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The Role of Project Risk Management Practices for Project Success: The Case of Projects in the Commercial Bank of Ethiopia

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The Role of Project Risk Management Practices for Project Success: The Case of Projects in the Commercial Bank of Ethiopia

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Statement of Certification

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Statement of Declaration

I, Gudeta Kuma, hereby declare that this thesis entitled "**The Role of Project Risk Management Practices for Project Success: The Case of Projects in the Commercial Bank of Ethiopia**" is my own paper work and that it has not been submitted before anywhere either at masters level or undergraduate for any award. Any information used from other works has been acknowledged.

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ACRONYMS

CBE= Commercial Bank of Ethiopia

PMO= Project Management Office

PMBoK= Project Management Body of Knoledge

PS= project successe

PRM= Project Risk Management

PRP= Project Risk Planning

PRI= Project Risk Identification

PRA= Project Risk Analysis

PRCR= Project Risk Control and Response

Abstract

This study is about The Role of Project Risk Management Practices for Project success by taking 12 sample projects from projects practiced in the Commercial Bank of Ethiopia. Therefore, project team members worked on those projects implemented in the Commercial Bank of Ethiopia was contacted to collect data. Questionnaire survey was conducted to collect data from the respondents that consisted of project managers, supervisors, and other related respondents. After being tested for their validity and reliability, in total, 36 questionnaires were distributed and 29 returned and used for analysis of the study. The study uses purposive or judgmental sampling to select respondents that have adequate knowledge and significant role in the projects. The applications used to analyze and examine the hypotheses were the Statistical Package for Social Sciences V.21.The descriptive statistics was used to describe the general result of the variables. In addition, correlation analysis was done to check the correlation between the dependent variable and the independent variables, while regression analysis was used to test the hypotheses developed following the conceptual framework developed from the literature. The finding of the study indicate that effective implementation of project risk management element (Risk planning, Risk Identification, Risk analysis and Risk control and Response) has significant effects on project completion within the scheduled time and budgeted cost. But the impact of risk management practices on project completion with the promised quality is not clear from the finding of the study. But, in the projects taken as a sample, project risk management is not practiced to the level needed and gap is seen between what should be theoretically applied and what is being practiced in the projects. Therefore, this study recommends that project risk management (proper risk identification) should be practiced throughout project life cycle and should involve project team members.

Key Words: Project Risk Management, Project Success, Project Time, Project Cost, Project Quality

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The Irish writer Oscar Wilde (1854 -1900) declared, “Only the past is certain; the future is at best only probable”. This declaration is today true for many of the ever-changing businesses and their project around the world (Hillson, 2004).

Risk management has become an important part of the management process for any project. In fact, Risk management came into the foreground of business literature during the last two decades of the 20th century (Loosemore et al., 2006). Risk is one of key factors that can positively affect working effectively inside the firm if it was practiced in the proper way. By doing such organization can achieve capital value of rareness and capital value of limitability via which the firm can build stronger competitive advantage by developing, maintaining and retaining core competencies; which can in its turn maximize the organization’s market share, reputation maximize share holder equity and stake holder goals and maintaining the maturity stage of the firm’s life cycle in which it can maintain the peak stage for all of its activities by recognizing, encouraging and retaining the peak performance and competitive advantage of the firm or organization (Dr. Haitham H. Al-Shibly,2013).

According to Project Management Institute (2008), Project risk management has a prominent position in the framework of project management theory and methodology. The reason is that unexpected events will usually occur during a project (Pinto, 2007). Given the importance of project risk management in project management functioning, the efficiency of risk management is expected to significantly influence project performance (Bannerman, 2008). Studies on the impact of risk management on project performance has indicated that effective risk management improve project performance by enhancing productivity (Voetsch, cioffi and Anbari, 2004).With today’s dynamic change and increase in competition, it is not enough for enterprises to have a good project plan or have a good monitoring and control systems in achieving project success but they should focus on constituting effective project risk management practices including risk avoidance, risk reduction, risk transfer and risk retention strategy to contribute to the success of the project (Olsson, 2008).

Risk management practices must be carried out throughout the life cycle of the project, from initiation stage until the closure of the project. Failure to manage the project risks throughout the life cycle of the projects will lead to poor project performance and failure of the project (Abdul, Ayub, Nordiana Mohd and Ilias, 2007). Supporting this argument, Kululanga and Kuotcha (2010) also indicated that low implementation of project risk management practice causes the projects failure such as failing to meeting deadlines, cost targets and quality performance. The use of effective risk management strategies for instance is increasing and has been the center of focus recently in order to achieve ICT project performance and also have emphasize on contractual obligations (Chacko and Harris, 2006).

Risk management practices essentially influences the success of project (Jin and Yean, 2005). This is so because effective risk management strategies and successful project performance has an intimate relationship. For instance, risk identification identified the potential risks that might influence the project objectives (Baloi & Price, 2002). Thus, if risk is not properly identified, it would arise at the beginning, middle or end of the project and affect the project. Sundararajan (2004) stated that if risk events are not handled and managed properly, consequences such as increasing the financial costs, changing the capital structure, delaying the building or facility operations, overrun in the budget, loss of cash inflow, lead to liquidated damages claims, production of poor quality end product, project rework after completion and so on might occur. Therefore, mitigation actions against these risks and uncertainties are vital to ensure achievement of the desired project performance

Different studies were undertaken in relation to project failure and the reason behind that leads to failure at different time in different parts of the world. According to studies conducted by Boddy et al, (2006), conservative estimates put the cost of project failure at £97bn across the European Union member countries. Many projects suffer overrun in cost, delayed schedule, failure and even abandonment. They may equally not meet the quality specifications or may not achieve the benefits for which they were embarked upon. The cost of failure makes it important to understand what makes a project successful.

Many companies today work within large projects under their domain almost in all sector of the economy whether to bring new product or process to its existing business or to diversify the existing one. Clients expect more, most importantly, they do not want surprises, and are more likely to engage in litigation when things go wrong; these things make the project managers in

the worldwide to think more about the factors that leads to failure of the project. This study took one knowledge area of project management; Project Risk Management; and investigates its role in project success by taking sample projects that was implemented in the Commercial Bank of Ethiopia. *"Does a risk management practice contribute to project success?" or "Does ineffective risk management practice leads to project failure?"* is the major concern of this study.

1.2 Statement of the Problem

Commercial Bank of Ethiopia has the vision of becoming world class commercial bank in the year 2025. In order to achieve its vision, the bank is undertaking various projects to enhance its service delivery and equip its operations in state of the art technology. Therefore, the success of such projects becomes vital for the achievement of the bank's vision. In line with this, the bank has established a Program Management Office to oversee the successful undertaking of various projects. According to Wysocki (2014) the responsibility of supporting these projects and project teams that undertake specific projects is mandated to Project Management Offices.

Even though risk management is one of the greatest needs in project management, it is recognized that little has been done in this respect (Raz et al., 2002, Ibbs and Kwak, 2000, Zwikael and Globerson, 2006, Zwikael and Sadeh, 2007). Different projects seem to identify and analyze risk in a random way than in an organized and systematic way. Many projects don‘t seem to make risk management as part of their project management plan too. From the articles and researches done by different practitioners we can see the importance of risk management in projects but there seems to be a problem in the approach projects are managing risk. According to a research done by Yimam (2014), the risk management maturity survey indicates that practically there is little or no risk management practices in projects undertaken in Ethiopia. In line with this, several researches were being conducted regarding project risk management practices in projects undertaken in Ethiopia (e.g. Getachew, 2014; Temesgen, 2015; Frezewud, 2016; Kalkidan, 2017; Bereket, 2017 and others). All of those studies were mainly focused on practices of project risk management by taking one or two projects as case studies. However, to the best of the researcher's knowledge, no research work have been done focusing on impacts of project risk management on project success in Ethiopia rather than explaining the experience or practices of risk management in different project. Thus, this study address this gap by focusing on the Role of project risk management practices for project success by taking sample projects implemented in the Commercial Bank of Ethiopia.

In order to measure this relationship, the study consisted of dependent and independent variables. Dependent variable is the traditional project success indicators which were measured by considering whether the project was delivered within the allocated time, budget cost and acceptable quality. Independent variable (Project risk management practices) was measured by considering the availability of Risk management planning, proper risk identification, risk analysis and responses to the different risks encountered the project.

1.3 Research Questions

This research was guided by the following research questions:

1.3.1 General Research Question

What are the roles of project risk management practices on project success in the case of projects implemented in the Commercial Bank of Ethiopia?

1.3.2 Specific Research Question

- What are the effects of project risk planning on project success in the projects implemented in the Commercial Bank of Ethiopia?
- How project risks are identified in the projects of Commercial Bank of Ethiopia and what are the relations of project risk identification and project success?
- How is project risk analyzed in projects undertaken in the Commercial Bank of Ethiopia and what is the relation between project risk analysis and perceived project success?
- What responses are taken to the different risks in the projects of Commercial Bank of Ethiopia and what are the impact of the different control and response taken on project success?

1.4 Objectives of the Study

This study has the following general and specific objectives it intends to achieve:

1.4.1 General Objective of the Study

To investigate the impacts of Project Risk Management practices on Project Success by taking different projects that were implemented at different time in the Commercial Bank of Ethiopia.

1.4.2 Specific Objectives of the Study

The specific objectives of the study will be:

- To explore the impact of project risk planning on project success,

- To assess how the different risks that faced or may face the project were identified in the Commercial Bank of Ethiopia and to analyze the effects of effective project risk identification on project success,
- To assess how the identified risks were analyzed for the different projects implemented in the Commercial Bank of Ethiopia and see the role of project risk analysis on project success,
- To explore how the project respond to the different risks and assess whether the different response and controlling mechanism contributes to the success of the projects,
- At the end by considering the finding from the study, the study draw valuable conclusion and applicable recommendation from the finding regarding the correlation between project risk management and projects success.

