossible to. Banks in Zimbabwe highlighted that it is difficult to calculate the overall risk that an organization faces and they also mentioned that it is costly as there is need to channel a lot of resources to ensure that it is successfully adopted and implemented.

From the results obtained from the administered questionnaires, an inappropriate system in the adoption and implementation of ERM is also a challenge that is faced by banks in adopting and implementing ERM. There are various frameworks that are used to ensure successful implementation of ERM. This calls for an integrated effort in the organization to identify the best framework to be used. Communication is of great importance and therefore if there is no regular flow of information firms find it difficult to implement ERM. The selection of an appropriate framework requires the skills of an auditor and therefore failure of a bank to acquire a well skilled auditor may result in a lot of challenges in the adoption and implementation process. This is supported by Dornberger, Oberlehner and Zadril(2014) who argues that a bank can face challenges in ERM implementation if they use an in appropriate system. This is the framework selected with the help of the organization's auditors. Baxter (2013) also highlights that strong leadership and clear commitment from senior levels is essential for the promotion of the selection of an appropriate system.

There are also challenges related to the process. The process of ERM adoption and implementation requires commitment from all levels and therefore there may be challenges in the process of lack of appropriate channels of communication or underestimation of the risks faced.

The setting of the risk tolerance is based on the board's perspectives and therefore if there is a difference between the objectives of the board and management it results in failures in the implementation process. According to Kavala and Vaidyula (ND: pg 7) there are challenges that relates to the process and these can be lack of expert knowledge in risk management and insufficient resources and the need to focus on the implementation process without losing team in the middle. This shows that there is similarity of the results since the author highlighted that there is need to focus on implementation without losing team in between implying there is need to have the same objectives in the organization.

#### **4.9 Summary**

The chapter looked at the data presentation and analysis of the factors that influence the adoption and implementation of ERM. The results were presented in the form of tables. It was observed that banks in Zimbabwe have adopted ERM and others are still in the process of adopting and implementing. The results from factor analysis highlighted that size, leverage, opacity, value change, regulation, independence of board and organizational culture are significant to the adoption and implementation of ERM. From the regression model it was noted that bank size, leverage and opacity have a positive relationship with the adoption and implementation of ERM however they are statistically insignificant and 5%. Complexity was statistically significant at 5% and it also had a positive relationship with the adoption of ERM as evidenced by the odd ratio of 0.498788. The challenges faced in adopting and implementing ERM were also highlighted which are challenges in relation to be ERM process, inventory of risks and inappropriate system. The next chapter will look at the summary, recommendations and conclusions.

## **CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

The main objective of this study is to identify the factors that influence the adoption and implementation of ERM practices by commercial banks in Zimbabwe. After the completion of the previous chapters the introduction, literature review, research methodology and the presentation and analysis of data this chapter focuses on giving a summary to the whole study. The researcher will conclude by giving some suggestions on what can be done for future references and own opinions concerning the findings obtained in the whole study.

### **5.2 Summary of the Study**

Due to the changing of the environment and increased complication in the financial sector more complex risks began to emerge and the risk management practices began to be ineffective. This led to the introduction of Enterprise Risk Management (ERM). There is need to establish a Risk management Committee headed by the CRO who are responsible for overseeing the whole organization on the risks that they are exposed to and the measures that should be taken in order to meet them. There are several factors that influence the adoption and implementation of ERM and these are firm size, complexity, industry, opacity, financial leverage, value change, regulation, organizational culture and independence of board amongst others.

For the successful implementation of ERM there are some challenges that banks face and these are mainly grouped into three inventories of risks, inappropriate system and those relating to the process. With those relating to inventory of risk it is difficult to calculate the aggregate risk to be assigned to an organization and some of the risks cannot be quantified. With the system to be used there is need to identify the appropriate framework that best suits the organization with the help of auditors failure to do so will result in failure to successfully implement ERM. Lastly to process from risk identification to monitoring needs a lot of overseeing and communication on every stage for effective implementation.

The explanatory and descriptive research designs were used to obtain data needed to support this research. Primary data was obtained by use of a questionnaire and also secondary data was obtained from the annual reports of financial institutions. Logistic regression is used to analyze the relationship between the factors that influence the adoption and implementation of ERM. Questionnaires were used to obtain information on the factors influencing the adoption and implementation of ERM and the challenges that banks in Zimbabwe face in the process of adopting and implementing. Secondary data was also used to calculate ratios that represented the factors size, financial leverage, opacity and financial complexity.

Factor analysis was also used to identify significant factors for the study to ensure a successful research. The results showed that complexity is the factor that is statistically significant at 5%. All the variables used for the logistic model all showed a positive relationship as highlighted by the odd ratios obtained from the regression analysis. However, size, leverage and opacity were statistically insignificant. Factor analysis results showed that organizational culture, independence of board, regulation, value change, opacity, financial leverage and size are significant to ERM adoption and implementation.

