A STRUCTURED APPROACH TOWARDS AN INTEGRATED BEHAVIORAL RISK MANAGEMENT FRAMEWORK FOR BANKING INSTITUTIONS: A CASE STUDY OF INDO-ZAMBIA BANK

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the University Of Zambia- Graduate School Of Business for academic credit.

Signed: _____ Date: _____

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APPROVAL

This dissertation by Mabunde Maimbolwa has been approved as fulfilling the requirements for the Award of Master of Science Degree in Accounting and Finance by the University of Zambia.

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ABSTRACT

Until recently, risk management discourse has paid scant attention to the issue of organizational culture and behavioral finance biases in banking. Yet ethical lapses and systematic weaknesses exposed in the 2007-09 financial crises suggest that future risk policy dialogue is unlikely to ignore behavioral biases' significance. This paper endeavoured to build an integrated Behavioural Risk Management Framework for Banking Institutions taking a case study of Indo-Zambia bank using a descriptive Research design. Primary data was collected from 250 eligible members of staff that were enrolled in the study. The study used Qualitative content analysis, Factor analysis, cronbach alpha test and descriptive statistics to analyse the data set. The study described the bank's behavioural biases trends and examined elements that affect the effectiveness of the existent risk framework. The findings underpin the idea that behavioural finance is real and therefore plays both a subconscious and consciously role in the decision making within the banking industry. For establishing an integrated behavioural risk Management framework, the improvement of people's risk sense and the proper mechanism for changing tacit knowledge of risk to explicit understanding will have to be emphasized. The understanding of such behavioural biases along with appropriate financial planning policies can play a powerful role in avoiding major pitfalls.

Keywords: Behavioral Finance, Banking Institutions, Enterprise Risk Management, Decision Making

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DEDICATION

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ACRONYMS AND ABBREVIATIONS

ERM	Enterprise Risk Management
COSO	Committee of Sponsoring Organizations of the Treadway Commission
FERMA	Federation of European Risk Management Associations
CRO	Chief Risk Officer
BRMS	Behavioral Risk Management System

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The behavioral aspects of risk taking and decision making are not new topics. For decades, economists have been debating the effect that investors' behavior biases and imperfect information have on asset prices and financial markets. Some of these behavioral biases include, overconfidence bias, ability bias, anchoring bias, loss aversion bias, Gambler's fallacy, regret aversion bias and conservatism bias. Although there is no shortage of behavioral models, there is still a strong need to understand the behavioral aspects of risk taking and decision-making, relevant during market booms, downturns, and financial crises. (Hilson et.al:2014).

During the 1990s, Zambia experienced several bank failures mainly because of weak corporate governance and risk management structures. For example in 1995 alone, the Zambian banking sector experienced a turbulent period with three commercial banks failing. This included the biggest failure in the history of Zambian banking. None of these failures was because of capital deficiency. (Financial Supervision Report: 1995).

According to the Financial System Supervision 1995 Annual Report, the major causes of the bank failures were attributed to three factors namely; (1) insider abuse by the shareholders and related parties, (2) incompetent management coupled by an ineffective Board of Directors; and (3) foreign exchange exposure risk. The Examples of the failure of the Intermarket Banking Corporation, Meridian BIAO, Union Bank of Zambia, Africa Commercial Bank, WorldCom, Parmalat, Tyco, Barings Empire, Daiwa Bank debacle prove to us that effective risk management in banking operations cannot continue to rely on the traditional risk management framework.

Makridakis (2002,) points out that most organizations ignore the existence of judgmental biases and their detrimental consequences. He further argues that what should be done is to recognize the danger biases represent and to take appropriate steps to minimize their possible ill effects. In order to eliminate human error in decision making, Makridas points out the following.(1)Understanding of behavioral trends particular to the individuals and organization of a firm, (2) Development of

consistency in risk control; and (3) Establishment of a risk-management culture fitting the particular working environment.

Over the years Indo-Zambia bank has evolved various aspects of risk management; evidenced by substantial investment in risk measurement tools, business strategy alignment and risk philosophy. The 2018 internal risk assessments reviewed that operational risk was on the increase, especially revenue recognition and impairment of loans and advances. Despite the investments in measurement tools and staff training on risk management, the internal reports reviewed that composite risk was also high which could be as a result of risk related operational processes.(Internal Audit report:2018)

Makridas argues that the risk management system should be equipped with devices for eliminating human error and perception bias and improving the risk sense of members of the organization. A system equipped with devices to eliminate human error and creating knowledge on risk solution is what this research aims at building and is referred to as an integrated behavioral risk management framework. Behavioral models aim to capture these effects and should so be considered as a steering tool.

1.2 Background of the Research

The Zambian banking environment has become highly competitive as banks scramble for a share of the customer deposits on the liability side and good quality credit on the asset side of their balance sheets. Considering this and the need by banks to keep their profitability, Zambia has witnessed a considerable change in the financial landscape. The rapid rate of change in the financial sector no doubt calls for an assessment of the efficacy of risk management systems of financial institutions ((Financial Supervision Report: 2018).

Since the financial crisis in 2008 organizations have been forced to rethink their risk management systems. Entities have thus changed from silo-based Traditional Risk Management to the overarching framework Enterprise Risk Management. Enterprise Wide risk management (ERM) is the process of planning, organizing, leading, and controlling the activities of an organization in order to minimize the effects of risk on an organization's capital and earnings(COSO:2004); Yet Enterprise Risk Management is a young model, and it has to contend with various challenges.

Modern society is becoming more and more sensitive to risk. Accidents are traditionally the product of mishandling, design flaw, or procedural problems in which human error is usually

involved. Under modern, complex technological systems, such small failures occurring routinely periodically combine in unforeseen ways to create much larger failures, which can lead to catastrophe. Therefore, management must pay much more attention to humanistic factors in managing risk and invest more resources to eliminate human error as part of any sophisticated risk management system (Drummond, 1996).

This research aims at building an integrated behavioral risk management framework for Banking Institutions taking a case study of Indo-Zambia Bank.

1.3 Statement of the Problem

Indo-Zambia Bank has since 2015 adopted Enterprise Wide Risk Management Framework for managing its risks on organization wide basis. However, despite adopting the overarching ERM framework, the 2018 internal risk assessment complimented by Bank of Zambia 2018 onsite examination of the bank reviewed that the banks composite risk was high. How this could have occurred given sophisticated tools and massive risk system investments is a concern. A further concern is the likelihood of repeating this experience during the next onsite examination cycle. Although the bank knows how risk decisions should be made, less is known on how these decisions are actually made.

The existing Enterprise Risk Management framework account for perhaps 95% of what occurs. The major catastrophic risks lurk in the fat tails of the remaining 5%. Many organization tend to underestimate these improbable risks due to behavioral biases.

In the spotlight of financial scandals originated at its root by behavioral biases such as the Lehman Brothers bankruptcy in 2008 followed by a global financial crisis there is need that the risk management system at Indo-Zambia Bank should be equipped with devices for eliminating human error and perception bias. To achieve this, an evidenced approach is inevitable.

There is no known research which has been carried out on behavioral finance factors influencing risk management decisions in Zambian banking institutions. The study therefore seeks to bridge this gap by developing an integrated behavioral risk framework that address judgment bias and develop appropriate responses. The framework will supplement current quantitative risk management framework by improving responses to risk changes over time.

1.4 Purpose of the study

The purpose of this study is to construct an integrated Behavioral Risk management framework for Banking Institutions.

1.5 Research Objectives

The objectives of this research project are:

1. To Explore the effectiveness of current Enterprise Wide Risk Management Framework
2. To Describe the behavioral biases particular to members of staff at Indo-Zambia Bank
3. To develop an Integrated Behavioral Risk Management Framework that is ideal for Banking Institutions such as Indo-Zambia Bank.

1.6 Research questions

This study is seeking answers to the following research questions:

1. What elements affect the effectiveness of the current Enterprise Wide risk Management framework? (nominalist ontology)
2. What are the behavioral biases particular to members of staff at Indo-Zambia Bank (Realist ontology)
3. How can an Integrated Behavioral Risk Management for Banking Institutions be developed? (pragmatic ontology)

1.7 Significance of the Study

The regulator for financial institutions in this case Bank of Zambia, may use this study to design and improve on the current risk management framework for all commercial banks in Zambia. The findings of this study may be a value addition to literature review. Therefore, students of risk management, finance, insurance, governance and human resource management, may find these research findings critical in terms of broadening their minds in this area.

The researcher initial motivation is to choose a topic related to his MSC stream of Finance and professional background in Economics and Actuarial Science. Secondly, in order to choose the research topic, the

researcher considered picking an interesting and relatively new subject in need of further research that could also provide him with relevant knowledge for his profession and future career prospects.

Thus, in the aftermath of several financial scandals in banking institutions caused by behavioral biases at its root, the researcher's personal motivation for this research study was to find valid data and therefore adding relevant content to the current literature which will provide managers and investors with relevant knowledge in order to support high quality of their financial decisions

1.8 Scope of the Study

This study focused on developing an Integrated Behavioral risk Management framework for banking institutions in Zambia. The research adopted a descriptive research design and Mixed Methods Research strategy. The research was a cross sectional study of Indo-Zambia Bank with 250 participants. Indo-Zambia bank was chosen as a case study since the researcher works there for easy of data collection given the cross sectional nature of the study. The purpose of the Integrated Behavioral Risk Management framework is for improvement of people's risk sense and a proper mechanism for changing tacit knowledge of risk to explicit understanding.

1.9 Limitations of the Study

The limitations of this study are related to the nature of the research design. Since this is a cross sectional study, it has limited ability to outline cause and effect. The study has also limited power to be extended to other banks. This is because Indo-Zambia Bank and its staff members are not representative of the entire banking industry.

1.10 Dissertation organization

This research study has been divided into 6 chapters as per detailed below:

Chapter 1

It provides an overview and background information of the research topic touching the research main aim and its objectives; It also highlights the research questions, which constitute the basis for the research and guides the gathering of primary data. Furthermore, this section presents the significance of the study as wells as the scope and limitations of the research.

Chapter 2

In this section it is presented valuable concepts and foundations of behavioral finance research along with its recent developments and the banking risk management framework highlighting recent studies with the trends and implications of the practical application of behavioral finance findings to the risk management framework in banking institutions.

Chapter 3

The purpose of this section is to demonstrate and discuss the existing research methods adopted in the study focusing on the research methodology choices selected for the best conduction of this particular research. A detailed analysis of the methodology research choices is also discussed in order to gather relevant primary data to proceed with data analysis.

Chapter 4

The aim of this chapter is to present, analyze the results of primary data collected , therefore it is presents an in-depth analysis of the results which supports the researcher to find relevant and valid content in order to draw well-grounded conclusions and recommendations regarding the application of behavioral finance into the risk management instruments of banking corporations.

Chapter 5

This chapter discusses the findings and compares the results with other studies and lastly provides an implication of the findings in the Zambian context

Chapter 6

This chapter summarizes the main findings of this research study, touching its implications and additions for the field of study by drawing relevant and valid conclusions including the limitations and recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the existing research literature on Behavioral finance factors and Enterprise Risk Management Framework (ERM). In specific the chapter discusses Behavioral finance factors, The Implementation of ERM process, Employee Ownership of the ERM process and role of organizational risk culture in Enterprise Risk Management.

A chapter summary has also been included to give an overview of the related literature reviewed.

2.2 Risk and Risk Management Framework

The Bank of Zambia Risk Management guidelines issued in September, 2008 defines "Risk" as the chance of something occurring that may have an impact on the achievement of the financial service provider's desired statutory and strategic objectives, measured in terms of the impact of the event and likelihood of its occurrence. Risk is also defined as a probability or threat of damage, injury, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through preemptive action.(Cendrowski et.al:2009)

According to the Committee of Sponsoring Organizations of the Treadway Commission' ('COSO') Risk Management is defined as: “a process, effected by an entity’s board of directors, management and other personnel, applied in a strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives”. A risk management framework (RMF) on the other hand is the structured process used to identify potential threats to an organization and to define the strategy for eliminating or minimizing the impact of these risks, as well as the mechanisms to effectively monitor and evaluate this strategy. There are at least five crucial components that must be considered when creating a management framework. They include: Risk identification, Risk measurement and assessment, Risk mitigation, Risk reporting and monitoring and Risk governance. (Burnaby and Utkus: 2009).

According to Deloach (2012) a number of Risk Management frameworks emerged. The different frameworks to choose from, include the COSO Enterprise Risk Management – Integrated Framework, ISO 31000 Risk Management – Principles and Guidelines on Implementation, BS 31100 Code of Practice for Risk Management, FERMA a Risk Management Standard, and OCEG Red Book 2.0 (GRC Capability Model), among others. According to IRM (2010), the most widely used frameworks with international agreed standards for the implementation of risk management principles include; The COSO framework published in 2004 and the ISO 31000 which was published in 2009. Indo- Zambia Bank has adopted the Enterprise Wide Risk Management Framework.

2.3 Enterprise-Wide Risk Management

Enterprise Wide risk management (ERM) is the process of planning, organizing, leading, and controlling the activities of an organization in order to minimize the effects of risk on an organization's capital and earnings(COSO:2004). It consists of two components. These are the basic ERM framework and the core capability of a particular firm. It is not so difficult for a firm to adopt some standard framework like COSO2. However, how the system fits a firm's core capability is vital. COSO2 uses a three-dimensional matrix to illustrate risk management structure.

Figure 1 ERM Framework

2.3.1 Implementation of the ERM Process

Burnaby and Hass, (2009) explain that the ERM process should be implemented by a management team, with personnel from all levels of the company. The various employees in the organization

should be part of the process. This will ensure that the risks are well known by the employees and that the key risks are managed by the proper department or function under a clear master plan.

According to CIMA (2008), implementing ERM in practice constitutes a major change management program for organizations' and takes time to be fully established. The main activities of implementing ERM in practice would begin with; Establishing the risk appetite and philosophy of the organization which is set from the commitment and behavior of the top management; the establishment of a risk strategy is critical to the implementation process; developing the ERM structure is important in determining how ERM is to be integrated into the organization.

2.3.2 Employee's Ownership of the Enterprise Risk Management Process

According to Burnaby and Hass, (2009), the ERM process should be owned at several levels within the organization. A Chief Risk officer (CRO) should develop the ERM Function and roll-out the ERM process to the other employees within the organization. According to Kerstein *et al* (2014), to be able to implement ERM, an organization needs to appropriately educate their staff. Kerstein *et al* (2014) further added that to be effective, the CRO and the ERM-function need to be aware of the various levels of risk that have an impact on all levels of an enterprise.

Burnaby and Hass (2009) further emphasized that the organizations which are well run, will link the remuneration and promotion of the employees with the success of the risk management process. The mandate for risk management lies at the highest level, and a Chief Risk Officer oversees the entire risk management process, however the employees within the organization across all levels are responsible for the success of the risk management process.

The risk managers should be included in the initiatives of training and education of all the employees on the risk management process. Lack of understanding/awareness in the organization with regards to the importance of risk management, may result in the company being at risk of significant loss due to failure to manage the risks which are known. Burnaby and Hass (2009) concluded that ownership also means accountability. Employees that have oversight over risk management in each function must be held accountable for the risk reports which are presented and shared under their risk management area. This will ensure there is clear accountability and ownership over the risk management activities.

Tattam (2015) further emphasized that clear risk and control ownership is critical to ensure that all risks are being managed and none are falling through the cracks and that the main risk control has an owner who is accountable for the control's performance.

2.3.3 Organizational Risk Culture on Enterprise Risk Management

2.3.3.1 Corporate Values

IRM (2017) defines risk culture as the values, beliefs, knowledge, attitudes and understanding about risk shared by a group of people with a common purpose. This applies to all organizations - including private companies, public bodies, governments and not-for-profits. Lam (2014) stated that one of the softest, but most important aspects of risk management is the integration of risk into a company's culture and values. Risk management targets should be included among corporate goals, and major corporate. Further research by Kimbrough and Componation (2009) revealed that the components of a risk-aware culture encompass leadership, involvement, learning, accountability and communication.

The risk awareness culture should be embedded into the corporate culture, which can encourage management at all levels to be aware of the potential project and enterprise risks. As a result, due to the pervasiveness of risk awareness throughout the firm, risk management becomes a critical part of the corporate culture. The study by Cooper, Fhaseruk and Khan (2013) concluded that ERM is a whole organizational approach to managing risk; hence it is critical to appreciate how organization culture influences the implementation and practice of managing risk, specifically using ERM.

2.3.3.2 Senior Management – "Tone from the Top"

Ernst & Young (2015) study revealed that one of the critical factors in success of Enterprise Risk Management is the leadership/senior management communicating the right message. The tone from the top management should be aligned with the tone from middle management. Miccolis (2013) stated that the decisions and actions of senior management will do more to influence behavior than any written policy hence it is critical that they act accordingly. Further research by Lam (2014) revealed that there has to be a clear message from the directors as to the true importance of ERM. Just as an organization's overall culture can be critical in determining how successful it will be, so will its risk culture determine the success of its ERM. A weak risk culture

is one in which employees have little sense of the importance of risk management and their role in it. Such a culture will compromise efforts to manage risk—perhaps fatally. Lam (2014) further argued that if, risk management is seen as a central part of day-to-day operations, and it is likely that a strong risk culture is in place. Such an environment allows for truly effective risk management. Like all cultural issues, a key factor is whether management "walks the walk" as well as it "talks the talk".

Explicit expression and deliberation about the expected behaviors within the organization is also required to create and sustain a strong risk-awareness culture. In a world of uncertainties, organizations should be implementing ERM as an approach to better manage risk. ERM is expected to be fully integrated within the organization strategy and decision making to ensure that risks are addressed systematically and consistently, not on an ad hoc basis (Cooper, Fhaseruk, & Khan 2013).

2.3.3.3 Roles and Responsibilities

Ernst & Young study (2015) revealed that to create an appropriate risk culture, a variety of mechanisms need to be in place and be effective. One of the critical factors entails having clear roles and responsibilities, which will enable strong accountability and support the delivery of the desired behavior. Aslam and Jamil (2017) further argued that, there are three key elements in a successful ERM lifespan: strategy, resources and culture.

Most of the global organizations which are now taking a "full picture," enterprise-wide view of their risks have found that significant cultural, resource and strategy challenges exist when they try to fully embed ERM within their organization.

Aslam and Jamil (2017) further reiterated that no ERM program can deliver optimal value or impact without being fully integrated into the daily activities and decisions that take place at every level throughout the organization. Simply put, ERM must be a primary thread in the cultural fabric of the organization if it is to contribute to its longevity and success.

Ruin (2008) stated that risk management should be successfully embedded into an organization when the beliefs and behaviors of employees of that organization reflect risk understanding, risk awareness, and the implementation of risk management framework.

Lam (2014) argued that to ensure responsibility and accountability the employee incentives should be aligned with good risk management practice. This alignment should begin at the executive level, which is where a risk-aware Board comes into play. The compensation and incentives of the Board, the CEO and other executives should clearly be in line with the company's risk management policy and appetite. Lam (2014) further reiterated that in order to measure and monitor their risk culture, a growing number of companies are performing annual risk culture surveys that are designed to show how employee behavior compares to desired behavior. These surveys track to what degree are employees assessing, communicating, and mitigating risks in a manner consistent with the company's risk management policies and standards.