1.5 Research Hypothesis

The following null hypotheses were designed to answer the research questions:

H1*: There is no any relationship between project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) and project completion on time.*

H2*: There is no any relationship between project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) and project completion within budgeted cost*

H3*: There is no any relationship between project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) and project quality.*

1.6 Significance of the Study

In Ethiopia in the last ten years, different projects were implemented in different sectors in order to reduce poverty and enhance sustainable growth in the country. In this regard, even though some of the projects were successful, most of the projects were failed(project failure is to mean that some of them are characterized by cost overrun, other in schedule slippage and some other in poor quality). This failure of the project is due to different. This study takes one knowledge

area of project management which is project risk management practices and analyzes its impacts on project success by taking the different projects that was implemented in the Commercial Bank of Ethiopia. Thus, assessment of the different projects may provide the already started project or the project that will be started in the future with important information that needs to be considered to implement project successfully.

This study can be helpful to demonstrate the contribution of effective risk management to improve the practice of upcoming project to be done. That is to attain the goals of the project within planned time, under the given budget and at agreed or targeted quality required of products efficiently and effectively. This study can be serving as an input to identify in which of the project risk management process of the project that the project management office of Commercial Bank of Ethiopia needs improvement. Thus, the finding of this study will be helpful for the future similar projects undertaken in the Commercial Bank of Ethiopia in particular and other organization in general.

The findings and recommendations of this study would be of a great importance to different project stakeholders, project practitioners and project managers and project teams undertaking different projects. At completion, the study showed how matured and prepared the projects under study are in terms of risk management. It would also give a general insight to the academic & professional society about the different aspects of risk management and how it is being practiced in different projects. Last but not least, this study would serve as a starting point and as a reference for further studies.

1.7 Scope of the Study

The study was limited both in study area and methodology employed for the study purpose. The study was mainly focused the role of project risk management practice for project success in the case of some projects implemented in the Commercial Bank of Ethiopia. Thus, this study was not considers the role of other success factors for those projects nor would it investigate the role of project risk management in other organization or other sectors.

The methodology for data collection and analysis was limited for this study. The Primary data was collected from participants of the projects by using structured questionnaire and interview.

The secondary data was obtained from different published and unpublished documents of the project.

1.8 Limitation of the Study

The study was limited in scope and methodology employed for the study purpose. The study was only focused on the impacts of project risk management practices on project success the case of some projects implemented in the Commercial Banks of Ethiopia. The scope of the study was also delimited to one of the project management knowledge areas, which was project risk management. Due to time and budget constraints, this study was limited to some projects implemented in one organization and thus it may be impossible to fully generalize the finding with confidence to projects in other organization. In addition to these, the difficulties to access the different data may affect the quality of the finding.

1.9 Definition of Terms

- ***Risk***: is some future event that happens with some probability and results in a change, either positive or negative, to the project (Wysocki 2014).
- ***Project***: is a sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to specification (Wysocki 2014).
- ***Project Success***: Project success in this study is measured with respect to delivering of the project within the scheduled time, allotted budget and quality standard defined by the stakeholder (PMBoK, 2008).
- ***Project Risk Management***: Action taken to plan project risk management, identify risks, and analyze project risks in order to mitigate their effects on a project and risk response and control mechanism chosen by the project (PMBoK, 2008).
- ***Risk management plan:*** is a document that a project manager prepares to foresee risks, estimate impacts, and define responses to issues.
- ***Project Risk Identification***: it is the process of identifying the lists of risks associated with the given project.

- ***Risk analysis:*** is about ranking and analyzing the identified risks in order to see its probability of occurrence and potential impacts and ways to mitigate and control those risks.
- ***Risk response and control***: it involves reacting to identified and residual risks, carrying out risk response plans and evaluating the effectiveness of the strategies throughout the life of the project.

1.10 Organization of the Study

The study was organized into five chapters. Chapter One consisted of the background of the study, statement of the problem, purpose of the study, research objectives, research questions, significance of the study, limitations, delimitation, assumptions, conceptual framework, definition of terms used and organization of the study. Chapter Two looked at available literature done on role of project risk management practices for the success of the project by reviewing different literatures, publications, articles and others. The chapter was also provides a conceptual framework which outlines the relationship between the dependent (Project success) and independent (Project risk management) variables identified in the subject of the study. Chapter Three was covers the research methodology of the study. The chapter was describes the research design, research approach, target population, sampling procedure, tools and techniques of data collection, data analysis and finally ethical considerations followed in the study. Chapter Four covers data presentation, data analysis, data interpretation and discussion. Finally Chapter Five covers the study findings, conclusions, recommendations depending on finding of the study and areas for further studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Projects Success and Risks

2.1.1 Project and Their Success

Organization all over the world employed projects in order to undertake different activities in their organization or to establish new products or company. Projects are widespread, influential, important, and are found in a large number of business areas. Building and construction industries, engineering, government, IT and telecom, banking and insurance; all use projects as a way to organize, manage and execute many of their activities. Benko and McFarlan (2003) indicate that about US$ 10 trillion is expended globally on projects each year, representing approximately one quarter of the worlds‟ yearly gross product.

Projects support a variety of change processes in an organisation, ranging from strategic market reorientation or new product development, to the improvement of current production processes (Winter et al., 2006a). Because of this change role, projects contribute to the efficacy of the organisation's operation and the organisations long term continuity. Recent years have demonstrated a significant growth in project work, which has led to the current situation where project management is considered the dominant model in many organisations for creating change (Winter et al., 2006a).

How projects and the management of projects are viewed upon has developed since the 1950s, when project management started as a sub-discipline of engineering in military and space programs. With its origin in engineering, the emphasis in project management has long been on processes and procedures. It was assumed, and often still is presumed, that the application of processes and procedures “according to the rules of the handbook” automatically leads to better project results. Where a project fails, it is deemed that project processes and procedures should be better applied or improved. As mentioned earlier, this instrumental view of projects is subject of debate (Cicmil et al., 2006), and new directions for investigating projects are currently being explored and expounded.

Different books and literature define projects in different ways. But there were no significant differences in their definition about what project is. For instance, Project Management Institute

(2008) and Turner (1993) defined Projects as endeavors that create unique products, services or results of given specification within constraints of cost and time. Many companies today work within large projects and one definition of the term project is by Turner et al.(1992) who defined project as:

"An endeavour in which human, material, and financial resources are organized in a novel way, to undertake a unique scope of work of given specification, within constraints of cost and time, so as to achieve unitary, beneficial change, through the delivery of quantified and qualitative objectives"

The ultimate goal for the project is to be a success. To begin a project is a deliberate action; this decision is taken on the basis of the wish to create a specific change and to improve the current situation within or in relation to an organisation (Association for Project Management, 2006). "To improve the current situation" is a broad concept, and may relate for instance to increasing market share or increasing profitability by developing and introducing new products, or to lowering of production costs. The overview paper presented by Jugdev and Müller (2005) on the evolution of thinking on project success illustrates that the way in which project success is defined has undergone a number of changes through the years.

Project success may not be measured accurately by comparing limits of time and budget predicted and set at the beginning, with actual values of these limits at the end of the project. Rather, other factors such as stakeholders' perspectives should be included. Furthermore, opinions on success may be different for various project stakeholders, depending on the position they have within the project. Turner and Cochrane (1993) stated that the time-budget requirements definition of project success focuses solely on the interest of the vendor or supplier, and not on the client.

Studies by De Wit (1988) some years earlier also stressed the importance of including various stakeholders‟ perspectives when defining project success. It is therefore remarkable that the traditional way of defining and determining project success is still very prevalent in reports on project success and its relation to risk management (Chen et al., 2009; Royal Academy of Engineering, 2004; The Standish Group International, 1999). Setting time and budget limits and defining requirements takes place at the beginning of the project, when uncertainty is at its highest (Pinto, 2007) and when it may be relatively impossible to set realistic limits and goals, especially in IT projects (Turner and Cochrane, 1993).

The traditional view of project success is associated with fulfilling time, cost and quality objectives (the iron triangle). Financial criteria have been used to measure project performance, including economic return and cost/benefit analyses (Archer and Ghasemzadeh, 1999) and profits (Shenhar and Dvir, 2007; Thomas et al., 2002). Obtaining the initially planned schedule and cost values at the end of the project are the most utilized project performance metrics (Gray, 2001; Katz and Allen, 1985; Larson and Gobeli, 1989; Ling, 2004; White and Fortune, 2002), in which as expected there is a consensus on the financial issues involved (Archer and Ghasemzadeh, 1999; Patah and Carvalho, 2007; Thomas et al., 2002).

However these measures are being considered as misleading and incomplete. They may count as successful projects that met time and budget constraints, but did not meet customer needs and requirements (Atkinson, 1999).Several studies suggested adding customer satisfaction to the assessment of project success (Lipovetskey, et al., 1997; Lim and Mohamed, 1999). Baker, et al. (1988) went further, to include the satisfaction of four stakeholders: the customer, the developer, the team and end-user. These success criteria are not achieved most of the time due to different factors. One major factor is risk.

2.1.2 Project and Their Risks

Project is a unique activity that is not repeated at the same time with the same specification and requirements. Project Management Institute, 2008 defined project and project management in the following ways:

A project is:"... a temporary endeavour undertaken to create a unique product, service or result" and project management is: "... the application of knowledge, skills, tools and techniques to project activities to meet the project requirements".

Project pass through different phases and life cycle in order to come to completion whether it is large or small project even though there may be some difference in their concern rate to each phase. Initiation, planning, execution, monitoring and evaluation and closure are the phase of the project (Project Management Institute, 2008). Risk is part of every project and in every life cycles of the project (Pinto, 2007; Turner, 1993). Planning and scheduling are key aspects of project management (Söderlund, 2004b), and risks are all events and situations that threaten the undisturbed execution of the project plan. Risk therefore relates to expectations of stakeholders regarding when and how the project will deliver, what the project will deliver and at what cost it

will deliver the intended product. Project risks are therefore important factors determining whether the project will be a success.

In literature, the word “risk” is used with many different meanings. It is found that there is no uniform or consistent usage of the word risk in the literature. In addition, most definitions of risk have focused only on the downside associated with risks such as losses or damages, and neglected the upside or opportunity such as profit or gains (Mehdizadeh, 2012). This word has different meaning to different people, that is, the concept of risk varies according to viewpoint, attitudes and experience (Baloi & Price, 2003). Risk originated as a concept as early as the seventeenth century and was initially associated with gambling (Frosdick, 1997). Its development through subsequent centuries demonstrated its necessity in many fields, such as insurance and economics and more recently in engineering and science. Mosca et al. (2001) state that risk analysis is proposed to deal with the problems involving uncertainty by identifying, evaluating and monitoring the risks (Mobey & Parker, 2002).