### **5.3 Conclusions**

The conclusions presented are based on the research findings presented in chapter four. There are made taking into consideration the research questions to the whole study as mentioned in the introduction of the research. Louw (2007) states that “no one size fits all solution exists.” He also mentioned that the implementation of ERM has some or other disruptive effect due to the change in management perspectives. As stated by Barton, *et al.* (2002) "A cookbook recipe for implementing ERM is not feasible because so much depends on the culture of the company and the change agents who lead the effort."

- It is of great importance to realize that the main objective of the study was to identify the factors that influence the adoption and implementation of ERM by commercial banks in Zimbabwe. And from the research conducted from the various banks it was noted that banks have adopted ERM and others are still in the process to fully implement it.
- From the various factors selected it was noted that complexity was the significant factor that influence ERM adoption by banks in Zimbabwe. It is an addition to organizational culture and the risk governance structure as highlighted by Kanhai (2014).Financial

leverage, opacity and bank size were not statistically significant however they showed a positive relationship with the adoption of ERM. The factor analysis results showed that organizational culture, independence of board, regulation, value change, opacity, financial leverage and size are significant to ERM adoption and Implementation.

- There are various challenges that are faced by banks in Zimbabwe and these are the inventory of risks, inappropriate system selected and the challenges related to the process.
- Managers said that it is difficult to measure enterprise the whole risks faced by an organization for some of the risks are difficult or impossible to measure. They also highlighted that a lot of resources are needed to ensure that ERM adoption and implementation is successful therefore it is costly. It also requires the formation of an ERM team to oversee the risks of the bank therefore it makes it difficult and time consuming that is there is always a time lag between adoption and implementation.
- Another challenge is the need to coordinate the objectives of the management and the board and it was noted that there is always a fight between the two making it hard to adopt and implement ERM.
- It was also noted that there is a relationship between bank performance and the adoption and implementation of ERM. However the relationship is said to be realized in the long term. This also is as a result of the fact that ERM implementation is an ongoing process without a considerable end.

## **5.4 Recommendations**

After the reviewing of literature and the findings from the data collected the researcher came up with the following recommendation as a way to aid on what can be done by banks concerning the area of study.

### **5.4.1 Recommendation on communication and costs**

The researcher recommends that banks should select a risk management team that is able to oversee the whole organization and there should always the clear communication channels. Communication is of greater importance and therefore banks should show the clear chain of command and the information on what should be done before hand. More so there is need to devise ways on how to minimize the costs associated with the adoption and implementation of ERM taking into consideration its benefits in the long run. It should be noted that ERM is an

ongoing process and there is need to install a sense of oneness in the achievement of organization's objectives and maintain it.

#### **5.4.2 Recommendation on the selection of the appropriate system**

Another issue that has to be considered is the use of a simple system that can be easily understood by everyone in the organization. This will help on the selection of the appropriate system or framework to use for ERM. There is also need to make ERM become the part of the culture of the organization to ensure that everyone works towards achieving the same objective.

#### **5.4.3 Recommendation on the process of Enterprise risk management**

In order to deal with challenges related to the process there should be greater support from the top management. There should also be use of a risk language that everyone in the organization understands to ensure that everyone is aware of the set risk appetites of the organization.

#### **5.5 Suggestions for further Study**

The study focused on the commercial banks in Zimbabwe and was limited to those in Gweru. For further study other commercial banks should also be taken into account and other participants in the financial sector including building societies, merchant bank, savings bank, Microfinance institutions, Finance houses and Insurance companies. There is also need to look at the ways that the aggregate risk of an organization can be measured. A study can also be carried to analyze the effect of ERM on firm performance and the relationship of ERM and firm value



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## APPENDICES

### APPENDIX A: LETTER OF INTRODUCTION



**Midlands State University**  
**P. Bag 9055, Gweru, Zimbabwe**  
**[Tel:+263 54 260283, 260641](tel:+26354260283)**  
**Fax: +263 54 260233/260068**

Faculty of Commerce

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#### DEPARTMENT OF BANKING AND FINANCE

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Date

Dear Sir/Madam

**RE: LETTER OF INTRODUCTION**

This letter serves to introduce Tafadzwa Mandimutsirs a final year student at the above institution. He/she is doing a Bachelor of Commerce (Honours) Degree in Banking and Finance. He/she is undertaking a research titled:

**AN INVESTIGATION INTO FACTORS INFLUENCING THE ADOPTION AND IMPLEMENTATION OF ENTERPRISE RISK MANAGEMENT BY BANKS IN ZIMBABWE** as part of her/his degree program. The department therefore kindly asks for your assistance in this regard. Please note that the information you shall provide will be used for academic purposes only and will be treated with utmost confidentiality.

Your cooperation will be greatly appreciated.

For any inquiries please contact the undersigned.