2.4 Indo-Zambia Bank Risk Management Framework

Indo-Zambia Bank Limited is incorporated under the Companies Act of Zambia, as a limited liability company and is domiciled in the Republic of Zambia. The Bank is also licensed under the Banking and Financial Services Act of Zambia, to conduct commercial banking services. The bank was incorporated in the year 1984.

According to its pillar 3 disclosures, the Bank is committed to provide accurate and timely information pertaining to its material activities, in an open and transparent manner so as to facilitate the stakeholders to take properly informed decisions and to build trustworthy relationship with them. The bank is exposed to various risks like credit risk, market risk, liquidity risk, interest rate risk and operational risk. While assessing the bank, the market participants evaluate the techniques used by the bank to identify, measure, monitor and control these risks. The disclosures on the above banking risks will be made and for management of these risks the bank has adopted the Enterprise Wide Risk Management.

The objective of adopting Enterprise-Wide Risk Management framework is to address all risks comprehensively on an organization wide basis. Establishing such a framework is aimed at providing a clear understanding of the Bank's risk profile and to arrive at an accurate picture of the Bank's consolidated risk exposure in various markets and business activities at all times. This comprehensive approach enables the Bank and its management to monitor and evaluate on a continuous basis whether the Bank's activities are in line with its business objectives and compatible with its risk tolerance and risk appetite.(Indo-Zambia bank ERM policy:2018)

Furthermore, The ERM policy further indicates the need for the Bank to develop a Risk Management Culture where risk management is seen as the responsibility of the staff at all levels. A culture that supports open discussion about risks and potentially damaging information with emphasis on learning from mistakes; will help the Bank in achieving its Risk Management Philosophy in a more meaningful manner. (Indo-Zambia bank ERM policy: 2018)

2.5 Behavioral finance factors

Behavioral economics has made great strides in understanding how people make decisions guided by conscious or unconscious biases. It has shown, for example, that people are typically overconfident—in a few well-known experiments, for example, enormous majorities of respondents rated their driving skills as "above average." Anchoring is another bias, by which people tend to rely heavily on the first piece of information they analyze when forming opinions or making decisions.

Theoretical and Experimental works of two psychologists Daniel Kahneman and Amos Tversky which contributed to psychology literature in 1970s served as foundation and gave rise to a new paradigm in the 1980s called Behavioral Finance, which "studies how people actually behave in a financial setting. Specifically, it is the study of how psychology affects financial decisions, corporations, and the financial markets*."*(Nofsinger, 2001). From a practitioner's perspective, Behavioral finance identifies various concepts that makes a human being behave irrationally thus leading to suboptimal decisions.

Behavioral finance examines how risk managers gather, interpret, and process information. Specifically, it concentrates on perception and cognitive bias. It recognizes models can influence behavior and shape decisions. These biases can corrupt the decision process, leading to suboptimal results as emotions override self-control (Debels, 2006).

Risk managers have developed shortcuts, rules of thumb, or heuristics to process market signals. These belief- based heuristics incorporate biases or cognitive constraints, which will now be investigated (Debels, 2006).

2.6 Human Behavioral Theories

In order to explain the various irrational individual behaviors in financial markets, behavioral economists draw on the knowledge of human cognitive behavioral theories from psychology, sociology and anthropology. Two major theories are discussed: Prospect Theory and Heuristics.

2.6.1 Prospect Theory

The Prospect theory was originally conceived by Kahneman and Tversky (1979) In essence, the theory explains the apparent irregularity in human behavior when assessing risk under uncertainty. It says that human beings are not consistently risk-averse; rather they are risk-averse in gains but risk-takers in losses. People place much more weight on the outcomes that are perceived more certain than that are considered mere probable, a feature known as the "certainty effect". People's choices are also affected by the 'Framing effect'. Framing refers to the way in which the same problem is worded in different ways and presented to decision makers. Prospect theory describes some states of mind affecting an individual's decision-making processes including Regret aversion and Loss aversion (Waweru et al; 2003:28). Below we highlight Regret Aversion Bias and Loss Aversion bias.

2.6.1.1 Regret Aversion bias

Regret-aversion bias is an emotional bias in which people tend to avoid making decisions that will result in action out of fear that the decision will turn out poorly. Simply put, people try to avoid the pain of regret associated with bad decisions. This tendency is especially prevalent in investment decision making. Regret aversion can cause Individuals to hold onto positions too long. They are reluctant to sell because they fear that the position will increase in value and then they will regret having sold it. (Forgel & Berry, 2006:107) Risk is forward looking. Regret, however, is backward looking. It focuses on responsibility for what could have been done but was not done. Regret underlies several biases. Individuals try to minimize regret by seeking confirming data, suppressing disconfirming information, and taking comfort that others made the same decision. Consequently, regret can inhibit learning from past experiences. (Lehenkari & Perttunen, 2004:116).

2.6.1.2 Loss Aversion Bias

Loss-aversion bias was identified by Daniel Kahneman and Amos Tversky in 1979 while they were working on developing prospect theory. In prospect theory, loss-aversion bias is a bias in which people tend to strongly prefer avoiding losses as opposed to achieving gains. A number of studies on loss aversion suggest that, psychologically, losses are significantly more powerful than gains. When comparing absolute values, the utility derived from a gain is much lower than the utility given up with an equivalent loss. Kahneman and Tversky describe loss-averse investor behavior as the evaluation of gains and losses based on a reference point.

In this research, two elements of prospect dimension: Loss aversion and Regret aversion are used to measure their impact levels on the decision making of individual staff members at Indo-Zambia Bank

2.6.2 Heuristics

"Heuristics are simple efficient rules of the thumb which have been proposed to explain how people make decisions, come to judgments and solve problems, typically when facing complex problems or incomplete information. These rules work well under most circumstances, but in certain cases lead to systematic cognitive biases" – Daniel Kahneman (Parikh, 2011).

Heuristics are defined as the rules of thumb, which makes decision making easier, especially in complex and uncertain environments (Ritter, 2003:431) by reducing the complexity of assessing probabilities and predicting values to simpler judgments (Kahneman & Tversky, 1974:1124). In general, these heuristics are quite useful, particularly when time is limited (Waweru et al., 2008:27), but sometimes they lead to biases (Kahneman & Tversky, 1974:1124; Ritter, 2003:431). Kahneman and Tversky seem to be ones of the first writers studying the factors belonging to heuristics when introducing Four factors namely representativeness, Conservatism, availability bias, and anchoring (Kahneman & Tversky, 1974:1124-1131). Waweru et al. also list three factors named Gambler's fallacy, and Overconfidence into heuristic theory (Waweru et al., 2008:27). Below we consider these factors in heuristic theory.

2.6.2.1 Representative Bias

Representativeness refers to the degree of similarity that an event has with its parent population (DeBondt & Thaler, 1995:390) or the degree to which an event resembles its population (Kahneman & Tversky, 1974:1124). Representativeness bias is a belief perseverance bias in which people tend to classify new information based on past experiences and classifications. They believe their classifications are appropriate and place undue weight on them. This bias occurs because of people attempting to derive meaning from their experiences and tend to classify objects and thoughts into personalized categories. When confronted with new information, they use those categories even if the new information does not necessarily fit. They rely on a "best fit" approximation to determine which category should provide a frame of reference from which to understand the new information. (Ritter, 2003:432).

2.6.2.2 Conservatism Bias

Conservatism bias is a belief perseverance bias in which people maintain their prior views or forecasts by inadequately incorporating new information. This bias has aspects of both statistical and information-processing errors.

Academic studies have demonstrated that conservatism causes individuals to overweight initial beliefs about probabilities and outcomes and under-react to new information; they fail to modify their beliefs and actions to the extent rationally justified by the new information (Pompian, 2006).

2.6.2.3 Gambler's fallacy

"Perhaps the most bizarre argument for being bullish is the belief that markets can't go down for four years in a row. This is a prime example of the Gamblers' Fallacy." Montier (2003).Kahneman and Tversky (1971) describe the heart of gambler's fallacy as a misconception of the fairness of the laws of chance. One major impact on the financial market is that investors suffering from this bias are likely to be biased towards predicting reversals in stock prices.

Gamblers' Fallacy arises when investors inappropriately predict that trend will reverse and are drawn into contrarian thinking. The belief that a small sample can resemble the parent population

from which it is drawn is known as the "law of small numbers" (Rabin, 2002, p.775; Statman, 1999:20) which may lead to a Gamblers' fallacy (Barberis & Thaler, 2003:1065).

More specifically, in stock market, Gamblers' fallacy arises when people predict inaccurately the reverse points which are considered as the end of good (or poor) market returns (Waweru et al., 2008:27). In addition, when people subject to status quo bias, they tend to select suboptimal alternative simply because it was chosen previously (Kempf and Ruenzi, 2006:204).

2.6.2.4 Anchoring Bias

Anchoring is a phenomena used in the situation when people use some initial values to make estimation, which are biased toward the initial ones as different starting points yield different estimates (Kahneman & Tversky, 1974:1128). In financial market, anchoring arises when a value scale is fixed by recent observations. Investors always refer to the initial purchase price when selling or analyzing. Thus, today prices are often determined by those of the past. Anchoring makes investors to define a range for a share price or company's income based on the historical trends, resulting in under-reaction to unexpected changes. Anchoring has some connection with representativeness as it also reflects that people often focus on recent experience and tend to be more optimistic when the market rises and more pessimistic when the market falls (Waweru et al., 2008:28).

2.6.2.5 Overconfidence Bias

"In its most basic form, Overconfidence can be summarized as unwarranted faith in one's intuitive reasoning, judgments, and cognitive abilities" (Pompian, 2006). Psychologists have determined that Overconfidence causes people to overestimate their knowledge, underestimate risks, and exaggerate their ability to control events. Overconfidence bias has aspects of both cognitive and emotional errors but is classified as emotional because the bias is primarily the result of emotion. It is difficult to correct for because it is difficult for people to revise self-perceptions of their knowledge and abilities.

The concept of overconfidence has been derived from a large number of psychological experiments and surveys in which subjects overestimate both their own predictive abilities as well as the precision of the information they have been given.

When people overestimate the reliability of their knowledge and skills, it is the manifestation of overconfidence (DeBondt & Thaler, 1995:389, Hvide, 2002:15).

2.6.2.6 Availability Bias

Availability bias is an information-processing bias in which people take a heuristic (sometimes called a rule of thumb or a mental shortcut) approach to estimating the probability of an outcome based on how easily the outcome comes to mind. Availability bias happens when people make use of easily available information excessively. In stock trading area, this bias manifest itself through the preference of investing in local companies which investors are familiar with or easily obtain information, despite the fundamental principles so-called diversification of portfolio management for optimization (Waweru et al., 2003:28).

2.6.2.7 Hindsight Bias

Hindsight bias is a bias with selective perception and retention aspects. People may see past events as having been predictable and reasonable to expect. This behavior is based on the obvious fact that outcomes that did occur are more readily evident than outcomes that did not occur. Shiller (2000) describes Hindsight bias as "the tendency to think that one would have known actual events were coming before they happened, had one been present then or had reason to pay attention". Monti and Legrenzi (2009) investigated the relationships between investment decision making and Hindsight bias. They say that economic studies consider the agent's foresight perspective only, without taking into account the Hindsight bias possible effects in the decision-making process.

2.6.3 Conceptual framework of Behavioral Biases

This research study examines the behavioral biases outlined in prospect and heuristic theory on decision making (cognitive and emotional biases) of members of staff at Indo-Zambia Bank. Cognitive biases include anchoring, representativeness, Conservatism and availability. On the contrary, emotional biases include risk aversion, overconfidence and regret aversion. Adopted from the theoretical works highlighted above, the conceptual framework for this study is presented in the figure below.

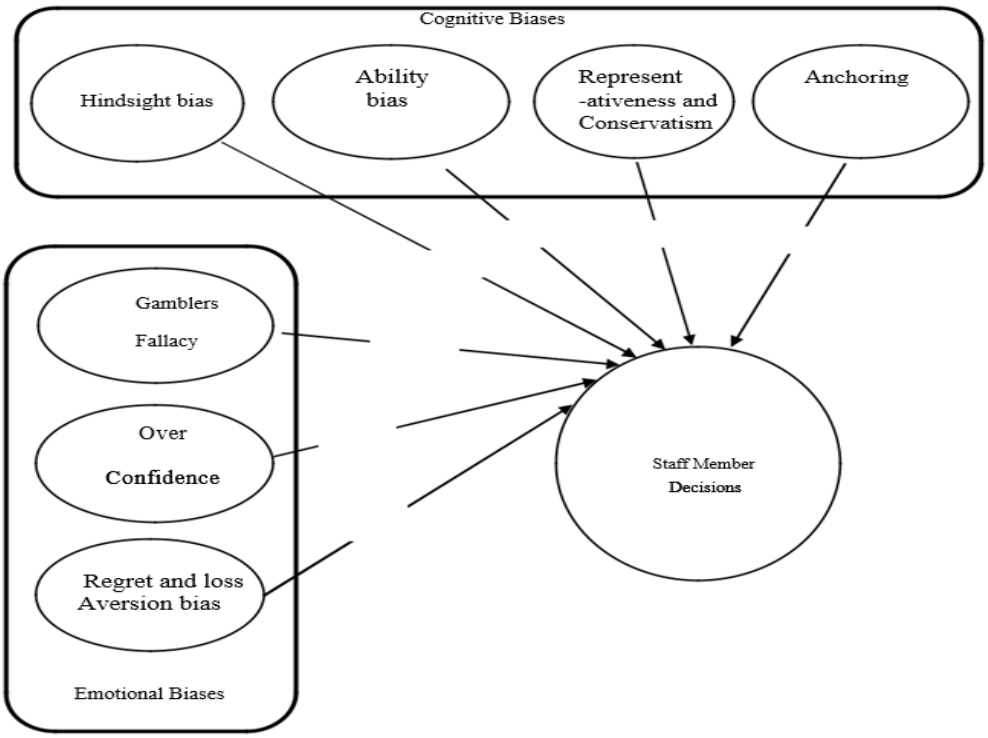


Figure 2 Behavioral biases Conceptual framework

2.7 Behavioral Risk Management System and Risk Sense

To manage risk, it is necessary to identify and assess it. Usually, risks from natural disasters, credit, financial markets, and operations are within the scope of risk assessment. Organizations try to evaluate risk in an objective and scientific way. However, a quantitative risk evaluation model cannot be a surrogate for management decision and common sense. This is partly because new risks might be worse than what could have happened in the past, and partly because operational

risk is extremely difficult to quantify. Operational risk refers to the risk of loss resulting from inadequate or failed internal processes, people, and systems, or from external events. This does not directly affect the value of either assets or liabilities, but has often been the ultimate cause of company failures or man-made catastrophes.

Kamei (2004:18) indicates that a firm's risk is deeply affected by wrong decision making and improper response to environmental changes caused by lack of control, lack of information, lack of time, lack of sensibility, or lack of character. Improvement of risk sense is very important, because lower levels of risk sense lead to the following situations.

- Risk philosophy and governance are vague and incomplete, and risk limits and decisions are not properly documented. As a result, misinterpretation and arbitrage by business routinely happen.
- Management does not understand the nature and magnitude of the risks to be taken and thus develops an inappropriate, misleading, corporate strategy.
- Business managers routinely appeal negative risk decisions (that is, seek to take on additional risk) and lose the chance of increasing a firm's value because of a lack-of-knowledge risk.
- Communication between risk officers and business managers is strained and counter-productive because risk officers trend not to be visible and responsive, while business managers trend to violate or ignore risk processes.

From a management viewpoint, human-related risk is rooted in people's intrinsic attitude. Therefore it is not solved simply by top-down instructions. Instead, it is necessary to improve the internal environment as a whole. A firm should endeavor to promote risk disclosure and dialogue for mutual understanding, and discipline to achieve proper behavior. In short, a firm should support a sensible culture for dealing with risk. (Kamei, 2004:19)

A survey done by Sakuma (2004) shows that there is a positive correlation between the strength of trust between superiors and subordinates and the performance of Japanese firms. It also suggests that subordinates appreciate learning from superiors and have good feeling about superiors' warm and flexible management, which take into consideration subordinates' private lives. Sakuma points out that exceptional Japanese companies have an issue-solving working mechanism, which is supported by good team work under mutual trust and warm humanistic

relations between superiors and subordinates. That results in sharing tacit knowledge and realizing the improvement of the working process as explicit knowledge.

The following players contribute to fostering a practical group interaction and also to workable operational risk preventive proceedings through combinations of the following functions.

- Top management: Sets clear risk philosophy, governance, and strategy.
- Senior management: Sets a concrete strategy and objectives, and shows them to the work place.
- Middle management: Derives tacit knowledge from group members and changes it to explicit knowledge through encouragement of group interaction.
- Experienced experts (sometimes called *takumi*): Give practical advice to overcome specific problems and issues in a project.
- Group members: Provide new ideas from the perspective of their own ability and experience.

Middle management and *takumi* accelerate group interaction, acting as boundary-spanners and catalysts. Generally, "redundancy", with its connotation of unnecessary duplication and waste, is unappealing. However, redundant organization plays an important role in the knowledge-creation and risk-mitigating process. Redundancy can provide a "common cognitive ground" among employees, encourage frequent dialogue and communication, and facilitate transfer of tacit knowledge. Intentional redundancy adopted properly is a powerful tool in risk management. Through group interaction, employees share and learn from each other the various errors and past mistakes experienced individually. This enables a corporation to feed the experience into management of future risk

For establishing Behavioral Risk Management System (BRMS) there is need to emphasize the improvement of people's risk sense and the proper mechanism for changing tacit knowledge of risk to explicit understanding(Goto:2004). The following cycle should be operative in BRMS.

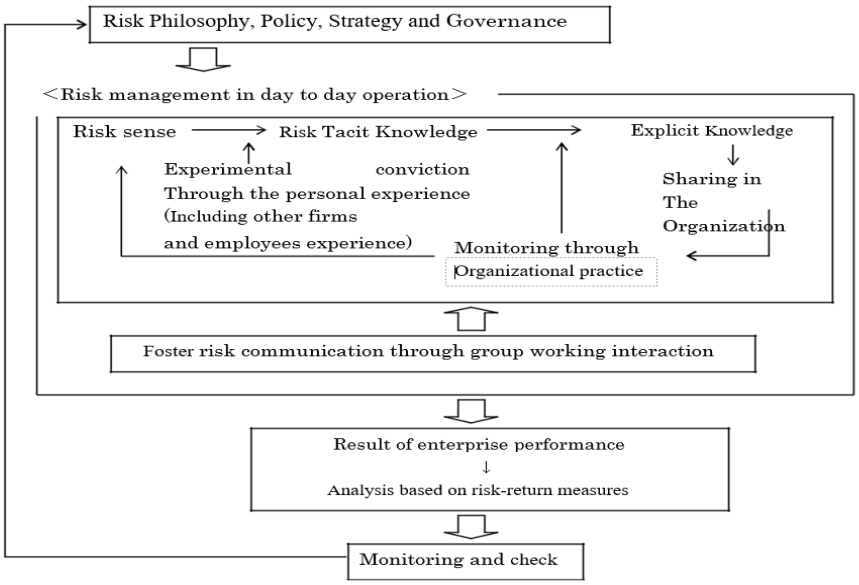


Figure 3 Behavioral Risk management cycle

As global financial markets continue to expand, and become more volatile and inter-dependent, the marketplace is moving toward a standard of more financial disclosure and regulators are seeking more information regarding risk activities.