In classical decision theory, risk is most commonly conceived as reflecting variation in the distribution of possible outcomes, their likelihoods, and their subjective values (March & Shapira, 1987). Risk is an exposure to the possibility of economic or financial loss or gains, physical damage or injury or delay as a consequence of the uncertainty associated with pursuing a certain cause of action (Chapman C.B., 1983). Many scholars have defined risk: Wideman (1986), Godfrey (1996) Kliem and Ludin (1997) and Smith (1999). Most definitions include the factors of chance or probability of events and the negative impact on the objectives or project. In mathematics, probability of an event is expressed statistically using the mean, dispersion, confidence interval and other statistical parameters.

Risk in itself is neither good nor bad. Business progress demands risk taking and there are times to ride the roller coaster and times to sit tight (Kippenberger, 2000). The definition for project risk provided by PMI (2013) will best fit the purpose of this paper; “project risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, and quality”. Positive and negative risks are commonly referred to as opportunities and threats. The project may be accepted if the risks are within tolerances and are in balance with the rewards that may be gained by taking the risks. Positive risks that offer opportunities within the limits of risk tolerances may be pursued in order to

generate enhanced value. Generally, organizations and stakeholders are willing to accept varying degrees of risk depending on their risk attitude.

With respect to the concepts of risk and its conceptual views, different individuals were provided their insights: Wideman (1992), Bernstein (1997), De Meyer et al. (2002) and Perminova et al. (2008). Basically they deal with aspects of risks and their relationship with uncertainty, their effects and implications for project results, considering the ambiguities and variability, among other issues that constitute the bases of understanding this concept. While Bernstein (1997) presents a rich historical picture of risk and its importance to project managers, De Meyer et al. (2002) discuss the aspects of variability and ambiguities. In this line of studies, the work of Ward and Chapman et al (2003) also stands out due to its singular proposition, which emphasizes the management of uncertainties as a substitute for risk management, since it presents the broadest approach to the field.

Wideman (1992) made one of the most valuable contributions to understanding the concepts of risk by setting out the limits of the field of uncertainties, including opposing the elements of the unknown and uncertainty. Uncertainty, in this view can be considered a conceptual field delimited between these two elements, which become the center of concern for risk studies. In this respect, risks in a project have their origin in the field of uncertainties which, in turn, is present in a more or less intense form in all projects (Perminova et al., 2008). For example PMI et al (2008) considers the relationship between risk and uncertainty and come up with the broad definition of risk as “an uncertain event or condition that, if it occurs, has a positive or negative effect on at least one the project objective.” Another aspect of the risk concept is its dual characteristic from the negative perspective (as a threat), but also from the point of view of positivity (as an opportunity) (Hillson, 2001, Ward and Chapman, 2003). For him, risks are related to uncertain events that can affect project objectives negatively or positively. For each risk perspective different administrative strategies are demanded.

A lot of studies worldwide aim to define the sources of risks. Research Week International Conference et al (2005) categorized the sources of risks into two groups: Internal Source and External sources. The Internal (controllable) sources are Client system, Consultants, Contractors and subcontractors and Suppliers. While the external Sources are Economic and globalization dynamics, Unforeseen circumstances, Government/ statutory/ political controls, Environmental

constraints, Health and safety issues outside the control of the project team and Socio-cultural issues.

2.2 Project Risk Management

Nowadays, risk management has become a main part of the organization's activities and its main target is to help all other management activities to reach the organization's aims directly and efficiently (Tchankova, 2002). It is considered as an integral part of project management, a key process where most of project managers know that is essential for good project management (Serpella et al., 2014). Risk exposure is the product of risk probability and risk impact. Risk management is the process that, when carried out, ensures that all that can be done will be done to achieve the objective of the project, within the constraints of the project (Clark, Pledger and Needler, 1990). Risk management includes planning for risk, identifying risks, analyzing risks, developing risk response strategies, and monitoring and controlling risks to determine how they have changed (Kerzner, 2009). Since risk affects the achievement of project objectives, risk management is one aspect of sound project management.

The risk management process as a problem solving process assumes that actors are well informed and behave rationally when making a decision. In addition it is assumed that actors demonstrate instrumental behaviour, meaning that they invest their resources in mitigating the risks identified, not in a discourse on the meaning of these risks for the project's charter, deliverables or success. Project risk management is considered in project management handbooks to be an example of rational problem solving (Koningsveld & Mertens, 1992; Kutsch & Hall, 2005). According to these handbooks (Association for Project Management, 2004; Project Management Institute, 2008), this problem solving approach indicates that actors in the risk management process, based on an information collection and analysis process, decide upon measures which are taken in order to lower the probability of risks occurring, or minimize the impact of the risks that occur. Stakeholder experience with risks in similar situations in the past and other historical information, play important roles in the process of information collection, analysis and decision making. Risk management is therefore considered to be a "clean" decision making process.

Several articles and researcher assess the benefits associated with project risk management (Thomas, 2006; Perry, 1986; Cooper et al, 2005; Webb, 2003). According to those articles, the

benefits from risk management are not only reserved for the project itself, but also for the actors involved even though there are differences between organizations. The main incentives are clear understanding and awareness of potential risks in the project. In other words, risk management contributes to a better view of possible consequences resulting from unmanaged risks and how to avoid them (Thomas, 2009). Another benefit of working with risk management is increased level of control over the whole project and more efficient problem solving processes which can be supported on a more genuine basis. It results from an analysis of project conditions already in the beginning of the project (Perry, 1986). The risk management also provides a procedure which can reduce possible and sudden surprises (Cooper et al. 2005).

According to different authors, risk management is the highest ranked factor for project failure (Whittaker, 1999; Kutsch, 2008), that's why an organization, in order to be successful, should be committed to address risk management proactively and consistently throughout the project rather than reactively. A conscious choice should be made at all levels of the organization to actively identify and pursue effective risk management during the life of the project. Moving forward on a project without a proactive focus on risk management is likely to lead to more problems arising from unmanaged threats (PMI, 2013).

Smith et al (2006) in his study argue that risk management cannot be perceived as a tool to predict the future, since that is rather impossible. Instead, they describe it as a tool to facilitate the project in order to make better decisions based on the information from the investment. In this way, decisions based on insufficient information can be avoided, and this will lead to better overall performance. In the literature, risk management is described as a process with some predefined procedures. The scope of its definition differs among the authors; however the core information is the same.

2.3 Risk Management Process

According to Cooper et al. (2005), risk management process involves the systematic application of management policies, processes and procedures to the tasks of establishing the context, identifying, analyzing, assessing, treating, monitoring and communicating risks (Cooper et al., 2005). Other articles (PMI, 2008, Keelling, 2006) have presented risk management as a series of interconnected processes involving specific techniques and tools. Otniel Didraga (2013) grouped risk management practices into the following major parts:

Table 2.3-1: Risk Management Practices

Risk Management Practices	Major Activities & Methods
Risk Identification	- Risks checklist - Risk tables - Risk Breakdown Structure - Event tree - Defect tree - Brainstorming sessions - Risk profiles - Using external consultants (Delphi technique) - The attitude and experience of the project manager
Risk Analysis	- Scenario analysis - Decision tree - PERT Diagram - Risk Assessment form - Risk map - Risk Breakdown Matrix - Score analysis (PRINCE2) - Monte Carlo Simulation - SRE Method (SEI)
Risk Response Planning	- Contingency plan - Risk mitigation - Risk prevention - Risk avoidance - Risk acceptance - Risk transfer - Risk outsourcing
Risk Response Monitoring and Control	- Change control - Risk reassessment - Risk audit - Trend analysis - Technical performance measurement - Status meetings

Source: Otniel Didraga, 2013

The PMI (2008) proposed the following risk management processes: Risk management planning, Risk identification, Risk analysis (Qualitative and Quantitative), Risk responses planning and Risk monitoring and control.

2.3.1 Risk management planning

Risk management plan is a document that a project manager prepares to foresee risks, estimate impacts, and define responses to issues. It also contains a risk assessment matrix. This is a schematic description of how risk management should be carried out. Risk management is an ongoing process that continues through the life of a project. It includes processes for risk management planning, identification, analysis, monitoring and control. Many of these processes are updated throughout the project lifecycle as new risks can be identified at any time. It's the objective of risk management to decrease the probability and impact of events adverse to the project. On the other hand, any event that could have a positive impact should be exploited.

2.3.2 Risk Identification

The identification of risk normally starts before the project is initiated, and the number of risks increase as the project matures through the lifecycle. When a risk is identified, it's first assessed to ascertain the probability of occurring, the degree of impact to the schedule, scope, cost, and quality, and then prioritized. According to Schwalbe et al (2009), the risk identification process begins by reviewing project documentation, recent and historical information. This can be achieved further through brainstorming, which is a technique where the project team attempts to generate ideas or find a solution by amassing ideas spontaneously and without judgment. Another technique which can be applied is the Delphi technique which involves deriving consensus from a panel of experts who make predictions about potential risks.

Schwalbe (2009) continues to state interviewing as another technique for collecting risk information through face-to face, phone, email or instant messaging discussions. Risk checklists can also be used for identification which entails listing of risks from previous projects. All identifiable risks should be entered into a risk register, and documented as a risk statement. As part of documenting a risk, two other important items need to be addressed. Risk events may impact only one or while others may impact the project in multiple impact categories. The probability of occurrence, number of categories impacted and the degree (high, medium, low) to which they impact the project was the basis for assigning the risk priority.

2.3.3 Risk Analysis

Risk analysis is an activity geared towards assessing and analyzing system risks. Risk analysis can be conducted on a scheduled, event-driven, or as needed basis. Risk analysis can be implemented as an iterative process where information collected and analyzed during previous assessments are fed forward into future risk analysis efforts (US Department of Homeland Security, 2005). Risk analysis includes analyzing the risk and measuring its vulnerability or its impact. Frequency and severity of the risk will be analyzed as well. Risk management can be quantitative as well as qualitative. Numerically determining the probabilities of various adverse events and expected extent of losses if any unexpected event occurs is a Quantitative Analysis where as defining the various threats, devising countermeasures and determining the extent of vulnerabilities is referred to as Qualitative Risk Analysis (US Department of Homeland Security, 2005). In qualitative risk analysis, risk management acts to define the characteristics of each risk (Kuismanen et al, 2002). The qualitative assessment involves the identification of: (1) Risks' hierarchy which is based on the probability of risk's occurrence and its impact on the project and employees, (2) Risks' scope, and (3) Risk occurrence factors (Lowe, 2002). Qualitative risk analysis assesses the risk according to its probability of occurrence and its impact in order to enable the decision makers to prioritize the risks which have a high probability of occurrence and big impact on the project and response to them accordingly.