Yours faithfully

**DR L. CHIKOKO .**  
**CHAIRPERSON – DEPARTMENT OF BANKING AND FINANCE**  
chikokol@msu.ac.zw

## APPENDIX B: QUESTIONNAIRE FOR BRANCH MANAGERS

### Instructions

- ✓ Kindly complete in the spaces provided or tick in the boxes that correspond to your answer option.

### SECTION A: BACKGROUND QUESTIONS

1. Gender?

Male

Female

2. Indicate the ownership of your bank?

Foreign owned

Domestic

State owned

3. Which position do you occupy?

Operations manager

Risk officer

Auditor

Compliance officer

4. Years of experience in the risk management system?

Below 5 years

5-10 years

Above 10 years

**SECTION B: FACTORS INFLUENCING THE ADOPTION OF ERM**

5. How would you describe your bank’s risk management practice in this dynamic environment?

Effective  Ineffective   
 Not sure

Reasons to support your answer

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 .....  
 .....

6. To what extend do you value Enterprise Risk Management(ERM)

Greater extend  lesser extend   
 We do not value

7. Which of the following state around the adoption and implementation of ERM best fits your organization?

We have implemented   
 We plan to implement   
 We have no current plans to adopt and implement

8. Which factors influence the adoption and implementation of ERM by banks in Zimbabwe? May you please rank the following based on your view of which factor is most influential. 1 ( most influential ), 2 (moderately influential), 3 (less influential) and 4 (not influential)

<b>Factor</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Bank size				
Complexity				
Industry				
Financial leverage				
Opacity				
Value change				
Regulation				
Independence of board of directors				
Organizational culture				

9. Explain briefly the reasons why the above factors were selected?

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10. What challenges are banks in Zimbabwe facing in the adoption and implementation of ERM?

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11. What is the effect of ERM on bank performance?

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**THANK YOU FOR YOUR COOPERATION.**



## APPENDIX C: FACTOR LOADINGS

Factor analysis/correlation Number of obs = 11

Method: principal factors Retained factors = 6

Rotation: orthogonal varimax (Kaiser off) Number of params = 28

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Factor	Variance	Difference	Proportion	Cumulative
Factor1	2.02006	0.38903	0.2844	0.2844
Factor2	1.63102	0.21202	0.2296	0.5141
Factor3	1.41900	0.24730	0.1998	0.7138
Factor4	1.17170	0.24299	0.1650	0.8788
Factor5	0.92871	0.87337	0.1308	1.0096
Factor6	0.05534	.	0.0078	1.0174

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LR test: independent vs. saturated:  $\chi^2(28) = 57.42$  Prob> $\chi^2 = 0.0009$

Rotated factor loadings (pattern matrix) and unique variances

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Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
Uniqueness						
erm	0.4303	-0.0359	0.7555	0.2896	0.2314	0.1466
0.0838						

0.2652	orgc	0.1100	-0.0163	-0.0580	0.8453	0.0660	0.0102
0.0816	iob	0.9288	-0.2182	0.0023	-0.0517	0.0123	-0.0721
0.1237	regulation	0.3009	-0.1415	0.3002	0.0230	0.8216	-0.0005
0.0198	valuechange	0.8979	0.1099	0.0043	0.1718	0.3504	0.0983
0.0883	op	0.2290	-0.1804	-0.8619	0.2386	-0.1386	0.0873
0.0719	lev	-0.0333	0.9291	0.1053	-0.2219	0.0240	-0.0531
0.0398	size	-0.0989	0.8086	0.0267	0.4841	-0.2302	0.0920

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## Appendix D: Regression results

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Logistic regression                               Number of obs   =           11
                                                    LR chi2(4)      =           9.96
                                                    Prob > chi2     =           0.0411
Log likelihood = -8.4790698                       Pseudo R2      =           0.3701
  
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erm	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]
size	2.990782	5.143355	0.64	0.524	.1027882 87.02147
complexity	.0498788	.0704117	-2.12	0.034	.0031356 .7934479
leverage	1.088775	.9732073	0.10	0.924	.1888372 6.277533
opacity	.3029538	.2669973	-1.35	0.175	.0538519 1.704322
_cons	330.7197	959.853	2.00	0.046	1.119449 97704.77

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Logistic regression                               Number of obs   =           11
                                                    LR chi2(2)      =          11.13
                                                    Prob > chi2     =           0.0038
Log likelihood = -7.8949833                       Pseudo R2      =           0.4135
  
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erm	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
_hat	1.091116	.6150462	1.77	0.076	-.1143519 2.296585
_hatsq	.3119966	.3444329	0.91	0.365	-.3630794 .9870726
_cons	-.5068328	.7856573	-0.65	0.519	-2.046693 1.033027

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```
. corr size complexity leverage opacity
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(obs=11)
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          |      size comple~y leverage  opacity  
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      size |      1.0000  
complexity |      0.0891      1.0000  
leverage  |     -0.0788      0.0983      1.0000  
opacity   |      0.3194      0.1992      0.1762      1.0000
```