The function of the risk process is to protect the firm and its shareholders from unexpected losses and other financial surprises. Risk communication both internally and externally has become more important over time. Failure to provide relevant information to the parties concerned can lead to loss of confidence and financial stress. Delivering the right information to the right people, at the right time, is a vital dimension of proper risk communication.

2.8 Empirical Review

Several studies have been carried out in order to research, for various demographic profiles, differences with regard to people's decision-making behavior in situations involving uncertainty and risk, identifying the presence of bias in their choices.

Research by Yoshimaga et,al(2014), adapted the questionnaire first used by Kahneman and Tversky (1979).To avoid selection bias, 21,267 questionnaires were sent electronically to respondents, and data was collected by the SurveyMonkey tool. Questionnaire could only be completed if all answers were filled in; of the 3,143 respondents who started to answer the questionnaire, 2,590 concluded it, representing a 12.2% success rate as to the total sent, and an

82.4% success rate as to the total of those who began to answer. The results confirmed that behavioral effects do exist, and proved that a large portion of the sample presented significant inconsistency in their choices according to Expected Utility Theory principles, highlighting that their decisions were not made according to strictly rational behavior.

Barsky et al. (1997) concluded, among other characteristics, that, separately, people with higher levels of education and those who are very rich are more prone to risk. On the other hand, people with an average income level and education and aged between 55 and 70 are more risk averse.

Torralvo (2010), too, among other characteristics, identified more biased behavior, separately, in men, in respondents who were graduated in courses associated with Management, with a greater volume of financial instruments, with no financial experience and in managing third party funds. On the other hand, he did not identify any differences between individuals with or without financial dependents. Bhandari and Deaves (2006) found that men with a high educational level are more prone to overconfidence.

According to Bajtelsmit and Bernasek (1996), many studies have found that women invest more conservatively and with greater risk aversion, which is corroborated by Marinho et al. (2009). Santos and Barros (2011) also attributed to men a greater propensity to risk. On this track, according to Barber and Odean (2005), men are more overconfident than women; they cite other studies that confirm this conclusion.

Décourt (2004) noted the presence of behavioral biases in financial executives, doctors, MBA and university students. Similarly, Ribeiro (2010) concluded that financial experts are more likely to take risks than non-specialists, and Rogers, Favato and Securato (2008:1) state that “bias in the cognitive process and limits to learning remain even in individuals with a higher level of education and more structured financial education”.

Hallahan, Faff and McKenzie (2004) concluded that gender, age, number of dependents, marital status, education, income and wealth are related to risk tolerance. According to the authors, the results for gender, education and income are consistent with the previous literature. However, the relationship between wealth and risk tolerance contrasts with previous research, emphasizing the presence of conflicting results observed in different studies.

Table 1 Studies that replicated the original questionnaire by Kahneman and Tversky (1979)

Authors	Year	Sample (public)	Sample	Conclusion (summary)
Kahneman and Tversky (original)	1979	Israeli, North-American and Swedish students and professors	66 to 141	Development of the Prospect Theory, facing the presence of Certainty, Reflection and Isolation Effects.
Rogers, Favato and Securato	2008	Graduate students	186	Results obtained confirmed the presence of Certainty, Reflection and Isolation Effects, but found no differences between the decision-making behavior of respondents who had more or less financial education.
Côrtes	2008	Professionals who work or worked with the financial market	40	Concludes that decision-makers tend to present risk aversion in the field of gains and are prone to risk in the field of losses.
Torralvo	2010	Postgraduate students	206	Investors do not act in a purely rational way, and there are differences between the studied demographic profiles, such as, for example, the Fact that men's behaviors are more biased than women's.

Source: The authors

An important study produced by Hillson et al (2014:114) shows that the practical application of behavioral finance to the risk management framework is still in a very early stage, therefore the subject is still a moot question. Through a directed questionnaire the journal editors asked four important risk management involved executives their perspectives regarding the addition of the behavioral and psychological research into the bank and regulators' risk management framework and if 'reckless' behavior should be regulated in the new UK legislation. The gathering of data contributed with rich and relevant material to trigger further discussions and research in the field.

The outcome of Hillson's study highlighted the uncertainty of the complex business environment where the subject lies and it leads the discussion to how it should be achieved rather than if it should be implemented or not (Hillson et al, 2014:114 - 115).Another important study produced by Rzeszutek et al (2015) investigated the degree of susceptibility to behavioral biases in market investments. The author highlighted that behavioral biases disrupt the rationality of the decision-making process contributing to inefficient decisions outcomes .The paperwork attempted to evaluate three behavioral biases, as per below (Rzeszutek et al(2015:338-339):

- Certainty effect: the tendency to overweight outcomes that are certain compared with outcomes that are very probable;
- Sunk-cost fallacy: relates to the influence of costs incurred in the past or future investments decisions; and
- Mental accounting: the process of mentally coding, categorizing and evaluating cash flow.

In line with recent studies in the field of research, McConnell et al (2014:100-101) state that in order to acknowledge the role of behavioral biases in risk management decisions and improve the quality of its framework in banking institutions, risk managers and banking regulators will have to understand more about the controls on, and the limits of human behavior in banking and society at large. Shefrin (2016:112) also states that "when it comes to improving risk management practices, behavioral insights are pertinent at all levels of the organization." Moreover, the author argues that issues should be discussed both at ground-level and a bird's-eye perspective; the ground-level focuses on the psychological issues while the bird's-eye view provides a broader view of the risk environment.

This current research study differentiates from the available literature in the sense that it attempts not only to demonstrate the necessity of further studies on the behavioral finance field, but it also aims to build an integrated behavioral risk management framework.

2.9 Chapter Summary

The aim of this chapter was to review the work done on Behavioral finance and ERM by the various authors. The main objective was to establish behavioral biases and factors affecting the effectiveness of Enterprise Risk Management in banking institutions. Precisely, literature review has covered the extent to which behavioral biases impact risk management, the implementation of ERM process, Employee ownership of ERM process and role of organization risk culture on the effectiveness of ERM.

In the subsequent chapter the research methodology will be discussed, there will be focus on the population, the data collection instruments and the methods used. Further details will also be provided on the research procedures followed and the presentation of data.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter covers the methodology used in the study. The sections discussed include the research design and strategy, population, sample size, data collection methods, research procedures, data analysis methods and the chapter summary.

Blumberg, Cooper and Schindler (2011:12-13) states that a good research should be "purposeful with a clearly defined focus and plausible goals, defensible ethics and replicable procedures with evidence of objectivity". Each specific choice requires careful evaluation as they provide the structure, guidance and potential limitations (Saunders, Lewis and Thornhill, 2007, p. 101). Additionally, Brannick and Roche (1996) explains that "the research process provides a systematic, planned approach to a research project and ensures all aspects of the project are consistent with one other.

3.2 Research Design

According to Cooper and Schindler (2013), research design constitutes the blueprint for the collection, measurement and analysis of data. Research design is the plan and structure to obtain answers to research questions. There are different types of research designs, in this study, descriptive research design was adopted. Cooper and Schindler (2013) and Kothari (2006) state that descriptive studies are used to describe a phenomenon associated with a subject population or to estimate proportions of the population that have certain characteristics. A descriptive study was justified for this study as it provided an in-depth analysis of the characteristics of the population being studied, which in turn assisted in drawing relevant conclusions to the research.A descriptive purpose, according to Sullivan (2001), is an "attempt to discover facts or describe reality" (page 15).

Saunders et al (2007) consider descriptive research as an extension of exploratory research presupposing that the researcher of a descriptive study has a grasp of the phenomenon under investigation. This type of study focuses on profiling persons, events or situations. Descriptive

studies are geared towards finding answers to questions other than cause and effect relationships. Sullivan continues: “It is a picture or account of what exists, sometimes summarized in numbers, percentages, or some other statistics”. (Page 15).

In order to understand the behavioral biases trend at Indo-Zambia Bank as indicated in research objective two of this study, experimental or longitudinal design are not suitable but cross-sectional design. More specifically, experimental design is often used for examining the relationship between variables. Experiments tend to be used in order to explore and explain a specific issue.

When a cross-sectional design is employed, data from more than one case at one single time is collected and analyzed. The patent of association is then examined by using the collected quantitative or quantifiable data (Saunders et al., 2009, p.155). This feature is relevant to this study, the first because it fits the nature of this study to describe behavioral biases trend at Indo-Zambia Bank rather than one specific case, and the second because data in this study has not been collected in stages but carried out in a single time period.

The cross-sectional design involves using different research strategies, and is beneficial for this study because it allows collecting both quantitative and qualitative data, which is suitable for the chosen mixed methods as stated in scope of study and research strategy. The typical forms to collect quantitative data in this type approach are the social survey research and structured observation on a sample at a single time while the typical forms to collect qualitative data are qualitative interviews or focus groups at a single point in time (Bryman & Bell, 2007, p.71).

3.3 Research Strategy

Research strategy can be understood as the orientation for conducting the research practically. Depending on the extent of existing knowledge, available resources, and the philosophical underpinnings, researchers can employ quantitative or qualitative strategy.

This research is conducted based on mixed methods but focusing more on quantitative research strategy. Quantitative is usually associated with studying behaviors rather than meanings, which is in line with the topic of behavioral finance. Furthermore, the main aim is building an integrated Behavioral Risk Management framework which may only be done effectively by employing quantitative research since quantitative research is designed for identification and description of

variables in order to establish the relationship between them (Garner, Wagner & Kawulich, 2009, p.62). In order to achieve the valid results, the reliable and generalizable, adequate sample size is chosen through the questionnaire. Moreover, quantitative strategy allows us to analyze the result by using statistical methods. The vast majority of qualified researches published in leading journals employed quantitative strategy with advanced statistical models and computer-aided data analysis (Sarantakos, 1998, p.42).

Nonetheless, quantitative research focuses on the numbers and statistics; in a sense, it loses the ability to distinguish people and institutions. Since it is scientifically proved, quantitative research is considered superficial and cannot directly connect life and research (Sarantakos, 1998, p.43; Bryman & Bell, 2007, p.174-175). Thus, in order to understand the result deeply, both quantitative and qualitative methods are used. After having the result from collected questionnaires, this study continues with some interviews with some experts, which can be considered as qualitative method to obtain deeper data through words to understand more about the Members of staff behaviors and the reasons behind such decisions.

Both quantitative and qualitative researches have their own advantages and disadvantages. In this research, mixed methods are chosen to benefit from the advantages and minimize the disadvantages. According to Bryman and Bell (2007, p.648), when mixed methods are employed, the researchers can start with either quantitative method or qualitative method. Since behavioral finance is a quite complicated field, the findings of this filed need to employ the involvement of financial experts to have appropriate explanations.

3.4 The Population and Sampling Design

3.4.1 Population

Sekaran and Bougie (2014) define population as the entire group of people or objects of interest that have similar characteristics. This study focused on the structured approach towards an Integrated Behavioral Risk Management Framework for Banking Institutions focusing on Indo-Zambia Bank. At the time of the study, there were 303 members of staff out of which 250 were eligible to participate in the study as they had worked for more than one year in the bank. Thus, the population for this study was 250 eligible members of staff.

3.4.2 Sampling Design

3.4.2.1 Sampling Frame

Cooper and Schindler (2014) define a sampling frame as a list of elements from which the sample is actually drawn and is closely related to the population. The sample frame of this study was all the 250 members of staff who had served in the bank for more than one year. The sampling frame for the qualitative data was all the 52 members of staff in rank of Manager, senior Manager and Chief Manager.

3.4.2.2 Sampling Technique

The study applied census hence there was no need of sampling. This was attained due to small number of members of staff and to ensure that the results were as representative as possible. According to Kothari (2006), census is the best method to be applied where the population of study is small in number and easily reached. Further, in this study, census was a fair representation of findings; had no bias and the population was small.

For qualitative data, purposive sampling was used to select the five respondents. These five respondents included Chief Manager Risk, Chief Manager Credit, Chief Manager Finance, Seniort Manager Finance and Manager Risk. According to Black (2010), Purposive sampling is a sampling technique in which researcher relies on his or her own judgment when choosing members of population to participate in the study. Purposive sampling was suitable for this study as it is a non-probability sampling method and it occurs when "elements selected for the sample are chosen by the judgment of the researcher. Researchers often believe that they can obtain a representative sample by using a sound judgment, which will result in saving time and money.

Alternatively, purposive sampling method may prove to be effective when only limited numbers of people can serve as primary data sources due to the nature of research design and aims and objectives.

3.4.2.3 Respondents Selection

As the research aims at developing an Integrated Behavioral Risk Management Framework, a relative large sample size is recommended. The larger sample size is, the more representative it can be, thus, the more reliable result is (Saunders et al., 2009, p.219). Nevertheless, the sample size depends on researchers' available resources including time, finance and human (Saunders et al., 2009, p.212). Hair, Black, Babin, Andersion and Tatham (1998, p.111) suggest that with quantitative research, at least 100 respondents should be studied in order to have fit the statistical methods of data analysis.

For this study all the items in the eligible population was considered. This was because the size of the population with the characteristics of interest was small. The sample used was all the 250 eligible members. For qualitative assessment five Managers were purposively selected.

3.5 Data Collection Methods

Among various kinds of data collection methods such as structured interviews, semi-structured interviews, unstructured interviews, self-completion questionnaire, observation and group discussion. Self-completion method is chosen for collecting quantitative data and semi-structured interview method is selected to gather qualitative data for this study.

Semi-structured Interview was used to collect qualitative data whereas Self-completion questionnaire seems to be one of the most common methods of quantitative researches. With a self-completion questionnaire, respondents answer questions by completing the questionnaire themselves. This method is chosen for some reasons. The first reason is that as the research questions are defined clearly, questionnaire is the best choice to have standardized data, which is ease to process, and analyze. Especially, as no interviewers present when the questionnaires are completing, the results may not be affected by the interviewers (Bryman & Bell, 2007, p.241). Moreover, it is cheaper than other methods (Bryman & Bell, 2007, p.241). As the research intends to capture data from all members of staff within Indo-Zambia Bank across the country, it will be very expensive for conducting face-to-face interviews. Furthermore, this method helps to save time (Bryman & Bell, 2007, p.241) so hundreds questionnaires can be sent

out in one batch. As the respondents are bankers, they may not have much time for interviews, thus, questionnaires may make them feel more comfortable because they can do it whenever they have free time. Questionnaires also are more convenient for respondents in case they need to provide some sensitive information, in other words; they tend to be more honest than in an interview (Bryman & Bell, 2007, p.242).

According to Saunders, Lewis and Thornhill (2009:272), when gathering data, it is essential to keep in mind that, the data will answer the research question; the benefits related to the use of data will be greater than the costs of gathering and the researcher will be allowed to access data.

In order to achieve the objectives of the study primary data was used since it was highly reliable and current. The primary data was collected through the use of an online questionnaire based on the research objectives. An online questionnaire circulated via email was adopted in order to increase response rate and completeness of data collected.

A questionnaire was developed and organized on the basis of the research objectives, designed to gather appropriate information on the subject of study. The questionnaire had Mandatory closed-ended questions.

The first section covered the demographic information of the respondents and the sub-sequent sections was divided based on the study objectives. The questionnaire used in the research and interview schedule are included in the Appendix.

3.6 Survey Methodology and Research Procedures

A “survey” is a systematic method of gathering information from (a sample of) entities for the purpose of constructing quantitative descriptors of the attributes of the larger population of which the entities are members. A survey usually originates when an individual or institution is confronted with an information need and the existing data are insufficient.

According to Saunders (2009:274), a pre-testing study provides an opportunity for the researcher to determine whether the respondents had any difficulty understanding the questionnaire. The pre-test affords an opportunity to check whether there are any ambiguous or biased questions. After approval from the supervisor, a pilot test of the questionnaire was conducted. This entailed administering the questionnaire to 15 members of staff in order to evaluate its effectiveness.

The pre-testing study was sent to Fifteen (15) respondents in two (2) batches, who were selected on a convenience basis. In the first batch, the respondents were asked to comment on the length of the instrument, the format, general understanding of the words used, and wording of the scales. All feedback was recorded and adjustments made to the questionnaire. The second batch was sent with all adjustments reflected, and an observation was made to judge the level at which the respondents interacted with the questionnaire. Once the pilot phase was completed, the survey was distributed to the intended population.

3.7 Data Analysis and Presentation

The collected data was entered in SPSS version 25 and cleaned before analysis. The data analysis techniques used in the study include;

Descriptive Statistics*:* Descriptive Statistics (mode, median, mean, variance, standard deviation) are used to describe respondents' personal information. Descriptive statistics are also used to describe the influence level of behavioral variables on staff member's decision

Cronbach's Alpha Test: is used to test the internal consistency reliability of measurements, which are in formats of continuous variables (for example, 6-point Likert measurements). It includes a statistical summary that describes the consistency of a specific sample of respondents across a set of questions or variables. In the other words, it can help to estimate the reliability of participants' responses to the measurements (Helms, Henze, Sass & Mifsud, 2006, p.633). Cronbach's alpha is usually used in social and behavioral researches as an indicator of reliability (Liu, Wu & Zumbo, 2010, p.5).

Factor Analysis: is a common name of multivariable statistical methods, which aim at defining the core structure in a matrix of data. It helps to analyze the structure of correlations among many variables by identifying a set of core dimensions, called factors (Ghauri & Gronhaug, 2010, p.189). In factor analysis, variables (or items) of the questionnaire are included in homogeneous domains which represent the similar characteristics (O'brien, 2007, p.143). There are two main types of factor analysis: EFA (exploratory factor analysis) and CFA (confirmatory factor analysis). EFA is the more popular form of factor analysis that attempts to explore the underlying structure of a fairly large number of variables. Whereas, CFA plays a role in confirming the compatibility between the numbers of factors extracted by the analysis process and those formed by pre-established theories (Liua & Salvend, 2009,

p.506). In this study, EFA is used to explore the factors that the variables of behavioral finance and investment performance of the questionnaire (question 12 to question 38) belong to. EFA is used to reduce the number of items in the questionnaire that do not meet the criteria of the analysis (O'brien, 2007, p.142). In this case, EFA is utilized to determine the behavioral biases trend at Indo-Zambia Bank in line with research objective two.