In quantitative risk analysis, the risk is assessed numerically by estimating the probability that a project will success in meeting the planned budget and time schedule. Quantitative Risk Analysis process involves evaluation of the impact of all identified and quantified risks. The results of quantitative Risk Analysis process are more objective than those from qualitative risk analysis if enough data are available for the decision maker. In addition the personal judgment and previous experience are factors that affect this process. (Ahmed et al, 2001). Quantitative risk analysis suggested statistical techniques that are most easily used with specialized software (Office of Project Management Process Improvement, 2003). According to (Abu Rizk, 2002), the quantitative risk analysis contains assigning probabilities or likelihood to different factors of risks and the impact of these factors in order to define the severity for each factor (Abu Rizk, 2002).

Risk analysis, however, is rarely done. Besner and Hobbs (2006) have observed that project managers do not regard risk analysis as potentially valuable, especially quantitative risk analysis.

Therefore, the performance of quantitative risk analyses within IT projects is not expected to increase in the near future. Bannerman (2008) in his research finds that none of the 17 IT projects he investigated used quantitative risk analysis. A reason why quantitative risk analysis is not considered useful may be that many of the risks in IT projects are not aleatoric in nature (they are not based on probability), but epistemic, which means that there is not enough information available to take a decision. In project situations, this often leads to the postponement of the decision (Kutsch & Hall, 2005), or to a request for more additional information.

According to Ritter (2005), Risk analysis techniques include, first, Brainstorming, which is used extensively in formative project planning and can also be used to identify and postulate risk scenarios for a particular project. It is a simple but effective attempt to help people think creatively in a group setting without feeling inhibited or being criticized by others. The rules are that each member must try to build on the ideas offered by preceding comments. No criticism or disapproving verbal or nonverbal behaviors are allowed. The intent is to encourage as many ideas as possible, which may in turn, trigger the ideas of others.

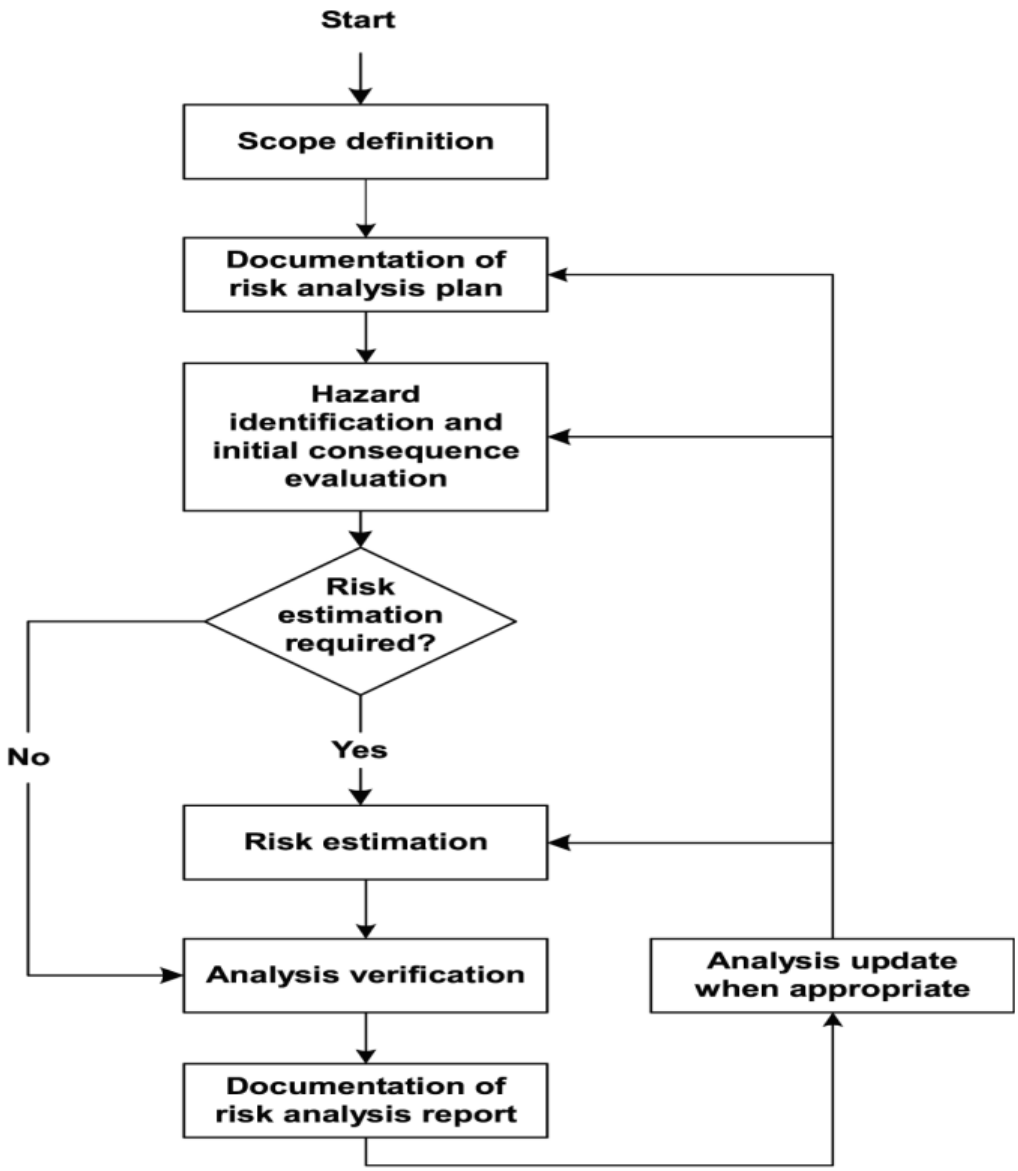
The second risk analysis technique according to Ritter (2005) is sensitivity analysis, which seeks to place a value on the effect of change of a single variable within a project by analyzing that effect on the project plan. It is the simplest form of risk analysis. Uncertainty and risk are reflected by defining a likely range of variation for each component of the original base case estimate. In practice such an analysis is only done for those variables which have a high impact on cost, time or economic return, and to which the project is most sensitive.

Some of the advantages of sensitivity analysis include impressing management that there is a range of possible outcomes, decision making is more realistic, though perhaps more complex. And the relative importance of each variable examined is readily apparent. Some weaknesses are that variables are treated individually, limiting the extent to which combinations of variables can be assessed, and a sensitivity diagram gives no indication of anticipated probability of occurrence (Ritter, 2009).

Another method of risk analysis is probability analysis, it overcomes the limitations of sensitivity analysis by specifying a probability distribution for each variable, and then considering situations where any or all of these variables can be changed at the same time. Defining the probability of occurrence of any specific variable may be quite difficult, particularly as political or commercial

environments can change quite rapidly. As with sensitivity analysis, the range of variation is subjective, but ranges for many time and cost elements of a project estimate should be skewed toward overrun, due to the natural optimism or omission of the estimator (Ritter, 2009).

Figure 2.3.3-1: Risk Analysis Process



Source: IEC60300-3-9 (1995)

2.3.4 Risk Response and Control

According to Schwalbe (2007), risk response and control involves reacting to identified and residual risks, carrying out risk response plans and evaluating the effectiveness of the strategies

throughout the life of the project. It also involves taking steps to enhance opportunities and reduce threats to meeting project objectives. Multiple risk control measures may be used to implement a given technique. Risk control goals are designed to support the risk management program goals, which in turn support the individual's or organization's goals. To that end, risk control techniques must be effective and efficient, comply with legal requirements, assist in promoting life safety, and that ensure that a business can retain continuity during and immediately following a loss (Schwalbe, 2007).

Mudau; Pretorius (2009) aim in their study ―Project control and risk management for project success: A South African case study‖ to assess the extent to which project control and risk management contribute to, and how it can be used effectively in ensuring project success and identify the factors that contribute to project success. The results of the questionnaire were processed and analyzed by using a spreadsheet application. The main findings indicated that project controlling and risk management have a significant influence on performance of the project and therefore on the success of the company. It was also found that effective earned value management contributes positively to the project success. By strengthening and focusing more on project controlling and risk management methods and processes, the performance of projects should improve.

The response strategy and approach chosen depend on the kind of risks concerned (Winch, 2002). Other requirements are that the risk needs to have a supervisor to monitor the development of the response, which was agreed by the actors involved in this risk management process (PMI, 2004). Risk response is the process of developing options and determining actions to enhance opportunities and reduce threats to the project's objectives (Jutte, 2014). According to (Hilson D, 2009) having identified and analyzed risks, it is essential that something should be done in response. As a result many believe that the Risk Response Planning phase is the most important in the risk process, since this is where the project team gets a chance to make a difference to the risk exposure facing the project. It is usually the responsibility of each risk owner to decide what type of response is most appropriate, though they will often seek help and advice on this.

According to Hilson et al (2009), it is important to adopt a strategic approach when developing risk responses in order to focus attention on what is being attempted. Winch (2002) claims that the lower impact the risk has, the better it can be managed. Most common strategies for risk

response are: avoidance, reduction, transfer and retention (Potts, 2008). Beyond those types of responses, Winch (2002) describes that sometimes it is difficult to take a decision based on too little information. This may be avoided by waiting until the appropriate information is available in order to deal with the risk. This way of acting is called 'Delay the decision' but this approach is not appropriate in all situations, especially when handling critical risks. Those need to be managed earlier in the process.