In this research, the following criteria of the exploratory factor analysis are applied: Factor loadings, KMO, Total variance explained, and Eigenvalue. Factor loadings are defined as correlations of each item with the factor that it belongs to. Factor loadings of the items on a factor are greater than 0.5 (with the sample size is 100) ensure that EFA has a practical significance to the analyzed data (Hair et al., 1998, p.111). The Kaiser-Meyer Olkin Measure of Sampling Adequacy (KMO) presents the level of suitability of using EFA for the collected data. The KMO should be between 0.5 and 1.0 (significant level less than 0.005) to make sure that factor analysis is suitable for the data (Ali, Zairi & Mahat, 2006, p.16). Total variance explained is used to identify the number of retained factors in which factors can be retained until the last factor represents a small proportion of the explained variance. The total variance explained is suggested to be more than 50% (Hair et al., 1998, p.111). Eigen-value is an attribute of factors, being defined as the amount of variance in all items (variables) explained by a given factor. Eigen-value should be greater than 1 because Eigen-value is less than 1 means that information explained by the factor is less than by a single item (Leech, Barrett & Morgan, 2005, p.82). The EFA is done by SPSS software.

Qualitative content analysis: This refers to the process of categorizing verbal or behavioral data to classify, summarize and tabulate the data.

The research finding has been presented in narrative form, as well as using frequency tables, pie-charts, bar graphs and other visual aids. This gives a clear picture of the research findings and aid in making comparisons, meaning and conclusion of the output.

3.8 Time Horizons

This research project adopts the cross-sectional choice, hence the subjected will be explored at a given point of time and in agreement with the research objectives.

3.9 Ethical issues

To maximize the protection of participants in research, Gill and Johnson (2010) suggests using the guiding ethical principles of informed consent, confidentiality, ensuring no conflict of interest, and avoiding deception. Approval to conduct this research in Indo-Zambia Bank Ltd was obtained from the General Manager of the bank. Confidentiality of staff members taking part in the survey was safeguarded. Moreover, there was open discussions and communication with staff members to ensure they did not reply to questions in a bias manner. Anonymity was key so that staff members were able to answer freely, truthfully and without any fear of any repercussions.

3.10 Chapter Summary

This chapter described the research design and the methodology that was applied in the study. The population and sample of the study was all the 250 eligible members of staff. Using census method, data was collected from the respondents. Questionnaire was the primary research instrument and data collected was analyzed using SPSS.

Next chapter covers the data presentation, analysis results and findings.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the research findings guided by the research objectives. The first objective was to identify the elements that affect the effectiveness of current Enterprise Wide Risk Management Framework. The second Objective was to establish the behavioral biases particular to members of staff at Indo-Zambia Bank and the third research objective was to develop an Integrated Behavioral Risk Management Framework that is ideal for Indo-Zambia Bank. The findings are presented below

4.2 Sample size and response rate

The sample size of the study was 250 confirmed members of staff out of 303 total staff compliment as at month end September 2019. The selected 250 are those who had worked in the bank for a period not less than one year and were not on suspension at the time data collection was being carried out. Census was used to collect data from the members of staff. Total of 208 questionnaires were collected from the respondents which gave a response rate of 83.2%. All the questionnaires were complete as they were circulated online and all questions were mandatory and none were dropped from analysis. (Saunders, Lewis and Thornhill, 2009).

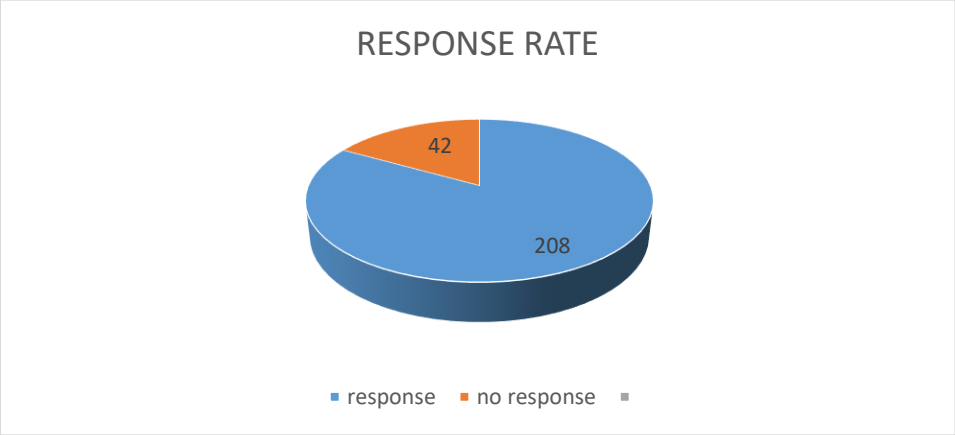


Figure 4 Response rate

From figure 4 the findings show that 42 members of staff representing a percentage of 16.8% did not participate while 208 representing a percentage of 83.2% participated in the study.

4.3 Demographic characteristics

The demographic information captured for the respondents were; Gender, age, marital status, years of service, position in the bank, basic pay, and highest level of education and whether a member of staff had attended training and/or workshop in risk management. This was presented as follows.

4.3.1 Demographics – Gender

The pie chart below shows that about three quarters of the sample were male respondents, with males at a percentage of 66.3% (138) and females 33.7% (70).

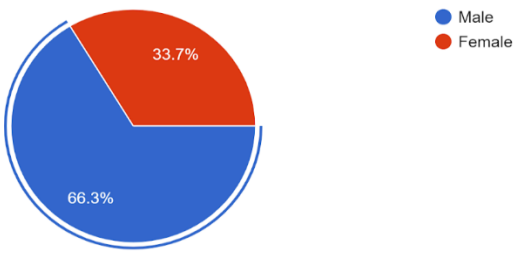


Figure 5 Distribution of respondents by Gender

4.3.2. Age Distribution of Respondents

Figure 6 below details the age groups of the respondents included in the study. About 27.9 % (58) of respondents fell within the lowest age group which was 20-29 years while the majority of the respondents 51% (106) were between the ages of 30 - 39, with 18.3% (38) of respondents in the age group 40 to 49. Another set of 2.9% (6) respondents fell within the age group 50 to 59. The study showed that, respondents between the ages of 30 - 39 were in the dominant group.

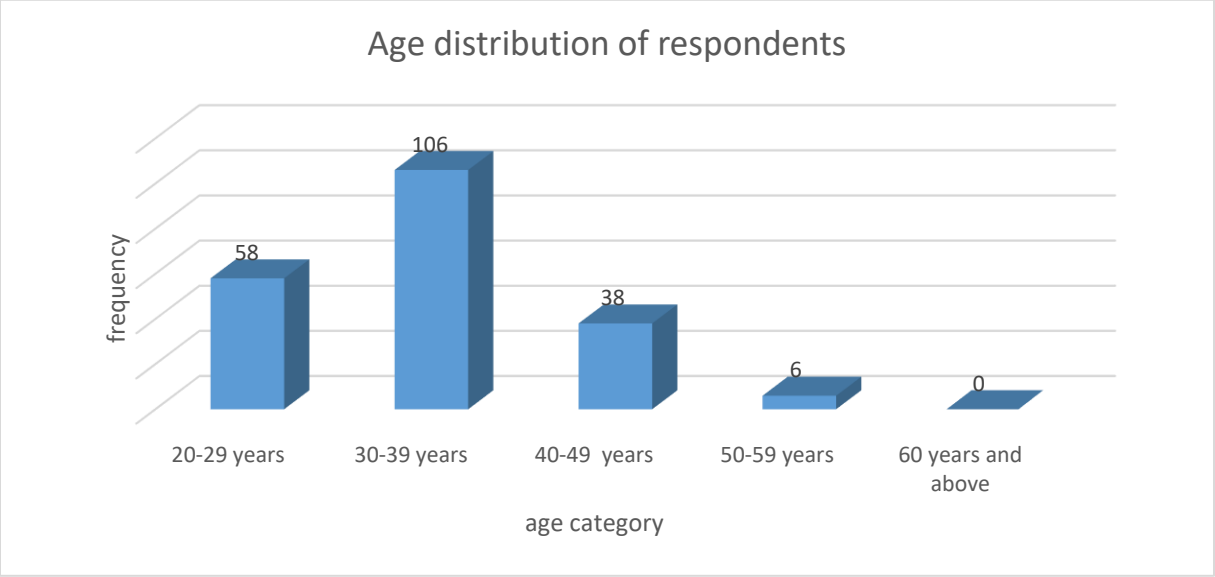


Figure 6 Distribution of respondents by age

4.3.3 Marital Status

The majority of respondents 122 (58.7%) are married, 82 (39.4%) were single and only 4 (1.9%) were divorced as depicted in figure 7 below.

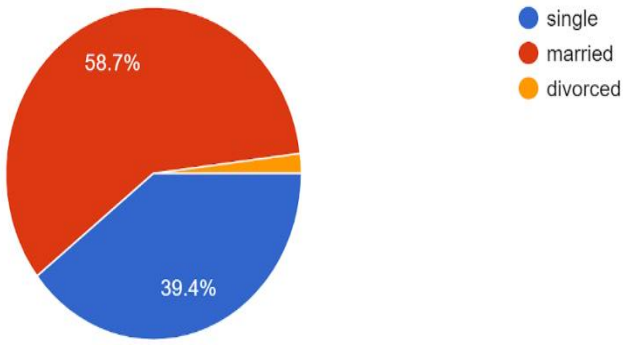


Figure 7 Distribution of respondents by Marital Status

4.3.4 Other demographic characteristics

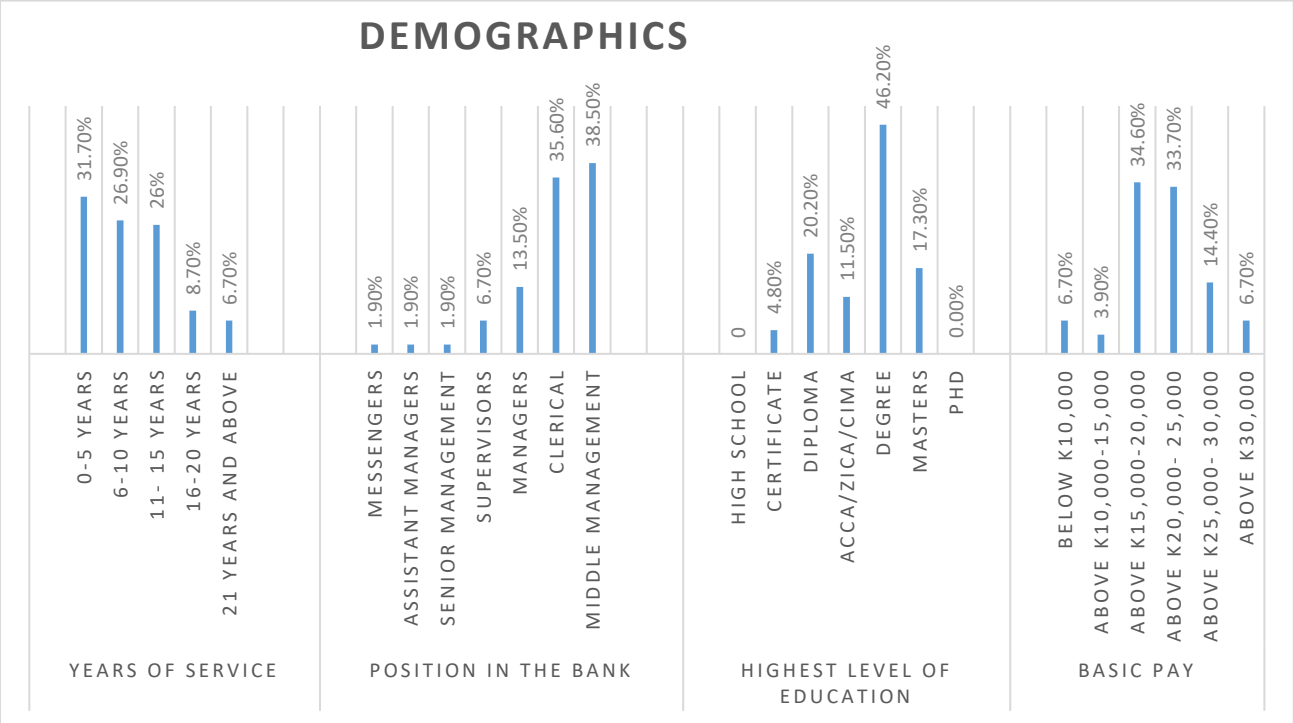


Figure 8 other demographic characteristics of respondents

From figure 8 above, the majority of respondents on years of service fell in the group 0- 5 years at 31.7% (66), followed by those who were in the 6- 10 years category at 26.9% (56), those who had worked for 11-15 years were 26%, 16-20 years were 8.7%, and those 21 years of service and above were 6.7%(14).

On position in the bank results show that out of the surveyed population 38.5%(80) were in middle management, while 35.6%(74) were clerical, 13.5%(28) were managers, 6.7%(14) were supervisors, and 1.9%(4) were messengers, assistant managers and senior management respectively.

The results in figure 8 further show that 33.7% (70) earn above 20,000- 25,000, 34.6% (72) earn above 15,000- 20,000, 14.4%(30) earn above 25,000- 30,000, 6.7% (14) earn below 10,000 and also another 6.7% (14) earn above 30,000 and only 3.8%(8) earn above 10,000- 15,000.

Furthermore, on highest level of education; the results show that the majority of respondents 46.2% (96) hold a bachelor's degree, followed by diploma holders at 20.2%(42), master's

degree holders were 17.5%(36), while ACCA/ZICA/CIMA holders were 11.5%(24) and last but not the least certificate holders were at 4.8% (10).

4.4 Risk Management Training for Members of staff

To ascertain whether respondents have attended any training in risk management at the backdrop of bank supervision moving towards risk based audit. The respondents were asked to indicate whether they have attended any training in risk management. Of the surveyed population 51.9 %(108) of the respondents had not yet attended any training in risk management while 48.1% (100) had attended training.

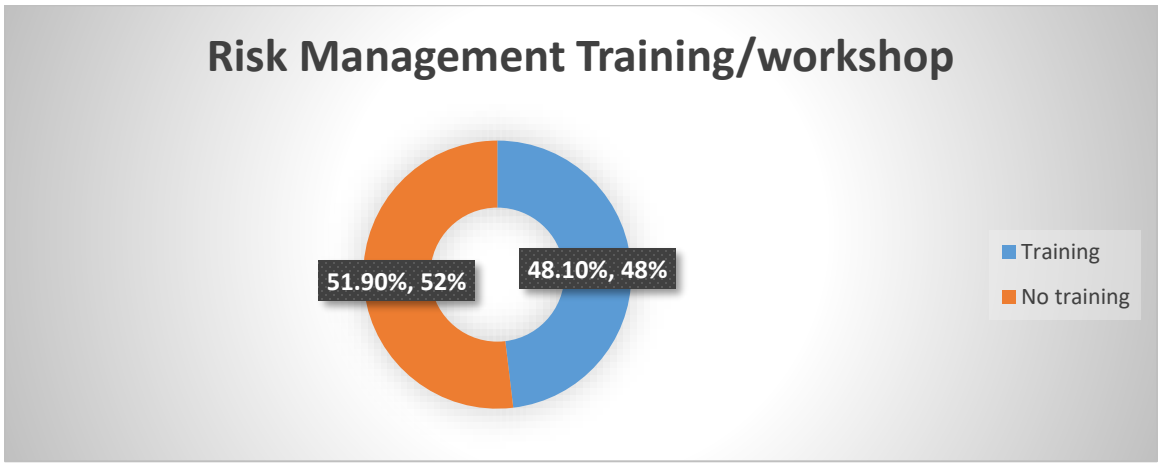


Figure 9 Risk Management Training

4.5 Research Objective One; to explore the elements that affect the effectiveness of current Enterprise Wide Risk Management.

In a structured approach towards an integrated behavioral risk management framework, an assessment of the factors affecting the current risk framework needs to be considered. The factors were grouped into three main categories; Implementation of ERM process, Employee ownership of the ERM process and Organization risk culture. Most of the questions were measured on a six point Likert scale; where 1=extremely disagree, 2=highly disagree, 3=Somewhat Disagree, 4=Somewhat Agree, 5=Highly Agree and 6=Extremely Agree. The descriptive tests performed were mean and standard deviation but before that Cronbach alpha test was conducted for reliability

measurement.

To assess the effectiveness of current Enterprise wide risk management framework; the Factors were grouped in the following broad categories.

Table 2 Assessment of the Current Enterprise wide risk management.

S/N	Factors	Questions
1	Implementation of the ERM process	Q 38,39 and 40
2	Employees ownership of the ERM process	Q 41 and Q42
3	Organization Risk Culture	Q 23,24,25,26,27,28,29,30, 31,32,33,34,35,36,37,43 and 44

4.5.1 Scale Results for factors affecting effectiveness of ERM framework

Cronbach alpha is a statistic commonly quoted by authors to demonstrate that tests and scales that have been constructed or adopted for research projects are fit for purpose. The composite reliability was estimated to evaluate the internal consistency of the measurement model and Table 3 outlines the reliability of the measurement instrument. The composite reliabilities of the constructs included in the model ranged from 0.665 to 0.768 (see Table 3) (Wu & Wang, 2005). This shows that all measures had strong and adequate reliability and discriminate validity

Table 3 Assessment of construct reliability

Construct	Mean	Cronbach's Alpha
Implementation of ERM process	4.295	0.665
Employee ownership of the ERM process	4.250	0.768
Organization risk culture	4.330	0.676

Cronbach Alpha results show that all the main constructs have Cronbach alpha above 0.60 which is acceptable; greater than the recommended benchmark of 0.60

4.5.2 Implementation of ERM Process

The findings arranged in ascending order were as follows: 'there exists a clear strategy which defines the implementation process of the risk management framework (M=4.14, SD=0.957) was lowly ranked. This was followed with 'there is a clear articulation and discussion in the bank on why implementation of risk management framework is important (M=4.34, SD=1.008), 'they are formal training programs to ensure that staff have a clear understanding of the risk management policy, processes and risks (M=4.40, SD=1.255)

Table 4 Descriptive Statistics on Implementation of ERM Process

	Mean	Std Deviation	Dominant response
There exists a clear strategy which defines the implementation process of risk management framework	4.14	0.957	Somewhat agree at 41.3%(86)
There is a clear articulation and discussion in the bank on why implementation of risk management framework is important	4.34	1.008	Highly agree at 44.2%(92)
They are formal training programs to ensure that staff have a clear understanding of the risk management policy, processes and risks	4.40	1.255	Highly agree at 43.3% (90)

4.5.3 Employee Ownership of the ERM process

On the Employee Ownership of the ERM process, the results of the analysis as presented in table 4 show that both item sets have rounded mean of 4 and were ranked somewhat agree. 'There is clear risk and control ownership and identified risks have an owner who is accountable for the control's performance (M=4.29, SD=1.028), Risk owners have authority to oversee any risk related action and accept clear defined responsibility for managing risk (M=4.21 SD=0.908)

Table 5 Descriptive Statistics on Employee ownership of the ERM Process

	Mean	Std Deviation	Dominant response
There is a clear risk and control ownership and identified risks have an owner who is accountable for the control's performance	4.29	1.028	Somewhat agree at 38.5%(80)
Risk owners have authority to oversee any risk related action and accept clear defined responsibility for managing risk	4.21	0.908	Somewhat agree at 49%(102)

4.5.4 Organization Risk culture

Four items were used to highlight the overview of organization risk culture

4.5.4.1 Description of bank's Culture

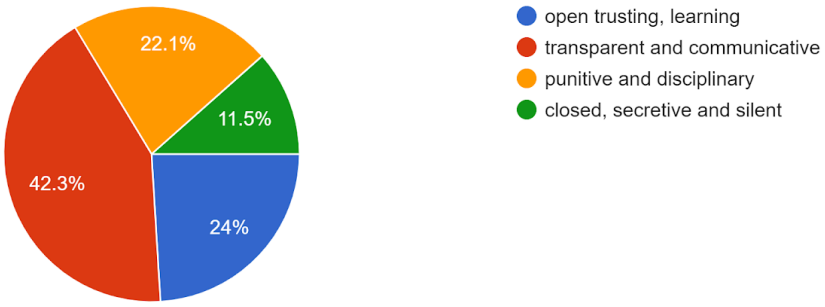


Figure 10 Description of banks culture

The results show that 42.3%(88) of respondents describe the banks culture as transparent and communicative while 24% (50) of respondents think the bank's culture is open and trusting, 22.1%(46) of respondents indicated that the bank's culture is punitive and disciplinary while 11.5%((24) stated that the banks culture is closed, secretive and silent.

4.5.4.1.2 Attitude towards uncertainties in the organization

Figure 11 Attitudes towards uncertainties in the organization

The results show that the dominant response was that the organization was reacting to situations and risk issues after they occur at response rate of 38.5%(80) followed by 25% (52) where the respondents indicated that in the organization a common and consistent definition of risk exists and risk approach focuses mainly on avoiding unexpected large losses. At 24% (50) response rate the respondents indicated that there is an open and proactive approach to risk that considers both threats and opportunities. Only 12.5% (23) stated that risk management is considered a static phenomenon as risk approach focuses mainly on past events.

4.5.4.1.3 Risk Management internal culture in the organization

Figure 12 Risk Management internal culture in the organization

The results show that 40.4 %(84) of the respondents think that in the organization, 'the focus is primarily on responding to crisis and is more reactive rather than proactive. While 27.9% (58) think a caution approach is taken to risk management overall, 24 %(50) feel risk management is

done proactively and a culture of control is being disseminated and in the distant fourth its 7.7% (16) who feel 'individual and organizational expectations for risk management are synchronized.

4.5.4.1.4 Level of staff awareness of risks and/or risk management in your organization

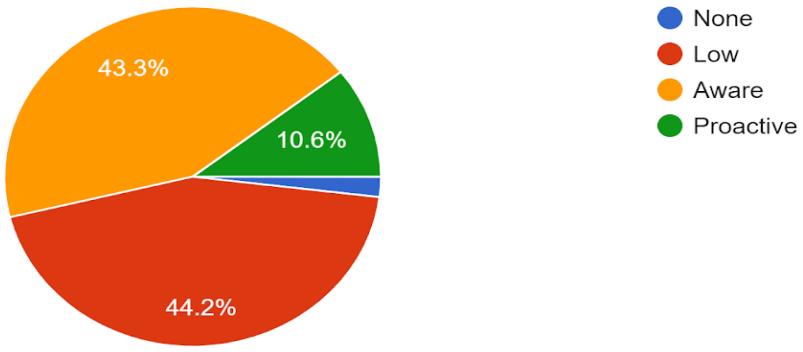


Figure 13 Level of staff awareness of risks and/or risk management in the organization

The results show that 44.2%(92) of the respondents stated that the level of staff awareness of risks and/or risk management is low whereas as 43.3% (89) feel staff are aware of risks and risk management and 10.6%(22) stated that the level of staff awareness of risks was proactive and 1.9%(4) indicated that there is no level of staff awareness of risks and/or risk management in the organization.

4.5.4.2 Corporate values

The results show that items had rounded mean value of 4. 'Information derived from risk management has been used to understand causes of low performance and review change process' (M=3.92, SD=1.037). 'The banks business strategy plan is properly communicated and sufficiently understood at all levels of the organization' (M=4.27, SD=1.097).'Individual staff member know how their actions interrelate and contribute to achievement of the company objectives' (M=4.24, SD=0.968). 'Risk management strategies are included in the corporate values, goals and major corporate initiatives' (M=4.63, SD=0.869).

Table 6 Descriptive Statistics of Corporate Values

	Mean	Std deviation	Dominant response
Information derived from risk management has been used to understand causes of low performance and review change process	3.92	1.037	Somewhat agree at 37.5%(78)
The banks business strategy plan is properly communicated and sufficiently understood at all levels of the organization	4.27	1.097	Highly agree at 42.3%(88)
'Individual staff member know how their actions interrelate and contribute to achievement of the company objectives'	4.24	0.968	Somewhat agree at 44.2%(92)
'Risk management strategies are included in the corporate values, goals and major corporate initiatives'	4.63	0.869	Highly agree at 46.2%(96)

4.5.4.3 Senior Management – Tone from Top

The results show that the items ranked as highly agree with rounded mean values of 4, 5 and 5 respectively were; behavior within the bank is expressed to sustain a strong risk aware culture (M=4.31, SD=0.993), Decisions and actions of senior management promote a culture of risk awareness (M=4.51, SD=0.868), and 'there is a clear message from senior management on the importance of risk management framework' (M=4.77, SD=0.925). While the fourth item was ranked as somewhat agree with rounded mean value of 4 was: 'present culture enables employees speak up and be listened to by decision makers with regards to risk management concerns'

(M=3.97, SD=1.116).

Table 7 Descriptive statistics on Senior Management-Tone from Top

	Mean	Std deviation	Dominant response
Behavior within the bank is expressed to sustain a strong risk aware culture	4.31	0.993	Highly agree at 37.5%(78)
Decisions and actions of senior management promote a culture of risk awareness	4.51	0.868	Highly agree at 41.3% (86)
There is a clear message from senior management on the importance of risk management framework	4.77	0.925	Highly agree at 50%(104)
Present culture enables employees speak up and be listened to by decision makers with regards to risk management concerns	3.97	1.116	Somewhat agree at 36.5%(76)

4.5.4.4 Roles and Responsibilities

The results show that two items were highly agree with rounded mean value of 4 and 5 respectively and these were; 'beliefs and behaviors of employees of the bank reflect risk understanding and risk awareness (M=4.36, SD=1.030). 'There is need to carry out risk culture survey every three years' (M=4.91, SD=1.122). While the third item ranked somewhat agreed was 'Employee incentives are aligned with good risk management practice' (M=4.04, SD=1.021).

Table 8 Descriptive Statistics on Roles and Responsibilities

	Mean	Std deviation	Dominant response
Beliefs and Behaviors of employees of the bank reflect risk understanding and risk awareness	4.36	1.030	Highly agree at 36.5%(76)
There is need to carry out risk culture survey every three years	4.91	1.122	Highly agree at 43.3%(90)
Employee incentives are aligned with good risk management practice	4.04	1.021	Somewhat agree at 39.4%(82)

4.5.4.5 Risk Management Framework

Respondents were asked to indicate what type of risk management framework Indo-Zambia bank has adopted.

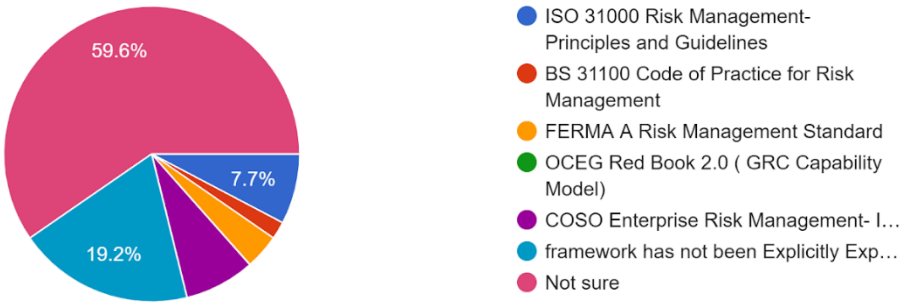


Figure 14 Risk Management Frameworks

The results show that 59.6%(124) were not sure on the risk management framework that the bank has adopted, 19.2% (40) stated that the framework has not been explicitly explained, and at 7.7% (16) response rate respondents indicated ISO 31000 Risk Management principles and Guidelines and COSO Enterprise wide risk Management framework respectively. 3.8% (8) of the

respondents selected FERMA A risk management standard and 1.9% (4) indicated BS 31100 Code of practice for risk management.

4.6 Research Objective two; To Describe Behavioral Biases trend particular to members of staff at Indo-Zambia Bank

To establish the behavioral biases particular to members of staff at indo-Zambia bank, respondents were asked a series of diagnostic questions. In particular questions to explore the following biases were formulated; representative bias, conservatism bias, anchoring bias, ability bias, hindsight bias, loss aversion bias, regret aversion bias, over confidence bias, confirmation bias and gamblers fallacy as outlined in the conceptual framework. The findings are as below.

4.6.1 Diagnosis for Representative bias

You are likely to give a loan to company on the basis that it reminds you of similar successful companies.

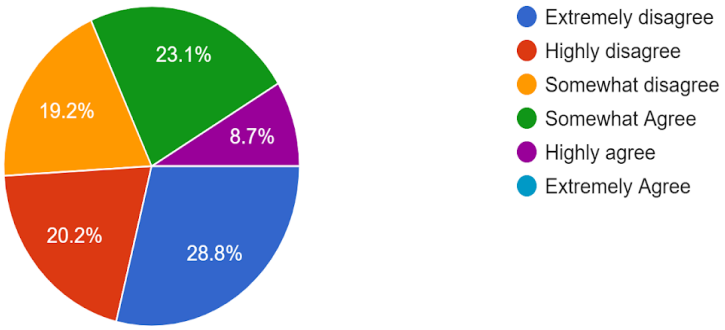


Figure 15 Diagnosis for representative bias

Representativeness bias is a belief perseverance bias in which people tend to classify new information based on past experiences and classifications. The survey Shows that 23.1 % (48) and 8.7% (18) somewhat agree and highly agree respectively that they will lend to companies that reminds them of similar companies. Thus only a total of 31.8% (66) of respondent's exhibit representative bias; with mean of 2.63 and std deviation equal to 1.342.

4.6.2 Diagnosis for Conservatism bias

Conservatism bias is a belief perseverance bias in which people maintain their prior views or forecasts by inadequately incorporating new information. The below question was used to test for this bias.

You are likely to change your mind if based on your own research you make a decision to grant a credit facility to a particular company and an experienced credit analyst presents you with information that contradicts your belief.

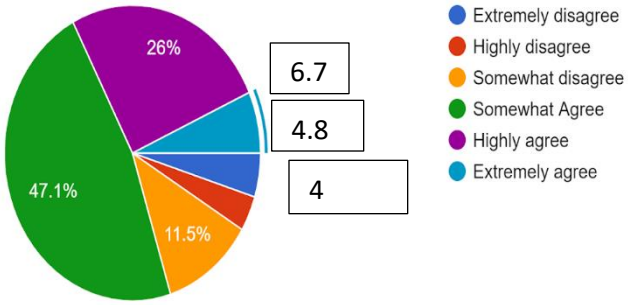


Figure 16 Diagnosis for Conservatism bias

The results show that 11.5 % (24), 4 %(8) and 4.8% (10) somewhat disagree, highly disagree and extremely disagree respectively that they will not change their mind when presented with information that contradicts their initial belief. Thus only a total of 20.3% (42) exhibit conservatism bias. The responses had a mean equal to 4.17 and standard deviation of 1.044.

4.6.3 Diagnosis of anchoring bias

Anchoring bias is an information-processing bias in which the use of a psychological heuristic influences the way people estimate probabilities. Two questions were formulated to detect anchoring bias as below.

4.6.3.1 You will most likely rely on your previous experiences when it comes to loan appraisals

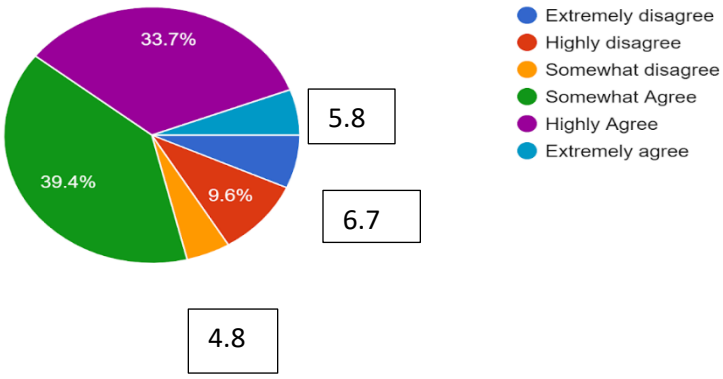


Figure 17 Rely on previous experiences when it comes to loan appraisals

Results show that 39.4 %(82) 33.7% (70) and 5.8% (12) of the respondents indicate that they somewhat agree, highly agree and extremely agree respectively that they will likely- rely on their previous experience when it comes to loan appraisals. Thus, 78.9% (164) of the surveyed population exhibit anchoring bias. The responses had a mean of 4.30 and standard deviation equal to 1.111.

4.6.3.2 You are most likely going to forecast future loan performance based on recent or current performance of the company you want to extend a credit facility to.

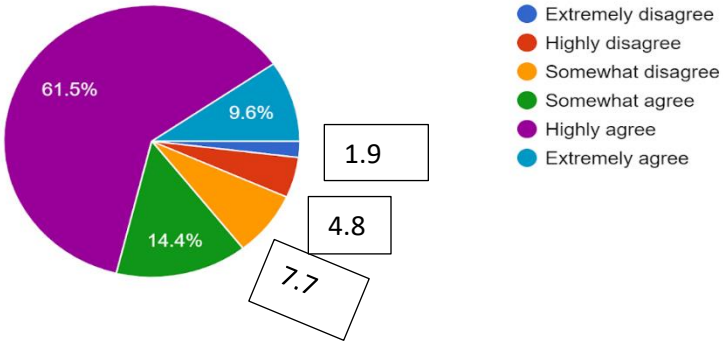


Figure 18 forecast future loan performance based on recent or current performance of the company

The results show that Of the surveyed population, 14.4%(30), 61.5%(128) and 9.6 % (20) of the respondents somewhat agree, highly agree and extremely agree respectively that they will likely forecast future loan performance based on recent or current performance of the company they want to extend a credit facility to. Thus, 85.5% (179) of the surveyed population exhibit anchoring bias. The responses had a mean of 4.72 and standard deviation equal to 0.884

4.6.4 Diagnosis for ability bias

With ability bias, easily recalled outcomes are often perceived as being more likely than those that are harder to recall or understand. People often unconsciously assume that readily available thoughts, ideas, or images represent unbiased estimates of statistical probabilities. The below question was formulated to test for ability bias.

You are most likely going to prefer to lend to local companies as opposed to international companies because information on local companies is readily available

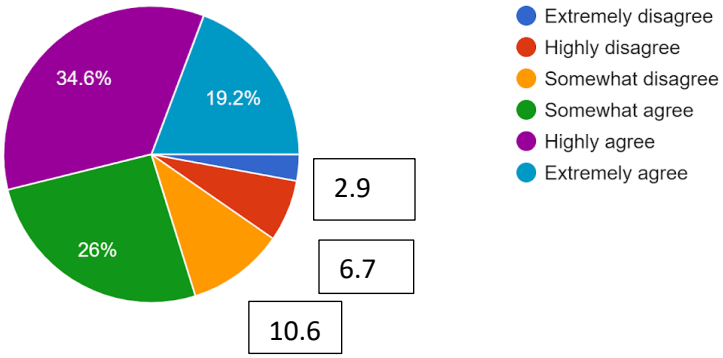


Figure 19 diagnosis for ability bias

Results show that of the surveyed population, 26%(54) , 34.6% (72) and 19.2 % (40) of the respondents somewhat agree, highly agree and extremely agree respectively that they will likely prefer to lend to local companies as opposed to international companies because information on local companies is readily available. Thus, 79.8% (166) of the surveyed population exhibit ability bias. The responses had a mean of 4.61 and standard deviation equal to 1.089.

4.6.5 Diagnosis for hindsight bias

Hindsight bias is a bias with selective perception and retention aspects. People may see past events as having been predictable and reasonable to expect. This behavior is based on the obvious fact that outcomes that did occur are more readily evident than outcomes that did not occur. To test for hindsight bias the below question was formulated.

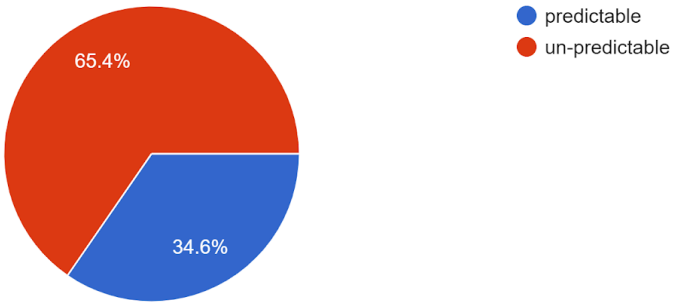


Figure 20 Performance of credit facilities are generally

Results show that of the surveyed population, only 34.6% (72) of respondents agree that performance of credit facilities are generally predictable. Thus only 34.6% of respondents exhibit hindsight bias; the responses had a mean of 1.65 and standard deviation equal to 0.477 while 65.4% (136) do not exhibit hindsight bias.

4.6.6 Diagnosis for Loss aversion bias

Loss-aversion bias is a bias in which people tend to strongly prefer avoiding losses as opposed to achieving gains. To test for loss aversion bias two questions were set out.

4.6.6.1 Suppose you are presented with the following investment choices. Please choose between the following two outcomes

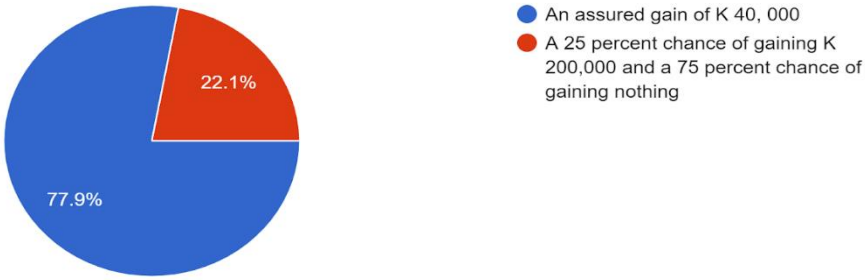


Figure 21 diagnosis for Loss Aversion bias

Results show that 77.9% (162) of respondents prefer an assured gain of k40, 000 as opposed to the 25 per cent chance of gaining K200,000 and 75% chance of gaining nothing. Thus 77.9% (162) respondents of the population exhibit loss aversion bias with mean of 1.22 and standard deviation equal to 0.379. Only 22.1% (46) did not exhibit loss aversion bias.