2.3.4.1 Risks avoidance and its influence on project performance

There are many potential risks that a project can be exposed to, and which can impact its success (Potts, 2008). This is why risk management is required in the early stages of a project instead of dealing with the damage after the occurrence of the risk (PMI, 2004). The avoidance means that by looking at alternatives in the project, many risks can be eliminated. If major changes are required in the project in order to avoid risks, Darnall and Preston et al (2010) suggest applying known and well developed strategies instead of new ones, even if the new ones may appear to be more cost efficient. In this way, the risks can be avoided and work can proceed smoothly because strategy is less stressful to the users. Risk avoidance involves changing the project plan to eliminate the risk or the condition that causes the risk in order to protect the project objectives from its impact. This may be either by eliminating the source of risk within a project or by avoiding projects (Merna et al, 2004). It seeks to reconfigure the project such that the risk in question disappears or is reduced to an acceptable value as well as developing an alternative strategy that has a higher probability of success but usually at a higher cost associated with accomplishing a project task.

According to Cooper et al (2005), eliminating activities with a high probability of loss by making it difficult for risk to occur, or by executing the project in a different way which will achieve the same objectives but which insulates the project from the effect of the risk can be termed was risk avoidance. According to him, risk avoidance can be done through: listing some activities that can help to avoid potential risk: More detailed planning, Alternative approaches , Protection and safety systems , Operation reviews, Regular inspections, Training and skills enhancement, Permits to work, Procedural changes, Preventive maintenance.

2.3.4.2 Risk Mitigation and its influence on project performance

In order to reduce the level of risk, the exposed areas should be changed (Potts et al, 2008). This is a way of minimizing the potential risks by mitigating their likelihood (Thomas et al, 2009). One way to reduce risks in a project is to add expenditures that can provide benefits in the long term. Some projects invest in guarantees or hire experts to manage high-risk activities. Those experts may find solutions that the project team has not considered (Darnall and Preston, 2010). Risk mitigation is all about understanding those risks that can impact the objectives of the organization, and taking the appropriate steps to reduce the risks to an acceptable level. Strategies can be achieved at the overall project level by re planning the project or changing its scope and boundaries.

According to (Hillson et al, 2015) risk mitigation is an investment of funds to reduce the risk on a project. Different organization takes different measures to reduce risk on their project. On international projects, companies will often purchase the guarantee of a currency rate to reduce the risk associated with fluctuations in the currency exchange rate. A project manager may hire an expert to review the technical plans or the cost estimate on a project to increase the confidence in that plan and reduce the project risk. Assigning highly skilled project personnel to manage the high-risk activities is another risk reduction method (Hillson et al, 2015).

According to Cooper et al. (2005), Mitigation strategies can include Contingency planning, Quality assurance, Separation or relocation of activities and resources, Contract terms and conditions, Crisis management and disaster recovery plans. Those risks which should be reduced can also be shared with parties that have more appropriate resources and knowledge about the consequences (Thomas et al, 2009). Sharing can also be an alternative, by cooperating with other parties. In this way, one project team can take advantage of another's resources and experience. This is about the sharing of responsibilities concerning with risks in the project undertaken (Darnall and Preston et al, 2010).

Tesch et al., (2007) identify several mitigation strategies as risk response solutions. As a mitigation strategy the authors suggest escalating risk issues to top management obtain signoff on commitments and stop the project and discuss with sponsor and management on further steps. In case there is lack of commitment from the management or the customer, the authors also suggest working with them to understand the reasons for indifference. Laurentiu & Gabriela et al

(2013) discuss the importance of a cost-benefit analysis on existing risks in the project. The authors suggest using a sensitivity analysis to identify risk parameters that may impact during project development and operational period and may lead to failure and varied points in the project life cycle.

Funding plays a crucial role to conduct risk mitigation activities and enabling the system to restore its usual functioning (Hecker, 2002). Funding deficits are an integral part of cost of time overruns. Infrastructure projects are prone to more funding deficits than projects in manufacturing or even software sectors (Little, 2010). Such funding deficits are more prevalent in large infrastructure or multi hazard mitigation projects with where investment stakes are high. According to Vizard (2008) IT firms have enough funding for their ongoing projects, but lack funding for infrastructure required for business continuity.

According to Goble & Bier (2013) periodic communication of risk assessment results can mitigate risks in projects. According to the authors risk assessments are repositories of structured information and a medium for communication. Hence, the judicious use of risk assessment tools with adequate communication can mitigate risks to agreat extent (Veil & Husted, 2012). Alexandra-Mihaela & Danut (2013) point out that internal communication is one of the most important factors for success in project management.

Project manager should tract the internal communication to ensure project deliverables to make ends meet (Aubry, 2011). Mitigation actions frequently have a cost. Sometimes the cost of mitigating the risk can exceed the cost of assuming the risk and incurring the consequences. It is important to evaluate the probability and impact of each risk against the mitigation strategy cost before deciding to implement a contingency plan. Contingency plans implemented prior to the risk occurring are pre-emptive actions intended to reduce the impact or remove the risk in its entirety. Contingency plans implemented after a risk occurs can usually only lessen the impact. Identifying and documenting events that pose a risk to the outcome of a project is just the first step. It is equally important to monitor all risks on a scheduled basis by a risk management team, and reported on in the project status report. . The first is mitigation steps that can be taken to lessen the probability of the event occurring. The second is a contingency plan, or a series of activities that should take place either prior to, or when the event occurs.

2.3.4.3 Risks Acceptance and its influence on project performance

When a risk cannot be transferred or avoided, the best solution is to accept the risk. In this case the risk must be controlled, in order to minimize the impact of its occurrence (Potts et al, 2008). This strategy can also be an option when other solutions are uneconomical (Thomas et al, 2009). Acceptance indicates a decision not to make any changes to the project plan to deal with a risk or that a suitable response strategy cannot be identified. This strategy can be used for both negative and positive risks. The two types of acceptance are developing a contingency plan to execute should a risk occur which is referred to as positive acceptance or taking no action at all which is passive acceptance. The most usual risk acceptance response is to establish a contingency allowance, or reserve, including amounts of time, money or resources to account for known risks. Recognizing that residual risks (i.e., risk that remains after a risk response has been taken) will exist and responding either actively by allocating appropriate contingency, or passively doing nothing except Monitoring the status of the risk can be termed as risk acceptance.

Risk acceptance would also mean that taking no action on risk was a carefully thought-after decision. Hence, if a decision is taken not to take any action of the existing risk and to accept it the way it is, it can be termed as risk acceptance strategy (Fairley, 2005). Risk acceptance can act as a double-edged Sword, if not monitored and inspected by senior management. It can become a potential threat to Organizations if it crosses a predetermined threshold level, thereby raising other forms of risks. The allowance should be determined by the impacts, computed at an acceptable level of risk exposure, for the risks that have been accepted. Risk acceptance does not reduce any effects however it is still considered a strategy. This strategy is a common option when the cost of other risk management options such as avoidance or limitation may outweigh the cost of the risk itself. A company that doesn't want to spend a lot of money on avoiding risks that do not have a high possibility of occurring will use the risk acceptance strategy.

2.3.4.4 Risks Transference and its influence on project performance

Potts (2008) states that risk should be transferred to those who know how to manage it. The actors that the risks can be transferred to are, for example, the client, contractor, subcontractor, designer etc., depending on the risk's character. As a result this could lead to higher costs and additional work, usually called risk premium (Potts, 2008). It must be recognized that the risk is not eliminated; it is only transferred to the party that is best able to manage it (PMI, 2004).

Shifting risks and the negative impacts they bring is also an option when the risks are outside the project management's control, for example political issues or labor strikes (Darnall and Preston, 2010). The situation may also consist of catastrophes that are rare and unpredictable in a certain environment. (Winch, 2002) Such risks that are beyond the management's control should be transferred through insurance policies.

Risk transference is the process of transferring any losses incurred to a third party, such as through the use of insurance policies, outsourcing to a party or even contractual agreements to transfer risk to third party. According to (Hillson, 2015) essentially this is a risk reduction method that shifts the risk from the project to another party. The purchase of insurance on certain items is a risk transfer method. The risk is transferred from the project to the insurance company. The purchase of insurance is usually in areas outside the control of the project team. Weather, political unrest, and labor strikes are examples of events that can significantly impact the project and that are outside the control of the project team. Transferring a portion or entire risk to a third party, by identifying another stakeholder to manage the risk activities with low probability of recurrence, but with a large financial impact, is termed as risk transference.

2.4 Risk Management and Project Success

Different attitudes towards risk can be explained as cultural differences between organizations, where the approach depends on the company's policy and their internal procedures (Webb, 2003). Within the risk management, three company's approaches can be distinguished. The first one is the risk-natural firm which does not invest much in risk management but is still aware of the most important risks. The second approach is the risk-averse, where no investments are made in order to reduce the probability of occurrence of risk. The last approach is the risk-seeker where the organization is prepared to face all risks and is often called gambler. In the long term, the risk-seeking companies can get a lower profitability compared to risk-natural firms. This is because of the large investments and losses when repeating the risk management processes over and over again to ensure all risks have been managed before the risks actually occurs (Winch, 2002).

The level of risk is always related to the project complexity (Darnall and Preston, 2010). The bigger the project is, the larger the number of potential risks that may be faced. Several factors can stimulate risk occurrence. Those most often mentioned in the literature are financial,

environmental (the project's surrounding, location and overall regulations), time, design and quality. Other influences on the occurrence of risk are the level of technology used and the organization's risks (Gould and Joyce, 2002). Cleden (2009) claims that complexity is a factor that can limit a project; the bigger and more complex a project is, the more resources are required to complete it. Moreover, when all potential risks have been identified, the project team must remember that there might be more threats. Therefore, the project team should not solely focus on management of those identified risks but also be alert for any new potential risks which might arise. Risk management should be used as a tool to discover the majority of risks and a project manager should be also prepared for managing uncertainties not included in a risk management plan (Cleden, 2009).

Researchers have had a common interest in the area of risk and uncertainty projects. Early publications include e.g. Alter and Ginzberg (1978), Zmud (1980) and McFarlan (1981), later followed by Boehm (1991), Barki et al. (1993), Charette et al(1996), and Lyytinen et al. (1996). These authors consider risk management primarily an ex-post evaluation process. The aim of such a process is to list and quantify the risks and find the causes for project failure. This information is then used in the next project in order to prevent these risks from occurring in the upcoming project.