Table 9 Diagnosis for Loss Aversion bias

4.6.6.2 You are then asked to choose between the following two outcomes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	An assured loss of K40, 000	36	17.3	17.3	17.3
	A 50 percent chance of losing K100, 000, and a 50 percent chance of losing Nothing	172	82.7	82.7	100.0
	Total	208	100.0	100.0	

The results for the second diagnostic question on loss aversion bias show that 82.7%(172) of the respondents indicate that they are likely to choose a 50 per cent chance of losing k 100,000 and a 50 chance of losing nothing and the expected value of this option is minus k50, 000 despite option 1 having an expected value of minus k40, 000. Thus 82.7% of the respondents exhibit loss aversion bias with mean of 1.83 and standard deviation equal to 0.379. On this question only 17.3% (36) did not exhibit this bias.

4.6.7 Diagnosis for over confidence bias

Overconfidence bias is a bias in which people demonstrate unwarranted faith in their own intuitive reasoning, judgments, and/or cognitive abilities. This overconfidence may be the result of overestimating knowledge levels, abilities, and access to information. Three questions were formulated to test for over confidence bias as below.

How easy do you think it was to predict the collapse of Intermarket Banking Corporation?

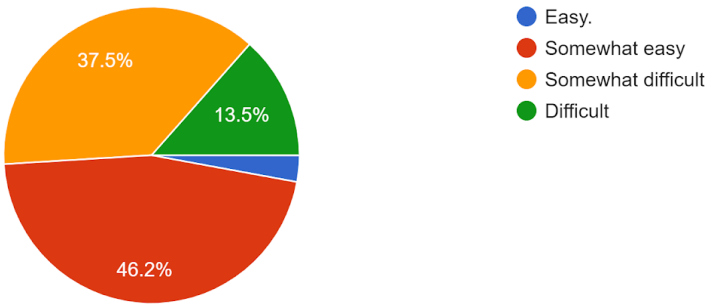
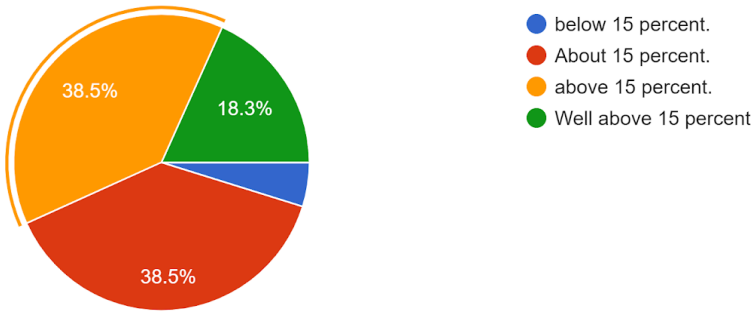


Figure 22 Diagnosis for over confidence bias

Results show that 46.2% (96) of respondents said it was somewhat easy, 37.5% (78) somewhat difficult, 13.5 %(28) difficult and 2.9% (6) easy to predict the collapse of Intermarket Banking Corporation. Only a combined of total of 49.1% (102) who indicated easy

And somewhat easy exhibit over confidence bias with mean of 2.99 and standard deviation equal to 1.045. About 50.9 %(106) respondents did not exhibit over confidence bias

4.6.7.2 Assume that from 1984 through to 2018, the annual return for Indo-Zambia Bank was 15 percent. In any given year, what returns do you expect Indo-Zambia Bank to produce?



Results show that 38.5% (80) and 18.3% (38) indicate the expected returns will be above 15 per cent and well above 15 per cent in any given year representing a total of 56.8% (118) of staff exhibiting over confidence bias. The responses had a mean of 2.70 and standard deviation equal to 0.821. On this diagnostic question (89) did not exhibit over confidence bias

Table 10 Diagnosis for over confidence bias

4.6.7.3 How much ability do you believe you have in picking investments that will outperform the market

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Little if any Ability	42	20.2	20.2	20.2
	some ability	56	26.9	26.9	47.1
	A fair amount of Ability	110	52.9	52.9	100.0
	Total	208	100.0	100.0	

Results show that 26.9% of the population have some ability in picking investments that will outperform the market whilst 52.9% indicate that they have a fair amount of ability. Therefore A total of 79.8% (176) are susceptible to over confidence bias with mean of 3.33 and standard deviation equal to 0.792. 20.2% (42) did not exhibit over confidence bias on this diagnostic question.

4.6.8 Diagnosis for regret aversion bias

Regret-aversion bias is an emotional bias in which people tend to avoid making decisions that will result in action out of fear that the decision will turn out poorly. Regret aversion can cause people to hold onto positions too long. The following question was formulated to test for regret aversion bias. Suppose you make an investment based on your own research, the investment doesn't move up as much as you thought it might; how are you likely to respond?

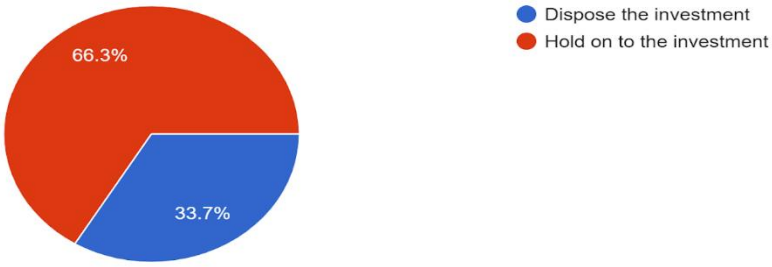


Figure 23 diagnosis for regret aversion bias

The results show that about 66.3% (140) of the respondent's exhibit regret aversion bias while 33.7% (70) do not exhibit regret aversion bias and are likely to dispose the investment if it does not move up as expected. The responses for those exhibiting regret aversion bias had a mean of 1.34 and standard deviation equal to 0.474

4.6.9 Diagnosis for Gamblers fallacy

The gamblers' fallacy, a misunderstanding of probabilities in which people wrongly project reversal to a long-term mean, is a related cognitive bias. To test for gamblers fallacy the following question was asked to the respondents. If a fair coin is tossed ten times and it lands on heads each time, what do you think the next flip will land on?

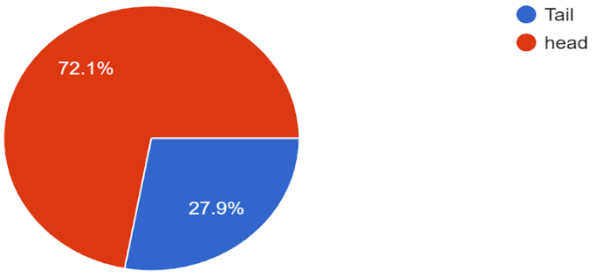


Figure 24 diagnosis for Gambler's fallacy

The results show that only 27.9% (58) of the respondent's exhibit gamblers fallacy while 72.1% (150) do not. The responses had a mean of 1.72 and standard deviation equal to 0.450

4.6.10 Cross Tabulations of Five Most Present Behavioral Biases and Demographic Characteristics

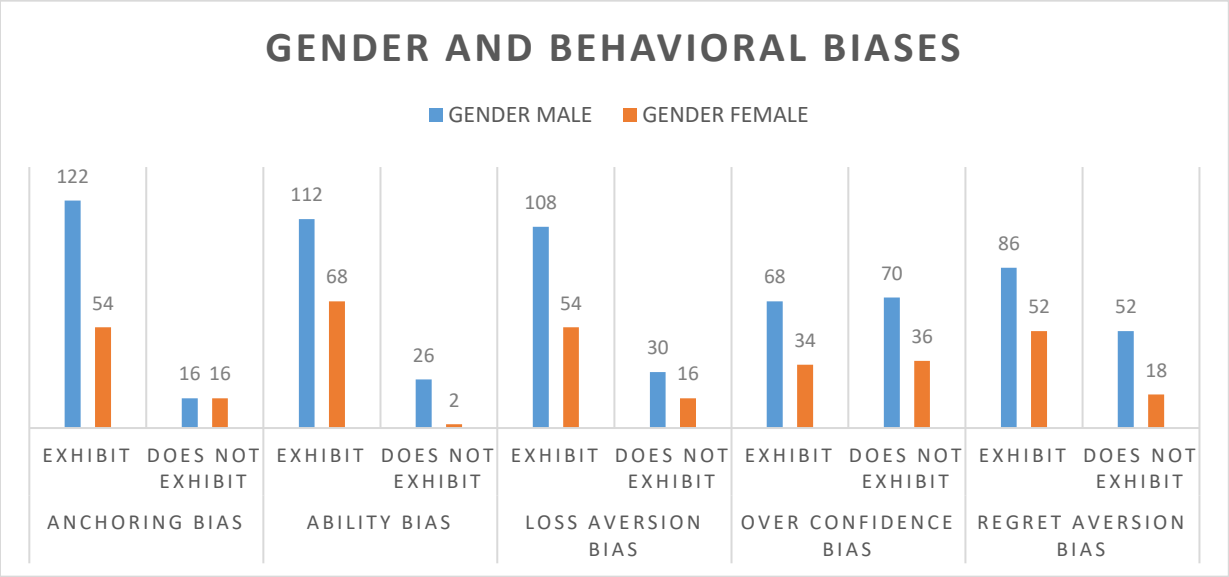


Figure 25 Cross Tabulations of Five Most Present Behavioral Biases and Demographic Characteristics

The results show that of the 138 males in the sample, 122 representing a percentage of 88% of Males exhibited Anchoring bias while 54 out of 70 females representing a percentage of 77% of Females exhibited Anchoring bias. For ability bias, 112 Males out of 138 males in the sample representing a percentage of 81% exhibited this bias while 68 out of 70 females representing 97% exhibited Ability bias.

Further still, 108 males out of 138 males in the sample representing a percentage of 78% exhibited Loss Aversion bias while 54 females out of 70 females in the sample representing a percentage of 77% of females in the sample exhibited Loss Aversion bias. The results further show that 68 males out of 138 males in the sample representing a percentage of 49% exhibited over confidence bias while 34 females representing a percentage of 48.5% exhibited Over confidence bias. Last but not the least 86 Males representing a percentage of 62% exhibited Regret Aversion Bias while 52 females representing a percentage of 74% exhibited Regret Aversion Bias.

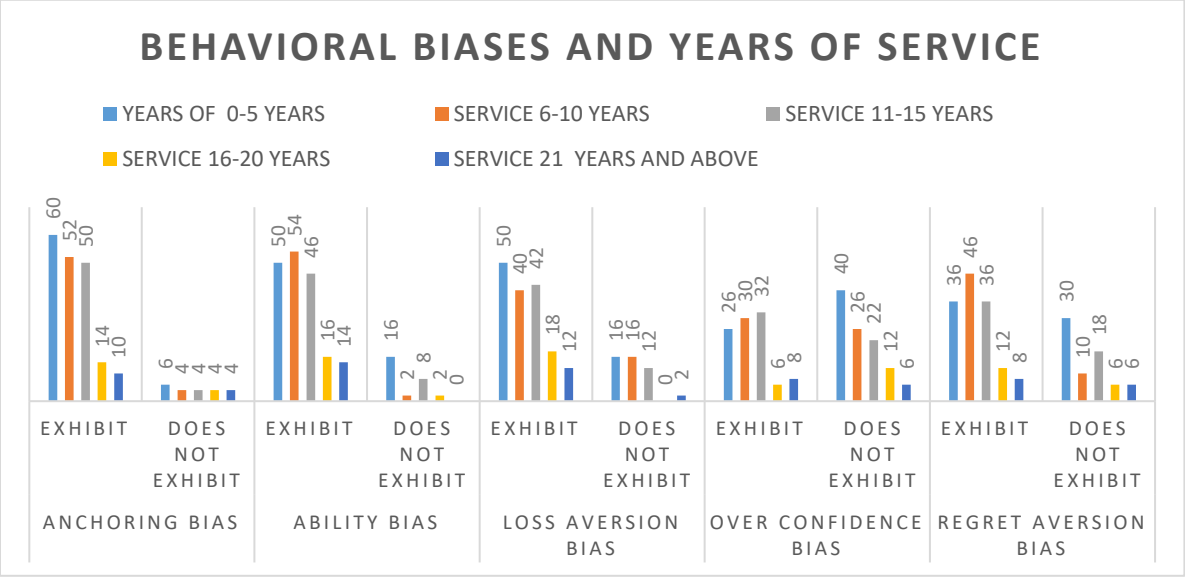


Figure 26 Cross tabulation of Years of service and Top five Behavioral Biases

The results show that those who have worked between 0- 5 years were dominant in exhibiting anchoring bias at a frequency of 60, followed by those who had worked 6-10 years at a frequency of 58 then 11-15 years at a frequency of 40 followed by those who had worked 16-20 years at a frequency of 16 and last but not the least those who have worked 21 years and above. For ability bias the dominant groups are those who had worked 6- 10 years while 0- 5 years was still the dominant group for members of staff exhibiting Loss Aversion bias. Further still, the results shows that 6-10 years was a dominant group of members of staff exhibiting regret aversion bias and 11-15 years was the dominant group in exhibiting over confidence bias.

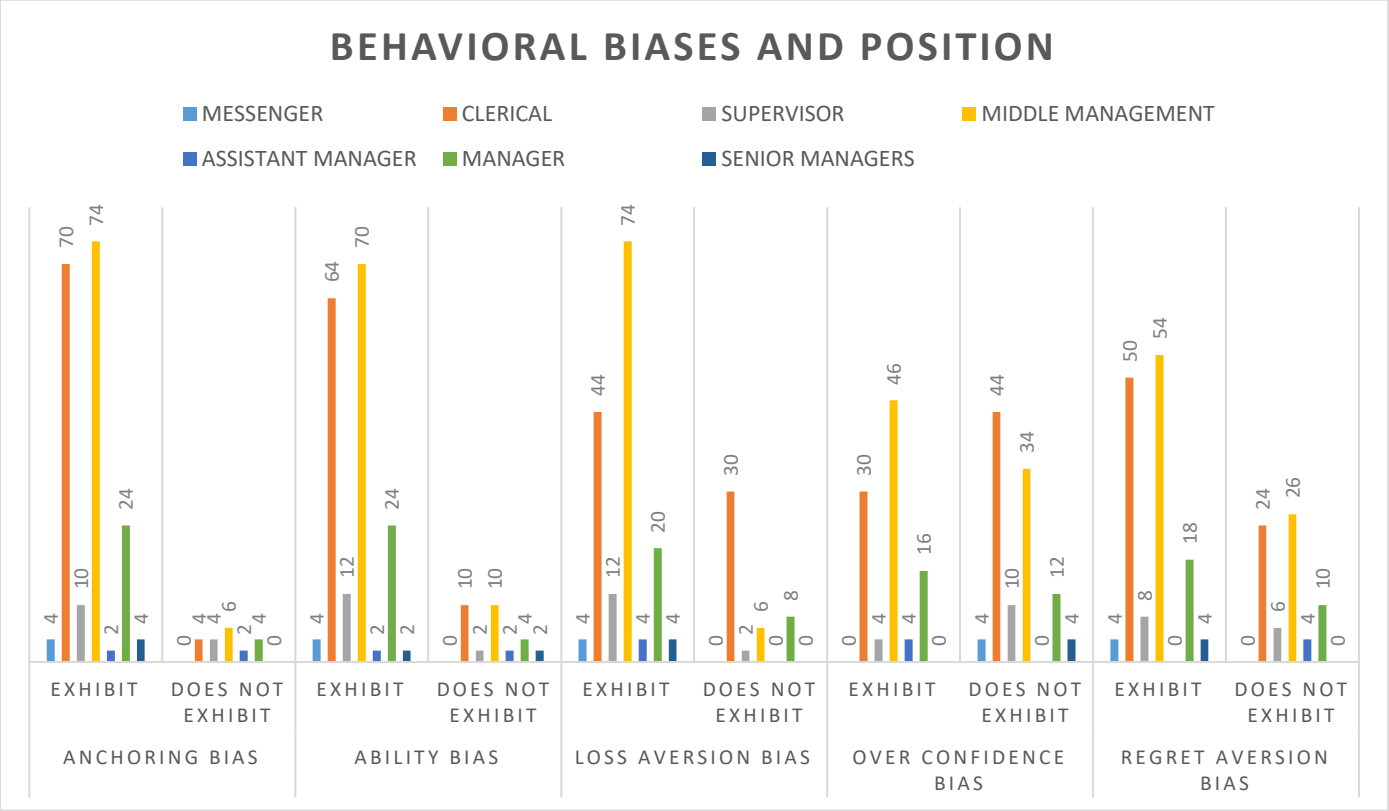


Figure 27 Cross tabulation of Years of service and Top five Behavioral Biases

The findings show that 74 out of 80 members of staff who are in middle management exhibit anchoring bias representing a percentage of 92.5%, out of the 74 members of staff who are in the clerical grade 70 representing a percentage of 94.5% exhibit Anchoring bias, and 100% of senior Managers exhibit Anchoring bias. For Ability bias, 87.5% of staff in Middle Management and Managers exhibits this bias, while 86% of staff in clerical exhibit Ability bias, 50% of Senior Managers and assistant Managers exhibit ability bias, 85.7% of Supervisors exhibit ability bias and lastly 100% of staff who are messengers exhibited Ability bias. A similar pattern for the other biases is observed for over confidence, loss aversion and regret aversion bias were members of staff in management are dominant in exhibiting behavioral biases.

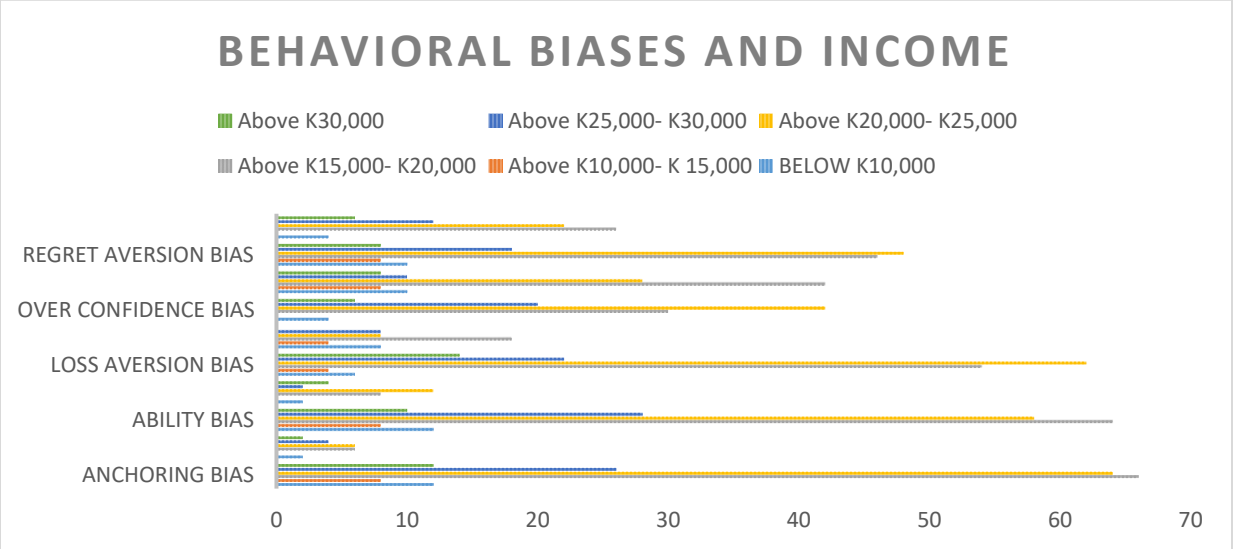


Figure 28 Cross tabulation of Behavioral Biases and Income

The results show that those who earn above K20, 000- K25, 000 were dominant in all the top five behavioral biases; about 85.7% (12) of those who earn below K10,000 exhibited Anchoring bias 100% of those earn above K10,000 – K15,000 exhibited Anchoring bias, while 91.6% of those earn Above K15,000 – K 20,000 exhibited anchoring bias and 91.4% of those who earn above K20,000- K25,000 exhibited Anchoring bias. From figure 4.25 we note that members of staff who earn 20,000 – 25,000 were also dominant in exhibiting other behavioral biases.

4.6.11 Multiple Regression Analysis

Multiple regression analysis was performed to examine the impact of the nine predictor variables (Risk aversion, representativeness, overconfidence, regret aversion, anchoring, Loss Aversion, Gambler's fallacy, conservatism, and availability) on level of staff awareness on Risk and/or Risk management. The results are presented in Tables below

4.6.11.1 Percentage (or Proportion) of Variance Explained

Table 4.11 multiple regression results

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.452[a]	.204	.151	.643	1.955

In table 4.10, R^2 = 0.204, which as a percentage is 20.4%. The R^2 value of 20.4% represents the percentage of variance in the dependent variable level of staff awareness that can be explained by the nine independent variables. In a nutshell, The nine predictor independent variables accounted for 20.4% of the variation in the level of staff awareness of risks and/or risk management with adjusted R^2 = 15.1%,a medium size effect according to Cohen (1988).

4.6.12 Statistical Significance of the Model

Table 4.11 ANOVA results

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.559	13	1.581	3.826	.000[b]
	Residual	80.191	194	.413		
	Total	100.750	207			
a. Dependent Variable: Level of staff awareness of risks and Risk management						

In table 4.11, the regression model is statistically significant, F (13, 194) = 3.8226, p < .0005. It is statistically significant because p < .05. A statistically significant result also indicates that there is a statistically significant linear relationship. This is reported from the table above as: F (13,194) =3.8226, p < 0.0005. The Nine Independent predictor Variables statistically significantly predicted Level of staff awareness of Risk and/or Risk Management.

Table 4.12 Multiple Regression coefficients Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.598	.552		1.083	.280
	Representative bias	.003	.038	.006	.079	.937
	Conservatism Bias	-.099	.049	-.148	-2.011	.046
	Anchoring Bias	.129	.049	.205	2.655	.009
	Anchoring bias	.067	.060	.086	1.118	.265
	Ability bias	.089	.046	.138	1.939	.054
	Hindsight bias	.066	.100	.045	.665	.507
	Loss Aversion bias	.111	.117	.066	.950	.343
	Over confidence bias	.089	.045	.133	1.992	.048
	Regret Aversion Bias	-.105	.102	-.071	-1.030	.304
	Gambler's fallacy	.396	.102	.255	3.893	.000
a. Dependent Variable: Level of staff awareness of risks and Risk management						

The results show that only anchoring bias, over confidence bias and regret Aversion Bias are statistically significant since P < 0.05 and there is a negative relationship between staff awareness and two variables conservatism bias and regret aversion bias.

Table 11 Summary of Descriptive statistics for Behavioral biases trend

Behavioral bias	Dominant mean	Std deviation for dominant mean	Dominant percentage of respondents exhibiting the behavioral bias	*Impact levels
Representative bias	2.63	1.342	31.8%	Low impact
Conservatism bias	4.17	1.044	20.3%	High impact
Anchoring bias	4.72	0.884	85.5%	High impact
Ability bias	4.61	1.089	79.8%	High impact
Hindsight bias	1.65	0.477	34.6%	Very low impact
Loss aversion bias	1.83	0.379	82.7%	Very low impact
Over confidence	3.33	0.792	79.8%	Moderate impact
Regret Aversion bias	1.34	0.474	66.3%	Very low impact
Gambler's fallacy	1.72	0.450	27.9%	Very low impact

From the results presented above, the behavioral biases with greater impact are anchoring bias at 85.5% with dominant mean of 4.72 of the surveyed population followed by ability bias at 79.8% with mean 4.61 and conservatism bias with mean equal to 4.17 although only 20.3% of the respondents exhibit this bias. Other biases with significant frequency include over confidence bias, loss aversion bias and Regret aversion bias.

4.7 Factor Analysis of Behavioral biases Trend at Indo-Zambia trend

The questions from 9 to 21 of the questionnaire, are designed to explore the levels of behavioral variables' impacts on the individual Member staff decisions at Indo-Zambia Bank.

The exploratory factor analysis (EFA) is used for the behavioral variables to identify the factors which these variables belong to. The requirements of factor analysis, which are mentioned in Chapter 3, are satisfied to reduce the variables. After some rounds of removing the unsuitable variables, the analysis results show that the remaining variables are grouped into six factors at Approximate chi-square of 273.585 with 78 degrees of freedom, KMO = 0.494 (sig. = 0.000), percentage of total variance explained = 64.777%, and most factors loadings are more than 0.5 except for two variables (see more the significations of these indexes at 3.7 in chapter 3) as presented in table 12.

Table 12 KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.494
Bartlett's Test of Sphericity	Approx. Chi-Square	273.585
	df	78
	Sig.	.000

The results show that variable X12 regret aversion bias and one variable under loss aversion bias variable X7 are not accepted in factor analysis as they have factor loadings which are less than the minimum accepted loading of 0.5.

All the remaining factors represented by variables X1 TO X13 excluding variables X12 and X7 are accepted by factor analysis and indicates that these variables Impact staff member decisions.

Table 13 Factor Analysis of behavioral Biases trend at Indo-Zambia Bank

		Rotated Component Matrix[a]						
			Component					
variable label	Behavioral bias	DIAGNOSTIC QUESTION	F1	F2	F3	F4	F5	F6
X1	Representative bias	You are likely to give a loan to a company on the basis that it reminds you of similar successful companies	0.094	0.764	-0.197	0.097	-0.186	-0.069
X2	conservatism bias	You are likely to change your mind if based on your own research you make a decision to grant a credit facility to a particular company and an Experienced credit analyst presents you with information that contradicts your belief.	0.190	0.542	-0.175	0.199	0.524	-0.023
X3	Anchoring bias	You will most likely rely on your previous experiences when it comes to loan appraisals	-0.116	0.760	0.384	-0.194	0.005	0.143
X4	Anchoring bias	You are most likely going to forecast future loan performance based on recent or current performance of the company you want to extend a credit facility to	0.762	0.220	0.121	0.008	0.140	0.080
X5	Ability bias	You are most likely going to prefer to lend to local companies as opposed to international companies because information on local companies is readily available	0.033	0.086	0.800	0.201	-0.055	-0.080
X6	Hindsight bias	performance of credit facilities are generally	0.050	-0.011	0.300	-0.148	0.675	0.004
X7	Loss Aversion bias	Suppose you are presented with the following investment choices. Please choose between the following two outcomes	0.252	-0.007	0.048	-0.809	-0.071	-0.044
X8	Loss Aversion bias	You are then asked to choose between the following two outcomes	0.615	-0.021	0.178	0.021	-0.249	0.268
X9	Over confidence bias	How easy do you think it was to predict the collapse of Intermarket Banking Corporation Zambia in 2016	-0.089	-0.111	-0.100	0.059	0.649	0.015
X10	Over confidence bias	Assume that from 1984 through to 2018, the annual return for Indo-Zambia Bank was 15 percent. In any given year, what returns do you expect Indo-Zambia Bank to produce	0.633	-0.178	-0.012	-0.020	0.026	-0.440
X11	Over confidence bias	How much ability do you believe you have in picking investments that will outperform the market	0.334	0.018	0.139	0.727	-0.087	-0.007
X12	Regret Aversion bias	Suppose you make an investment based on your own research. The investment doesn't move up as much as you thought it might. How are you likely to respond	-0.199	0.109	-0.645	0.099	-0.093	-0.034
X13	Gambler's fallacy	If a fair coin is tossed ten times and it lands on heads each time, what do you think the next flip will land on?	0.094	-0.015	-0.046	0.027	0.026	0.900
		Extraction Method: Principal Component Analysis.						

4.8 Qualitative Results

The sample size for qualitative analysis was five and a total of five interviews were conducted representing a 100% response rate. Qualitative data was analysed using qualitative content analysis. Content analysis involves coding and classifying data, also referred to as categorising and indexing and the aim of context analysis was to make sense of the data collected and to highlight the important messages, features or findings. Qualitative data was collected through interviews in line with the objectives of this study.

According to all five respondents, behavioral biases play a significant role in their decision-making process. Thus, the majority of the interviewees demonstrated some degree of awareness of financial behavioral biases and its implications. For example the Manager Risk stated that in his 24 years plus experience of working in the banking industry he relies on his past professional experience.

The manager Finance states that “I am sure that a great awareness of behavioral biases will effectively contribute to a better quality decision, although I am concerned that biases will continue interfering in financial decisions. Thus, organizations have to establish efficient procedures and specific policies in order to mitigate the possibilities of bad outcomes caused by personal emotions as well as any sort of biases caused by inappropriate short-term compensation”

The chief Manager Risk also stated that the role of behavioral biases in financial decisions should be better studied in order to guide more efficient and non-biased decisions. He believes that the emotional aspects of past events and especially financial pitfalls should be better studied and analyzed in order to support a better quality of future financial and investment decisions. A greater awareness of behavioral biases would contribute to more solid decisions in the long-run.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Discussion of Findings

The aim of this chapter is to discuss the results obtained from the empirical findings section (chapter 4) and compare these findings with the theories in the literature review chapter. This chapter is focused on finding the answers for the research questions to meet the purposes of research.

5.2 Research Objective one: To explore the elements that affect the effectiveness of Enterprise Wide Risk Management

5.2.1 Implementation of ERM process

The study established that the respondents somewhat agreed that there exists a clear strategy which defines the implementation of the ERM process strongly influences the effectiveness of ERM. This finding coincides with the studies carried out, Miccolis (2003) reiterated that companies need to have a clear and company-specific "operational framework" in place first, and then use it to develop a company-specific ERM implementation plan.

Further still, the results showed that the respondents highly agree that there is a clear articulation and discussion in the bank on why implementation of risk management framework is important. Burnaby and Hass, (2009) explain that the ERM process should be implemented by a management team with personnel from all levels of the company. This will ensure that the risks are well known by the employees and that the key risks are managed by the proper department or function under a clear master plan.

The implications of these findings on the Zambian financial landscape is that commercial banks in Zambia need to ensure that in any risk management process, there should exist a clear strategy that will define the implementation of the ERM process. Furthermore, the risk framework should provide for clear articulation and discussion on the importance of the implementation of the risk management framework.

5.2.2 Employee's Ownership of the ERM Process

The findings noted that the respondents somewhat agreed that there is a clear risk and control ownership and that identified risks have an owner who is accountable for the control's performance. This implies that the bank needs to step up in the area of employee ownership of the ERM process. Tattam (2015) further emphasized that clear risk and control ownership is critical to ensure that all risks are being managed and none are falling through the cracks and that the main risk control has an owner who is accountable for the control's performance.

The findings further showed that the respondents somewhat agreed that Risk owners have authority to oversee any risk related action and accept clear defined responsibility for managing risk. Burnaby and Hass (2009) concluded that ownership also means accountability. Employees that have oversight over risk management in each function must be held accountable for the risk reports which are presented and shared under their risk management area.

The Implication of these results on the Zambian commercial banks is that there should be a clear risk and control ownership. The majority of respondents agreed that existing risk framework at Indo-Zambia Bank have an owner for the identified risks who is accountable. The findings further show that it's important for Zambian commercial banks to ensure the risk owners have authority to oversee any risk related action and accept clear defined responsibility for managing risk.

5.2.3 Effects of Organization Risk Culture on the Effectiveness of Enterprise Risk Management in Commercial Banks

5.2.3.1 Corporate Values

The findings noted that respondents highly agreed that risk management strategies have been included in the corporate values, goals and major corporate initiatives. These finding are in agreement with the studies carried out. Dale Griffin *et al*, (2009) stated that there is a strong link between corporate culture and risk-management practices. Koompai (2010) reiterated that organizational culture is one of the key factors which has played an important role in the success of management in organization. Further research by Kimbrough and Componation (2009) revealed that a risk awareness culture should be embedded into the corporate culture, which can encourage management at all levels to be aware of the potential project and enterprise risks.

The findings showed that Indo-Zambia bank as a case study for Zambian commercial banks has incorporated corporate values, goals and major corporate initiatives in risk management strategies.

It's important for Zambian commercial banks to consider organizational culture in any design of a risk management framework.

5.2.3.2 Senior Management – Tone from the Top

The study established that the respondents strongly agreed that there is a clear message from the leadership/senior management on the importance of ERM. This finding is in agreement with other studies carried out. Ernst & Young (2015) study revealed that one of the critical factors in success of Enterprise Risk Management is the leadership/senior management communicating the right message. The tone from the top management should be aligned with the tone from middle management which would then result in the desired behaviors being established. Miccolis (2013) further stated that the decisions and actions of senior management will do more to influence behavior than any written policy hence it is critical that they act accordingly. RIMS (2009) argued that the capabilities of the organization's risk management practices depend on the degree to which it is instilled in the organization's culture and management's decision-making. Further according to Cendrowski and Mair (2009) a supportive culture is crucial to the success of ERM efforts. A risk-aware culture improves vigilance of employees and enables employees to speak up and then be listened to by decision makers.

The implication of these findings on the Zambian commercial banks is that tone from the top is crucial in shaping the risk management process in the institution. The success of any risk management process relies on the tone from the top which would result in desired behaviors being established.

5.2.3.3 Roles and Responsibilities

The findings noted that beliefs and behaviors of employees of the bank reflect risk understanding and risk awareness. This finding is in agreement with the studies carried out. Ruin (2008) reiterated that risk management should be successfully embedded into an organization when the beliefs and behaviors of employees of that organization reflect risk understanding, risk awareness, and the implementation of risk management framework. Aslam and Jamil (2017) further reiterated that no ERM program can deliver optimal value or impact without being fully integrated into the daily activities and decisions that take place at every level throughout the organization. Ernst & Young study (2015) stated that one of the critical factors for effective ERM entails having clear roles and

responsibilities, which will enable strong accountability and support the delivery of the desired behavior.

5.3 Research objective two; to describe Behavioral Biases particular to Members of staff at Indo-Zambia Bank

The results showed that males are more likely to exhibit anchoring bias than their female counterparts while females are more likely to exhibit ability bias than their male counterparts. The results further showed that males are more likely to exhibit Loss aversion bias, over confidence bias than females and females are more likely to exhibit regret aversion bias than their male counterparts.

The results in showed that those who have worked 0- 5 years are more likely to exhibit anchoring bias, loss aversion bias, while those who have worked 6-10 years are more likely to exhibit Ability bias, regret aversion bias and those who have worked 11-15 years are more likely to exhibit over confidence bias. Furthermore, the trend in figure 4.24 on position in the bank shows that middle managers are likely to exhibit anchoring bias, over confidence bias, loss aversion bias and regret aversion bias while messengers are likely to exhibit ability bias.

The findings show that those who earn above K20, 000 are likely to exhibit all the top five behavioral biases which include Anchoring bias, ability bias, loss aversion bias, Regret aversion bias and over confidence bias.

The findings of this study are well aligned with the arguments in prospect theory where it says that human beings are not consistently risk-averse; rather they are risk-averse in gains but risk-takers in losses.

The results showed that the five most present behavioral biases with greater impact are anchoring bias at 85.5% with dominant mean of 4.72 of the surveyed population followed by ability bias at 79.8% with mean of 4.61, over confidence bias at 79.8% of the respondents with mean of 3.33 and representative bias at 31.8% of respondents with mean of 2.63. Implications of these results are as below.

Anchoring has high impact (mean = 4.72)

In terms of anchoring, its high impact (mean = 4.72) shows that there are two schools of forecasting the future loan performance for individual staff Member decision making. One of them depends on recent performance of the company the staff wishes to extend the credit facility too as per delegation powers policy to forecast future performance while the other relies on previous experience when it comes to loan appraisals. This reflects the status quo of Indo-Zambia Bank Members of staff that many people use techniques to analyze and predict the changes of loan performance in the future based on the previous experiences and /or recent or current performance of the company or individual they wish to extend the credit facility to.

Ability bias has high impact (mean = 4.61)

In terms of ability bias, its high impact (mean = 4.61) shows that most staff members at Indo-Zambia Bank are likely to exhibit this behavioral bias where staff members are likely to prefer to deal with local companies when it comes to granting credit facilities as opposed to international companies because of inability to obtain information on international companies. This results in an availability bias in that probability estimates are skewed by how easily certain potential outcomes come to mind. The result of this will be limited investment opportunity set, failure to diversify and fail to achieve an appropriate asset allocation.

Conservatism bias has high impact (mean = 4.17)

In terms of conservatism bias, its high impact (mean = 4.17 show that members of staff at Indo-Zambia Bank are likely to maintain their prior views or forecasts by inadequately incorporating new information. This bias has aspects of both statistical and information-processing errors. Academic studies have demonstrated that conservatism causes individuals to overweight initial beliefs about probabilities and outcomes and underreact to new information; they fail to modify their beliefs and actions to the extent rationally justified by the new information. In Bayesian terms, they tend to overweight the base rates2 and underweight the new information, resulting in revised beliefs about probabilities and outcomes that demonstrate an under reaction to the new information. As a result of conservatism bias, Individuals may underreact to or fail to act on new information and continue to maintain beliefs close to those based on previous estimates and information

Over Confidence bias has moderate impact (mean = 3.33)

The individual Members of staff at Indo-Zambia Bank have the degree of confidence at the moderate level. This finding does not strongly support the studies of Allen and Evans (2005, p.108), Gervais, Simon and Odean (2001, p.1) which suggest that people usually believe in their skills and knowledge to outperform the market.

Representative bias has low impact (mean = 2.63)

In terms of representative bias, its low impact shows that members of staff are less likely to classify new information based on past experiences and classifications. They will less likely believe their classifications are appropriate and place undue weight on them. This bias usually occurs because people attempting to derive meaning from their experiences tend to classify objects and thoughts into personalized categories.

The results above underpins the idea that behavioral finance is real and therefore behavioral biases do play both a subconscious and consciously role in the decision making The consequences of these biases on the overall fitness of an organization cannot be over emphasized. The low level of risk awareness in the organization is an indicator that the current risk framework cannot be relied on. McConnell et al (2014, p. 100-101) state that in order to acknowledge the role of behavioral biases in risk management decisions and improve the quality of its framework in banking institutions, risk managers and banking regulators will have to understand more about the controls on, and the limits of human behavior in banking and society at large.

The purpose of this research study relied on the constant necessity in identifying the behavioral biases trend needed in creating more efficient mechanisms that limits or avoid behavioral biases in management financial decisions. Kamei (2004, p 18) indicates that a firm's risk is deeply affected by wrong decision making and improper response to environmental changes caused by lack of control, lack of information, lack of time, lack of sensibility, or lack of character.