Several articles have been assessed project risk management and its impacts on project success in detail. Ropponen and Lyytinen et al (1997) as well as McGrew and Bilotta et al (2000) consider the risk management process in more detail, arguing that risk management activities have a positive impact on a timely project delivery. In addition, risk management activities lead to a better estimation of the resources needed to perform a task (Ropponen and Lyytinen et al, 1997), and decrease the number of task failures (McGrew and Bilotta et al, 2000). Ropponen and Lyytinen et al (1997) have also found indications that experience counts, meaning that a frequent and this is a pre-print version of the paper that has been published in International Journal of Project Management, 2010-13 - continuous use of risk management measures by project managers in various projects overtime contributes positively to the effectiveness of risk management in their own projects.

The specialized literature on project risk management as seen here, provides sufficient elements for understanding the concepts and principles treated. Nonetheless, only more recent studies address the relationship of using this discipline with effective project results. The use of risk

management practices in projects related to successful projects can be seen in studies by Zwikael and Ahn (2011). These authors carried out a study in three countries, (New Zealand, Israel and Japan), with 701 project managers in 7 industrial sectors. The results suggest that risk management, even when moderate, has a relationship with levels of risk and project success. The study showed the importance of the project context, both the industry and the country, to levels of project risk.

To increase the chances of a proposed project succeeding, it is necessary for the organisation to have an understanding of potential risks, to systematically and quantitatively assess these risks, anticipating possible causes and effects, and then choose appropriate methods of dealing with them (Mobey & Parker, 2002). To ensure that any potential risks are managed effectively, the risk process needs to be explicitly built into the decision-making process. Risk management is thus an important tool to cope with such substantial risks in projects by: (a) assessing and ascertaining project viability; (b) analyzing and controlling the risks in order to minimize loss; (c) alleviating risks by proper planning; and (d) avoiding dissatisfactory projects and thus enhancing profit margins (Lam et al., 2007).

Project risk management consists of a sequence of related activities to make decisions based on information gathered about situations that may or may not occur (Boehm, 1991; Chapman & Ward, 1997; Pich et al., 2002). The sequence of activities that characterizes project risk management consists of identifying risks, analyzing risks, defining action, implementing action, and monitoring the situation (Association for Project Management, 2004; Del Caño & Pilar de la Cruz, 2002; Project Management Institute, 2008).

Project management methodology presumes that the actions taken, as a result of risk management, contribute to the success of the project. The Project Management Body of Knowledge states it as follows: “Risk is an uncertain event or condition that, if it occurs, has an effect on at least one project objective. Objectives can include scope, schedule, cost and quality” (Project Management Institute, 2008: 275), and: “The objectives of Project Risk Management are to increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project” (Project Management Institute, 2008: 274).

Applying principles of risk management supports the quality improvement and improves cost estimation by identifying and mitigating potential risks before a project begins. Risk management puts processes in place to ensure management receives organized risk information

early enough to apply corrective actions that will allow realistic schedule and cost estimates and assure successful completion of the project (Tinnirello et al, 2000). Risk management principles increase team involvement by providing a mechanism for the reporting of potential problems and increasing the team's stake in the overall success of the project. The embedding of risk is a long-term exercise to ensure that risk consideration is at the heart of the decision-making process (Hodge, 2002). Failure to appreciate risk issues may give rise to serious consequences (Fraser & Henry, 2007).

Elkington & Smallman et al (2002) have identified that there is a strong link between the amount of risk management undertaken in a project and the level of success of the project - more successful projects use more risk management. Also the earlier that risk management was used in a project, the more successful it was. It is essential that the risks of a project be assessed at the Project Brief stage. Risks identified here will not only help the production of the necessary project products, but will increase the chance of overall project success. A significant risk that is not identified and mitigated will become a real problem at some point during the project life cycle (Tinnirello et al, 2000).

K.D. Bakker (2011) identifies the following element as the effects of risk management practices on project success:

Table 2.4-1: Risk Management Practices

Risk management practice	**Effects contributing to project success**
Risk Management Planning	**- Indicate importance of actions** **- Communicate intended actions**
Risk Identification	**- Initiate action** **- Create awareness** **- Create common view** **- Create commitment** **- Sharing concerns** **- Clarify expectations**
Risk Analysis	**- Direction of actions** **- Create acceptance of risk** **- Indicate impact**
Risk Reporting	**- Setting direction** **- Setting priorities** **- Create awareness** **- Create commitment** **- Clarify expectations** **- Create positive feeling** **- Establish trust**
Risk Control	**- Initiate action** **- Direction of actions**

Source: K.D. Bakker, 2011

2.5 Empirical Literature Review

According to study by Turner (1993), project risk management has a positive effect on project success in terms of "on time, within budget delivery" of a pre-defined result. Project management handbooks and methodologies (Association for Project Management, 2006; Project Management Institute, 2008) also stress the importance of the use of risk management techniques, and provide project managers with guidelines on how to apply risk management within their projects.

Cooke-Davies (2000) in his dissertation on project management practices states that based on empirical evidence; risk management has a positive impact on the ability to predict the project duration. Risk management aims at listing the characteristics of the risk management process of a particular project. It involves issues such as: who will participate in the risk identification, which tools will be used, how the risks should be reported, who will receive this information, and what is expected of them.

Addison and Vallabh, (2002) carried out a study on impact of project risk Identification on the performance of software projects in IT enterprises in China. The study adopted a survey research design. Data collection was achieved through the use of a structured questionnaire, which asked respondents questions aimed at achieving the study objective. A total of 70 project managers from IT enterprises were sampled the method of sample selection referred to as 'snowball' sampling was used. Of the 70 questionnaires distributed, 36 were returned. The study found that software project risks identification of unclear or misunderstood scope/objectives, unrealistic schedules and budgets, inadequate knowledge/skills and lack of effective project management methodology and misunderstanding the requirements identified by many researchers, subcontracting risk and regularly occur in software projects influence management adopting appropriate risk mitigation measures influencing software projects completion within time and increase profitability.

Ward and Chapman (2003) suggested that a broader perspective concerned with managing uncertainty is needed in every project and this uncertainty management approach should facilitate integration with project management earlier in the project life cycle. As cited by Kohlmeyer and Visser (2004), Elkington and Smallman found that there is a strong link between the amount of risk management undertaken and the level of project success; more successful projects use more risk management. According to Kohlmeyer and Visser (2004), the key

elements of the risk management process as identification, assessment, analysis, reduction and or mitigation and monitoring. On the practices of risk management in projects, Benta et.al (2011) concluded that as integral part of project management, effective risk management is a critical success factor for delivering projects in predefined cost, time, and quality. Project risk management provides benefits when it is implemented according to good practice principles and with organizational commitment to taking the decisions and performing actions in an open and unbiased manner.

Mudau; Pretorius (2009) aim in their study ―Project control and risk management for project success: A South African case study to assess the extent to which project control and risk management contribute to, and how it can be used effectively in ensuring project success and identify the factors that contribute to project success. The results of the questionnaire were processed and analyzed by using a spreadsheet application. The main findings indicated that project controlling and risk management have a significant influence on performance of the project and therefore on the success of the company. It was also found that effective earned value management contributes positively to the project success. By strengthening and focusing more on project controlling and risk management methods and processes, the performance of projects should improve.

Rabechini and Monteiro (2013) Support these statements and emphasized on their findings that explained how risk management is practiced in different types of projects. They conducted a study on 411 different projects in several states of Brazil with a goal to know the impact of risk management on project performance. The study also further aimed to investigate the degree flow of risk management practice in Brazilian companies. From the data that was collected by applying a questionnaire to a sample of 411 projects, the researchers were able to observe that the risk management techniques and tools were poorly used in the projects. The researchers analyze and revealed from their findings that paying attention to uncertainties during the project, making use of risk management techniques and deeply understanding the business environment are critical success factors for a given project. The findings of the research also suggested that project managers should assign a specialized professional to deal with risk management activities. Since the presence of project risk manager was one of the significant variable in the study to understand the relationship between risk management and project success. Finally, the

results of the research demonstrated that adopting risk management practice and the presence of a risk manager has a significant positive impact on project success.

Project risk management is a collection of methods aimed at minimizing or reducing the effects of project failure. Roque and de Carvalho (2013) noted that there was need for significant risks management and controls to reduce the occurrence of the risk factors, or minimize the impact of various project risks. The assessment of project uncertainties during the project, made use of the risk management strategies and deeply understand the business environment were critical success factors had a significant impact on project performance. However, Roque and de Carvalho (2013) failed to identify measures of project performance in term of timeliness, profitability, costs and project schedules.

Alike to this study Kuhn and Visser, (2014) found similar result on a research conducted on 20 mining projects in South Africa. The results indicate that project teams used only a few of the tools and techniques that are available for risk identification, qualitative risk analysis, and quantitative analysis. From this they stated that this is an indication that uncertainties relating to the project are not well understood or managed. They recommended that projects should use project risk management as an integrated process of project management to deal with uncertainties in the project environment.

Ewer (2008) explain in their study ―The Impact of Risk Management on IS Projects Success in Syria. It uses questionnaire to get information from IS managers and developers in Syria. The conclusion of this research presents that many of Syrian IS companies don't have a formal risk method, and using risk management will increase the success rate of IS project.

Bakker and Wortmann (2010) present in their paper ―Does risk management contribute to IT project success? A meta-analysis of the empirical evidence that either supports or opposes the claim that risk management contributes to IT project success. In addition, this paper also investigates the validity of the assumptions on which risk management is based. The analysis leads to remarkable conclusions. Over the last 10 years, much has become known about what causes IT projects to fail. However, there is still very little empirical evidence that this knowledge is actually used in projects for managing risks in IT projects. This paper concludes with indicating new directions for research in the relation between risk management and project

success. Key elements are stakeholder perception of risk and success and stakeholder behavior in the risk management process.

According to Yimam, 2014, the practice of risk management in Ethiopia is very little and undeveloped. A study conducted by Getachew, 2014 on the practice of construction risks management through insurance in the Ethiopian federal road projects revealed that formal risk management is not practiced well. “Road construction risks are not managed with formal risk management system. However, there are routine practices employed to manage risks. These traditional practices, though contribute to risk management, do not conform to the formal risk management processes which involves risk management planning, identifications, assessment, response planning, and monitoring. It is evident that the Federal road projects are not free of risks which have an impact on time, cost, and quality objectives of the projects. Responding to risks with no structured system does not bring about substantial improvement in managing the risks.”A Survey was conducted by Frezewed, 2016 on the practice of project risk management in the case of Batu and Dukem town water supply projects and her study revealed that risk management knowledge area is practiced little in the projects. The study also showed that there is no practice of assigning a risk manager, whose primary responsibility is managing risks. The same study sited that, other studies done in the country in the areas have also found similar findings with respect to project risk management.

The above discussion on theories and summary of findings of related studies clearly indicates that project risk management practice is important to lead projects towards success by reducing the negative impact of risks and uncertainties.

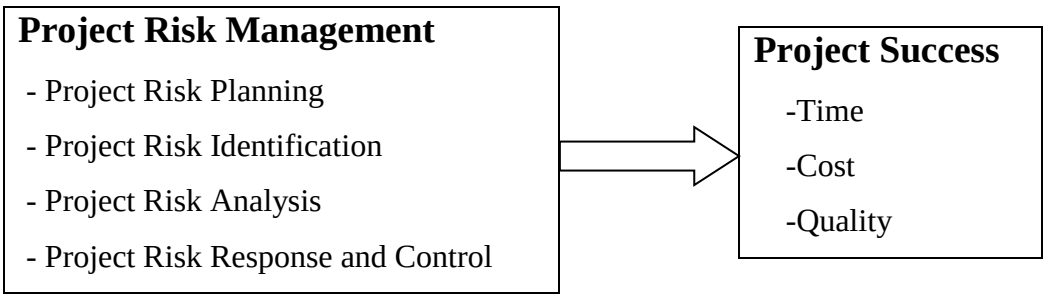
2.6 Conceptual Framework

According to Wabomba (2015), conceptual framework is an analytical tool with several variations and contexts. It is used to make conceptual distinctions and organize ideas. Strong conceptual frameworks capture something real and do this in a way that is easy to remember and apply. In this particular study the conceptual framework will depict independent and dependent variables. Building on literature on project success (Webb, 2003; Koningsveld & Mertens, 1992; Kutsch & Hall, 2005; Ropponen and Lyytinen et al (1997) as well as McGrew and Bilotta et al (2000)), this study identifies projects being a success from a traditional standpoint, which means the on time, within budget delivery of a pre-defined result, and quality standards.

According to Project Management Institute (2008), Project Risk Management Practice involves the following risk management processes: Risk management planning, Risk identification, Risk analysis (Qualitative and Quantitative), Risk responses planning and Risk monitoring and control. The first process of risk management is Risk management plan which is a document that a project manager prepares to foresee risks. The next step to risk management plan is proper identification of all known risks. You cannot mitigate the risk if you are unaware of it. So this step must be done accurately and thoroughly so all possible known risks can be addressed when the time is appropriate (Olson et al, 2007). The third step is determining the impact and probability of each identified risk. This is done because not every risk associated with a business will impact it. For this reason each ones probability of impact has to be evaluated. The impact of each risk is also different for every company it comes in contact with. With these two factors known, the priority of the known risks can take place (Olson et al, 2007). When all of the previous steps are complete the magnitude and the importance of risk, management policy can fully be appreciated. The next step is the reason for the policy in the first place. This is to mitigate the impact of all the indentified risks to lessen their impact as much as possible (Olson et al, 2007).

Based on the literature review, a conceptual framework for evaluating the impact of risk management practices on project risk management processes and identifying the relationships between project risk management processes and successful project outcomes has been constructed.

Figure 2.6-1: Conceptual Framework



The important role of Risk management in projects for successful completion has been confirmed by many previous studies. The aim of this research is to explore in more details the role of different input factors in the project risk management on performance of projects implemented in the Commercial Bank of Ethiopia. Based on the research objectives and the developed model the relationship between the project risk management process and project successes will be examined.

In this study, the relationship between project risk management practice and different project successes factors are examined in the sample taken projects. Thus, risk management practices was measured through the implementation of all the project risk management activities identified in project management body of knowledge (Identify risk, Plan risk Management, analyze project risk and respond and control risk).

2.6.1 Variables Identified from the Literature

From the literature reviewed and conceptual framework this study identified the following independent and dependent variable. For these variables a five point Likert scale was developed to measure the identified variables.

The dependent Variables for the study are indicators of project success which includes:

i. Time
ii. Cost
iii. Quality

The independent variables used in the hypothesis is project risk management practices that indicate the level to which the performance of the risk management activities is accomplished in each projects by using five point likert scale(1-strongly disagree to 5-strongly agree) and this variable includes:

i. Risk Management Planning
ii. Risk Identification
iii. Risk Analysis
iv. Risk Response and Control

2.6.2 Model Development

The study was mainly focused on assessing the Role of Project Risk Management practices on Project Successes. Thus, model was used to test hypothesis which predicts the relationship between risk management practices and project successes. Mathematically, this model is expresses as:

PS= n (PRM) = n (PRP, PRI, PRA, PRCR)

Where: -PS- project successes

PRM- Project Risk Management

PRP- Project Risk Planning

PRI- Project Risk Identification

PRA- Project Risk Analysis

PRCR- Project Risk Control and Response

Model 1a:_ Impacts of Project Risk Management processes on completion time of the project
PS1= n1 (PRM) = n1 (PRP, PRI, PRA, PRCR)

Model 1b:_ Impacts of Project Risk Management processes on completion cost of project
PS2= n2 (PRM) = n2 (PRP, PRI, PRA, PRCR)

Model 1c:_ Impacts of Project Risk Management processes on quality of the project
PS3= n3 (PRM) = n3 (PRP, PRI, PRA, PRCR)

Where: -PS1- project successes factor 1-Completion Time

PS2 -project successes factor 2-Completion Cost

PS3- project successes factor 3-Project Quality

n1- Completion Time

n2- Completion Cost

n3- Project Quality

CHAPTER THREE: METHODOLOGY OF THE STUDY

This chapter describes why the research was done, how it was done and through what data sources. The chapter was also encloses sections about the research design and approach, data collection procedure, population, sample size and sampling techniques, data sources and collection techniques, method of data analysis, and the ethical issue that was considered while undertaking the study.

3.1 Research Approach

Saunders et al. (2003) make a distinction between a deductive and an inductive research approach. A deductive approach starts with the development of a theory and hypotheses, after which a strategy is developed to test the hypotheses. An inductive approach aims at developing a theory from data collected. In practice, the division between approaches is less rigid. This study was collected data from the concerned stakeholder about the practice of Risk management in some projects implemented in the Commercial Bank of Ethiopia. Hypothesis testing was also undertaken to assess the impacts of project risk management practices on project success. Thus, both inductive and deductive research approach was employed for this study.

There are two types of research approach: qualitative and quantitative. Quantitative research is normally used for data collection techniques, such as questionnaire or analysis as graphs or statistics that generates numerical data. According to Aliaga and Gunderson (2005), quantitative research is an "explaining phenomena by collecting data that were analyzed using mathematically based methods". The main objective of using quantitative research method is about numbers and objective hard data (Andersson, 2006). The quantitative data is evaluated and analyzed by using statistical method (Höst et al., 2011). The quantitative research method is allowing the researcher to "seek to confirm hypotheses about phenomena" (Mack et al., 2011) and uses highly "structured methods such as questionnaires, surveys and structured observation" (Mack et al., 2011). Using quantitative method the analytical objectives will be "to quantify variation" and "to predict casual relationships". Qualitative research, on the other hand is concerned with subjective assessment of attitudes, opinions and behavior of a phenomena. In this study both qualitative and quantitative methods were employed for better interpretation and presentation of findings.

3.2 Research Design

The research design is the logic that links the data to be collected to the initial question of study (Yin, K. 2009). Research design is the conceptual structure within which research is conducted; it constitutes the blue print for the collection, measurement and analysis of data (Kothari 2004). In order to address the research questions and also achieve the research objective, the researcher has determined the suitable research design.

This research paper used descriptive and explanatory research design. The research is descriptive as it attempts to answer the question of how risk management practices were implemented in the different projects undertaken in the Commercial Bank of Ethiopia. The descriptive part of the study also presents the success level of those projects involved in the study from the angle of on time, within budget and with promised quality completion of those projects. The research is explanatory as it seeks to show whether such risk management practices affect the project performance. The research attempts to predict and correlate a risk management practices with project success.

3.3 Population, Sample Size and Sampling Techniques

The target population of the study, sample size and sampling technique employed for this study were mainly discussed below.

3.3.1 Population of the Study

Target population is said to be a specified group of people or object for which questions can be asked or observation made to develop required data structures and information (Hair et al. 2010). Therefore, for this study the target population was mainly projects implemented in the Commercial Bank of Ethiopia at different times. The study took sample of projects from the total projects implemented in the Commercial Bank of Ethiopia. Then from sample projects selected for the study, project team members were participated in answering the research questionnaire distributed to them.

3.3.2 Sample Size

According to Mugenda (2005), sample size determines the precision within which population value can be estimated, for that reason, experts emphasize that the sample has to be reasonably

large to obtain accurate estimates. A representative sample on the other hand is one which is at least 10% or 20% of the population (Mugenda, 2000). Sample size determined for this study was 12 projects that were implemented in the Commercial Bank of Ethiopia. Even though there were a lot of projects implemented in the Commercial Bank of Ethiopia, it was not possible to got data about the other project that was why the sample size was limited to 12 projects only. Project team members were participated in answering the questionnaire of the study.

3.3.3 Sampling Techniques

Sampling technique employed for the study was mainly purposive sampling. According to Saunders et.al (2009), purposive or judgmental form of sampling is often used when working with very small samples. This form of sampling enables to use judgment to select cases that will best enable to answer research question(s) and to meet the objectives. Similarly, Singh (2006), states that the idea of purposive sampling is to pick out the sample in relation to some criterion, which are considered important for the particular study. It involves the selection of a group from the population on the basis of available information.

3.4 Data Types and Data Sources

In this study, both primary and secondary data was employed. The primary data was collected from project team members who were participated in those sample projects taken for the study. Interview and questionnaire was used to collect those data. The questionnaire was used to know the project risk management practices and the status of the project with respect to project success factors in the Commercial Bank of Ethiopia. The questionnaire was organized into a five point Likert scale ranging from “strongly disagree which was represented by 1” to “strongly agree which was represented by 5” on the scale. A total of 36 survey questionnaires were distributed to team members of Project Management Office of Commercial Bank of Ethiopia and 29 questionnaires were appropriately filled and returned which gives 80.7 % response rate which was assumed to be suitable for further analysis.