Shefrin (2016, p. 112) also states that “when it comes to improving risk management practices, behavioral insights are pertinent at all levels of the organization.” Moreover, the author argues that issues should be discussed both at ground-level and a bird’s-eye perspective; the ground-level

focuses on the psychological issues while the bird's-eye view provides a broader view of the risk environment.

5.3.1 Further Implications of the findings on Indo-Zambia bank and/or Zambian Commercial Bank.

The Implications will be segmented as below based on the behavioral risk model as proposed by shigeyuki goto in literature review

5.3.1.1 Risk Communication

The results on multiple regression model of behavioral bias on level of staff awareness at Indo-Zambia bank show that only anchoring bias, over confidence bias and regret Aversion Bias are statistically significant in explaining the variation in level of staff awareness and/or risk management. From the works of shigeyuki Goto (2004), In order to mitigate the impacts of behavioral biases in an institution there is need to improve risk communication. The survey results further showed that a dominant 44.2% (92) of the respondents stating that the level of staff awareness of risks and/or risk management in the organization is Low. Lack of understanding/awareness in the organization with regards to the importance of risk management, may result in the company being at risk of significant loss due to failure to manage the risks which are known. There is need in the new model to improve risk sense and interaction and sharing of tacit knowledge.

5.3.1.2 Knowledge Creation

The results shows that Indo-Zambia bank still needs to do a lot of work in terms of knowledge creation with regards to risk management. When the respondents were asked as to which risk framework the bank had adopted, 59.6% (124) were not sure while another 19.2% (40) stated that the framework had not been explicitly explained. Without members of staff understanding what framework the bank has adopted in terms of risk management it may be difficult to even address the behavioral biases which are at the root of many financial disasters in the past. The new framework will thus need to address the need for knowledge creation.

5.3.1. 3 Risk philosophy

In terms of risk philosophy, the results showed that 38.5%(80) of the respondents when asked on the attitude towards uncertainties in the organization, they stated that the organization is reacting to situations and risk issues after they occur while another 12.5% (26) stated that risk management is considered a static phenomenon as risk approach focuses mainly on past events. This shows that Risk philosophy and governance are vague and incomplete, and risk limits and decisions are not properly documented. As a result, misinterpretation and arbitrage by business may routinely happen.

5.3.1.4 Corporate culture

On internal culture in the organization, the survey results showed that 40.4% (84) of the respondents stated that the focus is primarily on responding to crises and is more reactive rather than proactive while another 27.9% (58) stated that a caution approach is taken to risk management overall. According to Makridas (2002) from a management viewpoint, human-related risk is rooted in people's intrinsic attitude. Therefore it is not solved simply by top-down instructions. Instead, it is necessary to improve the internal environment as a whole. A firm should endeavor to promote risk disclosure and dialogue for mutual understanding, and discipline to achieve proper behavior. In short, a firm should support a sensible culture for dealing with risk.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The aim of this chapter is to summarize the findings, conclusions and recommendations of the study based on the research questions of the study. The purpose of the study was to establish an integrated Behavioral Risk management framework for banking Institutions.

6.2 Summary of the Study

A descriptive explanatory research design was used in the study. This was relevant since it seeks to explain rather than just describe a phenomenon. In this case, it helped to establish the factors that affect effectiveness of Enterprise Risk Management as well as establish the behavioral biases trend at Indo-Zambia Bank.

The purpose of the study was to develop an integrated Behavioral Risk management framework for banking Institutions. The population of the study was all the eligible 250 members of staff; Census was used to collect data from the respondents. For this study there was a response rate of 83.2% translating to 208 participants, which was adequate for this research.

The research questions of this study were: What elements affect the effectiveness of the current Enterprise Wide risk Management framework? What are the behavioral biases particular to members of staff at Indo-Zambia Bank? What is the Ideal Risk Management Framework to be adopted by Indo-Zambia Bank?

On the elements that affect the effectiveness of the current risk framework, the study established that somewhat there exists a clear strategy which defines the implementation of the ERM process. The findings showed that there is a clear risk and control ownership and that identified risks have an owner who is accountable for the control’s performance.

Furthermore, the study established that there is a clear message from the leadership/senior management on the importance of ERM and that risk management strategies have been included in the corporate values, goals and major corporate initiatives.

The study focused on the works of Kahneman and Tversky propositions of prospect theory and other scholar's proposition of Heuristics to establish the most present behavioral biases. The findings of the study are well aligned with the arguments in prospect theory where it says that human beings are not consistently risk-averse; rather they are risk-averse in gains but risk-takers in losses. From the results the five most present behavioral biases with greater impact were anchoring, ability bias, regret aversion bias and loss aversion bias. The consequences of these biases on the overall fitness of an organization cannot be over emphasized. The results further showed that the level of risk awareness in the organization is low. The low levels of risk awareness in the organization is an indicator that the current risk framework cannot be relied on.

The results from the interview corroborate the above findings; all five respondents agreed that behavioral biases play a significant role in their decision-making process.

6.3 Conclusions

This section presents the conclusions of the key findings of the study based on the already reported research objectives

6.3.1 Elements that Affect Effectiveness of Enterprise Wide Risk Management

In assessing the factors that affect the effectiveness of Enterprise Wide Risk Management; one of the broad category was to assess the effect of responsibility for risk on ERM in the bank. It was possible to conclude that responsibility for risk strongly affects the effectiveness of ERM. The findings established that the various aspects of Responsibility for Risk, which include; implementation of the ERM process and employee ownership of the ERM process play a key role with regards to effectiveness of ERM in banks.

The second broad category was to assess the effect of organization risk culture on the effectiveness of ERM in the bank. It was possible to conclude that the organization risk culture risk strongly affects the effectiveness of ERM. The findings established that the various aspects of Organization Risk Culture which include; Corporate Values, Senior Management – "Tone from the top", and

Roles & Responsibilities, are considered to play a key role with regards to effectiveness of ERM in the banks.

6.3.2 Behavioral biases trend

In order to acknowledge the relevant behavioral aspects to be included into existent risk management frameworks the primary data attempted to evaluate which range of emotions affects the interviewees decision making processes, which as per outlined in literature review if not properly addressed, ultimately as a consequence decision-makers are unable to come out of the loop of their biased decisions. Upon primary data analysis it was identified that the top six of the most present biases within the bank included anchoring bias, ability bias, conservatism bias, loss aversion bias, regret aversion bias and overconfidence bias which frequently leads to poor financial decisions and divergent outcomes due to excessive reliability on self-judgment and superiority feelings

Research results identified that the Risk Framework at Indo-Zambia bank needs a lot of improvement in risk communication, risk philosophy, ethics, strategy and governance. To suffice it to say that, it is vital to highlight that behavioral biases will keep existing, but upon its acknowledgement and proper consideration, the risk management framework may be more effective in avoiding the major pitfalls. Ultimately it's important to highlight that the aim of behavioral finance research in risk management is not to replace, but complement the assessment of other precise frameworks.

To synthesize the paperwork and conclude this section, the research study underpins the idea that behavioral finance is real and therefore behavioral biases do play both a subconscious and consciously role in the decision making. The challenge now brings the discussion of the research study to the level of how to effectively address the role of biases in the decision-making and include these findings into the risk management framework of banking institutions.

For establishing Behavioral Enterprise Wide Risk Management, the improvement of people's risk sense and the proper mechanism for changing tacit knowledge of risk to explicit understanding will have to be emphasized.

When viewing risk tolerance from a behavioral finance perspective, risk department at the banks will have to identify how members of staff will react not only to known risks but also to unknown -risks; unknown risks that come to pass are often the source of behavioral issues that can derail

bank profitability and performance. When advising members of staff, it is essential to distinguish between the various types of biases that each one can encounter.

6.4 Recommendations

6.4.1. Suggestions for Improvement

This research recommends that there should be a clear risk strategy that defines the ERM implementation process, formal training programs should be carried out to ensure that staff have a clear understanding. Accountability for the risk management activities and reports should also be clearly defined. Such consideration will ensure there is improvement in the effectiveness of Enterprise Risk Management across the Bank.

Further still, this research recommends Commercial Banks to keenly consider having an organization risk culture that supports ERM. Specifically, banks should ensure that risk management strategies are included in the corporate values and that a risk aware culture is embedded in the bank. There should also be a clear message from the Senior Management on the importance of ERM, decisions and behaviors of management should promote a culture of risk awareness. In addition, the roles and responsibilities for ERM should be clearly articulated with employee incentives aligned with good risk management practice. The risk appetite for each key risk should be clearly defined, approved by the Board, and aligned to the banks' core competencies

6.4.2 Proposed Behavioral Risk Management System

Adopted from the works of shigeyuki Goto's proposed cycle for behavioral risk Management and tested on Japanese firms whilst taking into account the findings of this study on the elements that affect the effectiveness of the current risk framework. The below cycle is proposed notwithstanding the argument By Byrne and Utkus that "we are unlikely to find a 'cure' for the biases, but if we know of the biases and their effect, we might avoid the major pitfalls".

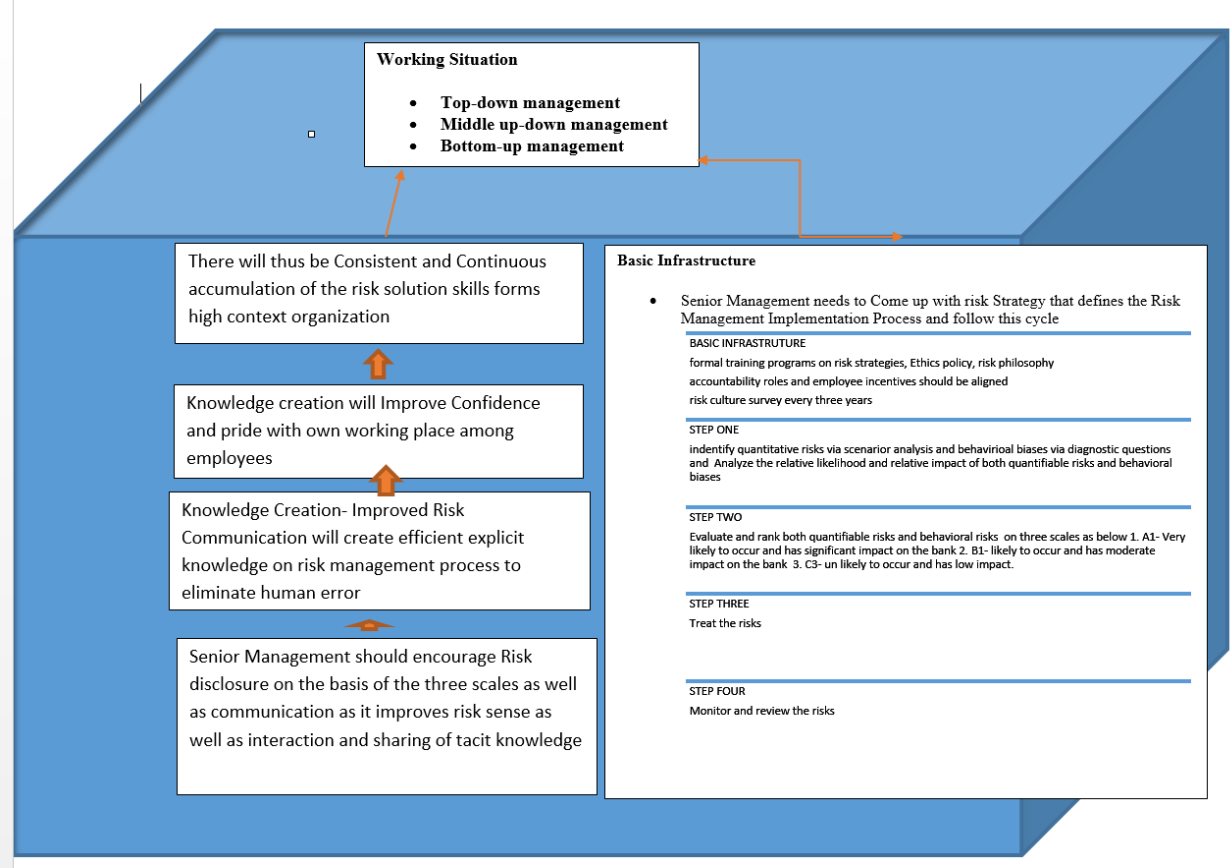


Figure 29 Proposed behavioral risk Management framework

The working situation in this model aims at fostering a practical group interaction and workable operational risk preventive procedure. Through the proposed group interaction labeled as working situation in the model, culture will be formed gradually, by the accumulation of day-to-day risk communications and knowledge-creating activity among members of staff in the organization. This working situation aims at building an issue-solving working mechanism, which is supported by good team work under mutual trust and warm humanistic relations between superiors and subordinates. That results in sharing tacit knowledge and realizing the improvement of the working process as explicit knowledge through combinations of the following functions.

- In the Top-down management working situation, the Top management will set out a clear risk philosophy, governance, and strategy and will effectively communicate these to all the employees.
- Middle up- down management working situation: Middle Managers will Derive tacit knowledge from members of staff under and above them and change it to explicit knowledge through encouragement of group interaction. Middle management will

accelerate group interaction, acting as boundary-spanners and catalysts. The important function of middle management will be to bridge between top management and those below them. Middle managers will be a catalyst for the solution of specific issues on the front line, utilizing tacit knowledge.

- Bottom- up working situation; the members staff at the bottom of the ladder will be encouraged to Provide new ideas from the perspective of their own ability and experience.

Since the essence of risk management lies in maximizing the areas where we have some control over the outcome while minimizing the areas where we have absolutely no control and the linkage between cause and effect are hidden. The proposed risk model aims at improving the risk sense and the risk-related tacit knowledge of the individuals, and to share the explicit organizational knowledge widely. New and unexpected events occur every day and must be responded to by using all the available knowledge of past experience to similar events. These experiences accumulate in an organization and gradually improve employee and organizational risk sense and solution skill.

6.4.3 Behavioral Enterprise Wide Risk Management Framework

The path to an appropriate risk management system is an endless journey. There are known-knowns, known unknowns, and unknown unknowns. Human behavior and decision-making influence strategic risk and operational risk directly; For establishing Behavioral Enterprise Wide Risk Management system the proposed cycle emphasizes the improvement of people's risk sense and the proper mechanism for changing tacit knowledge of risk to explicit understanding.

In order to enable the continuous expansion of the behavioral research field of study, it is of great importance that academics, financial managers and investors acknowledge the role of emotions in the decision making and understand that the successful financial planning and execution goes beyond understanding the latest market trends and financial numbers; emotional processes, mental mistakes and individual personality traits impacts on investments outcomes. In this sense, the future development of behavioral finance will highly depend on the ability of researchers to intensify research programs and experiments that enables continuing knowledge contributing to the expansion of the field.

Secondly, with the aim of improving the banking risk management framework, it is of great importance for financial managers and investors to develop a broader mentality and their

understanding regarding the role of behavioral biases within the banking industry. As outlined in the literature review, even though individuals cannot avoid all behavioral biases, the understanding of such behaviors along with appropriate financial planning policies can play a powerful role in avoiding behavioral biases. Ultimately, the greater quality of information decision-makers have, the better investment predictions and financial decisions will be.

6.4.4 Areas of Further Research

This study is one of the volunteers using behavioral finance in Zambian Banking sector taking a case study of Indo-Zambia Bank; to build an integrated Behavioral risk Management framework. It is necessary to have further researches to confirm the findings of this research with the larger sample size and the more diversity of respondents. It is also suggested to conduct the further researches to improve the measurements of behavioral finance as well as adjust them to fit the case of Zambian Banking Sector.

Further studies are also suggested to apply behavioral finance to explore the behaviors influencing the decisions of customers in the Zambian Banking sector. These studies can help to test the suitability of applying behavioral finance for all kinds of risk management strategies in the Banking sector in Zambia.

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Appendices

Appendix A Sample sizes

Sample sizes for different sizes of population at a 95 confidence level (assuming data are collected from all cases in the sample)

Population	Margin of error			
	5%	3%	2%	1%
50	44	48	49	50
100	79	91	96	99
150	108	132	141	148
200	132	168	185	196
250	151	203	226	244
300	168	234	267	291
400	196	291	343	384
500	217	340	414	475
750	254	440	571	696
1,000	278	516	706	906
2,000	322	696	1091	1655
5,000	357	879	1622	3288
10,000	370	964	1936	4899
100,000	383	1056	2345	8762
1,000,000	384	1066	2395	9513
10,000,000	384	1067	2400	9595

Appendix B: Consent Letter

THE UNIVERSITY OF ZAMBIA

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Graduate School of Business
P.O Box 32379
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21st September, 2019

TO WHOM IT MAY CONCERN

RE: LETTER OF INRODUCTION

My name is Mabunde Maimbolwa (GSB151921) a postgraduate student at the University of Zambia – Graduate School of Business (UNZA-GBS). I am in the final stage (dissertation) of the Masters of Science Degree in Accounting and Finance.

I am undertaking a research tilted "A structured Approach towards an Integrated Behavioral Risk Management for Banking Institutions: A Case of Indo-Zambia Bank". I am therefore requesting your indulgence to complete the questionnaire below, which I am using to collect primary data. The purpose of the research is to devise and suggest a behavioral risk management Cycle.

Your responses would be used solely for the purpose of the research.

Yours faithfully,

Mabunde Maimbolwa (GSB151921)

APPENDIX C: FACTOR ANALYSIS RESULTS

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.973	15.175	15.175	1.973	15.175	15.175	1.653	12.713	12.713
2	1.554	11.956	27.131	1.554	11.956	27.131	1.568	12.065	24.778
3	1.372	10.554	37.685	1.372	10.554	37.685	1.442	11.092	35.869
4	1.273	9.789	47.474	1.273	9.789	47.474	1.347	10.361	46.231
5	1.184	9.105	56.579	1.184	9.105	56.579	1.294	9.952	56.183
6	1.066	8.198	64.777	1.066	8.198	64.777	1.117	8.594	64.777
7	.964	7.413	72.189						
8	.833	6.410	78.599						
9	.717	5.517	84.116						
10	.646	4.969	89.085						
11	.559	4.302	93.387						
12	.465	3.580	96.967						
13	.394	3.033	100.000						

Extraction Method: Principal Component Analysis.

Appendix D: Interview Schedule

Interview Schedule

1. Do you think that behavioral biases play a role in your professional &/or personal Decision making?

2. The research results show that the most present biases among Members of staff at Indo-Zambia Bank include Anchoring bias, overconfidence, loss aversion, ability bias and regret aversion bias. Do you think these range of emotions affect your decision making?

3. Do you believe a greater awareness of behavioral finance biases would contribute to a better quality decision? For example, adjusting expectations for behavioral biases? If so, please explain - from your own perspective - why?

4. Do you believe behavioral bias, and incentives, impact individual and institutional risk tolerances? If so, please explain - from your own perspective - why?

5. Should Indo-Zambia Bank attempt to combine the findings of behavioral finance research into their risk management frameworks?