Secondary data was obtained from written sources that include: reports from published and unpublished materials from Commercial Bank of Ethiopia project management office, journals and periodicals, internet, and others. The advantage of using secondary data is that it can be used as the baseline to compare the primary data collected from this research. Details of these was analyzed and interpreted in reference to the subject matter of the study.

3.5 Data Collection Procedures

As explained above, this study used both primary and secondary data for the study. Primary data was collected using questionnaire and interview which was self-administered. Structured questionnaires which was adopted from different sources and developed by the researcher were employed to collect demographic and other relevant data from participants of the study. Both open and close ended questions were used. Questionnaires were distributed to volunteer after brief explanation of the objectives of the study considering ethical issues. The questionnaire was employed mainly to collect information about practices of project risk management (Project risk planning, project risk identification, project risk analysis and project risks control and response) and the perceived success of some of the projects implemented in the Commercial Bank of Ethiopia. Each of the items in the instrument was measured on five point Likert scale. Likert items were used to measure respondents' attitudes to a particular question or statement. The valid questionnaires returned for analysis in time was included in the analysis. Interview was also conducted with some individuals in some of the projects in order to get the full pictures of the projects under study.

Secondary data sources include journals, reports, magazines and unpublished materials from project management office.

3.6 Validity and Reliability of the Data

Validity is the degree to which an instrument measures what it is supposed to measure. The reliability of a research instrument is the extent to which the instrument yields the same results on repeated measurements. The tendency toward consistency found in repeated measurements is referred to as reliability (Carmines & Zeller, 1979). The researcher used the retest method to determine the reliability of the instruments by giving the same test to the same people or asking the same questions in different ways in different parts of the interview and questionnaire. This was achieved by asking the same question in a slightly different way at a later time or in different parts of the questionnaire. The reliability of the instrument was estimated by examining the consistency of the results between the two measurements.

A pilot study was done to test validity and reliability of the instrument. Pilot test was given to ten individuals who participated in the study. The pilot study enabled the researcher to be familiar with research and its administration procedure as well as identifying items that require

modification. The result helped the researcher to correct inconsistencies arising from the instruments to ensure the instrument measured what was intended to measure. Reliability was obtained by correlating the scores of each questionnaire for each variable. SPSS 21 was used to calculate Cronbach's alpha in order to determine how reliable the data collection instrument (questionnaire) was over the data the study collected. Most of the constructs are good. Cronbach's alpha (α) < 0.6 indicates unsatisfactory internal consistency reliability (Malhotra& Birks, 2007) and Cronbach's alpha (α) > 0.6 indicates satisfactory internal consistency reliability (commonly accepted level) (Nunnally & Berstein, 1994). The finding showed that overall Cronbach's Alpha value was 0.85 which was acceptable for the study

Figure 0-1: Cronbach's Alpha

Cronbach's Alpha	N of Items
.850	10

Sources: Researcher's Survey

3.7 Data Analysis

Analysis is an interactive process by which answers are examined to see whether the results are relevant to each research questions (Backstrom & Hursh-Cesar, 1981). Data analysis is working with the data, organizing it, breaking the data into manageable units, synthesizing it, searching for patterns, discovering what is important, what is to be learnt, and deciding what the researcher wants to tell others (Bogdan & Biklen, 1982). It can be deduced from this that meaning must be made from the research data collected to draw inferences to answer the research questions and achieve the required purpose of the research in general.

In this study, the collected data was well examined and checked for completeness and comprehensibility. The data was then summarized, coded and tabulated. Data presentation was done by the use of pie charts, bar charts and graphs, percentages and frequency tables. The data analysis techniques employed were mainly two types. In the first part of the analysis, descriptive method was used which was interpreted in the form of frequency, percentages, means and standard deviations. In this case, data collected about the dependent variables (project time, cost and quality) and independent variables (risk planning, risk identification, risk analysis and risk response and control) were analyzed and discussed separately. To confirm the finding in the

form of qualitative analysis, the correlation between dependent and independent variables were tested by Pearson coefficient of correlation which was measured using Statistical Package for Social Sciences version 21. To test the hypothesis and to learn the impact and relative importance of independent variables onto dependent variables regression analysis was utilized.

3.8 Ethical consideration

Saunders, Lewis, and Thornhill (2009) noted that ethical issues in research refers to the appropriateness of one's behavior in relation to the rights of those who become the subject of one's work, or are affected by it. The researcher ensured that guarantees to the participants concerning confidentiality are given and strictly observed. The researcher strived to maintain truthfulness in reporting data results by ensuring that there is no fabrication, falsehood, or any misrepresentation of data. Since the data collection is sensitive as it relates to people's confidential details such as bank sensitivity to their secrets, the study ensured that respondents in this study remain anonymous and that data gathered was not to be shared to the competitors.

CHAPTER FOUR: ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter deals with data analysis, a process which describes as critically examining the data collected in the research field. It is undertaken in order to answer the research question (Adèr, 2008:363). As shown in the research methodology in Chapter Three, a total of 36 questionnaires were personally administered to team members of projects undertaken in the Commercial Bank of Ethiopia in order to answer the research questions. In addition to administering the questionnaires face-to-face interviews were held with some team members and certain company documents were reviewed in order to get the general pictures of the case under investigation. The interview data is analysed qualitatively and is not discussed separately rather it is used as supportive elements to the date collected through the questionnaire.

In this study the first part of the analysis used descriptive statistics using SPSS version21 and the finding of the analysis was presented using frequency tables, percentages, and charts. This section mainly used to discuss the general demographic of the respondents, the success status of the project they engaged with and the risk management practices of the projects and team members level of awareness with respect to the necessity of risk management for project success. The second part of the study was mainly focused on analysis of the impacts of project risk management on project success. Thus in this part, multiple regression was used to test the hypothesis stated in the conceptual framework and the output from the analysis was also discussed in this section of study.

4.2 Response Rate

As described above, a total of 36 questionnaires were distributed to the sample respondents of the study. From this, a total of 32 answered questionnaires were retrieved, which is 88.9% of the total distributed questionnaires. After checking the retrieved questionnaires, the 29 questionnaires were valid for statistical analysis. Ultimately, 80.7% of the total questionnaires distributed entered the analysis.

4.3 General Information of the Respondents

This part presents the general information of the participants of the study which include: Gender, Age, Educational level of the participants, experiences in the bank and total experiences in the

project management office of the Commercial Bank of Ethiopia. Accordingly, the information is presented in the following table.

Table 0-1: Gender of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	22	75.9	75.9	75.9
	female	7	24.1	24.1	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As shown in the above table, about 75.9% of the respondents were male and the remaining 24.1% of the respondents from the lists participated in this study were female.

Table 0-2: Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	21	72.4	72.4	72.4
	31-40	8	27.6	27.6	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As shown in the above table, most of the respondents of the questionnaire (72.4%) were mainly between 20-30 years old. The remaining respondents (27.6) were mainly between 31-40 years.

Table 0-3: Level of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree	24	82.8	82.8	82.8
	Postgraduate	5	17.2	17.2	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As shown from the above table, most of the respondents of the study exist at similar educational level. 82.8 % of the respondents had an undergraduate degree while 17.2 % had postgraduate degree.

Table 0-4: Years of Experiences

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 2 years	10	34.5	34.5	34.5
	2-5 Years	9	31.0	31.0	65.5
	6-10 Years	7	24.1	24.1	89.7
	11-15 Years	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As it can be seen clearly from the above table, there were different individuals with different levels of experiences involved in the project management team members. As shown, about 89.7% of the respondents were less than ten years of experiences and the remaining 10.3 were above 10 years experiences in the Commercial Bank of Ethiopia.

Table 0-5: Years of experiences in Projects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 1 Year	8	27.6	27.6	27.6
	1-2 Years	8	27.6	27.6	55.2
	2-3 Years	10	34.5	34.5	89.7
	Above 3 Years	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As shown in the above table, about 55.2% of the respondents were less than two years of experiences, 34.5% were between two to three years of experiences in project management. Only the remaining 10.3% of the respondents of the participants of the study were more than three years of experiences. This is mainly because (according to the information obtained by interview), most of the individuals in the project management office come from the operational departments or they are business owners and they participate in the projects. After the output of the projects was implemented, they leave the project and either returned back to their functional department or they assigned to manage the output of the project. But according to the

information obtained by interview, team members who participate in the projects were joining the team from the initiation stage of the project. Working more years on the project would mean that a more informed response to the questions is given because of the respondents extended knowledge of the project's doings (Kalkidan, 2017). But as shown in the above table, most of the respondents do not have good experiences in project area which may affect the output of the project.

4.4 Response about Project Success

The second parts of the questions presented to the respondents were about the success of the projects they participated in with respect to delivering with the scheduled time, within the budgeted cost and the specified quality. Accordingly, their responses were discussed below by using different statistical package.

Table 0-6: Response about project completion time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	10.3	10.3	10.3
	Disagree	20	69.0	69.0	79.3
	Agree	5	17.2	17.2	96.6
	Strongly Agree	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As shown in the above table, about 69% of the respondents disagreed with on time completion of the projects and 10.3% were strongly disagreed with on time completion of the project. Thus, about 79.3% of the respondents argued that the project they participated in was not completed on time. On the other hand, 17.2% of the respondents of the study argued as their projects were completed within the intended time. 3.4% of the respondents of the study responded as their projects were completed and delivered ahead of time.

The other issue of concern in this part of the study is whether the projects were completed within the budgeted costs. The responses of the participants were presented in the table below:

Table 0-7: Response about project completed within the budgeted cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	6.9	6.9	6.9
	Disagree	19	65.5	65.5	72.4
	Uncertain	2	6.9	6.9	79.3
	Agree	5	17.2	17.2	96.6
	Strongly Agree	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As shown in the above table, 65.5% of the respondents disagreed that the projects they participated in was completed with the intended budget. They argued that their project was overrun the budgeted amount. About 6.9% of the respondents were strongly disagreed with on time completion of the project. 6.9% were uncertain whether their projects were completed within budget or not. On the other hand, 17.2% of the respondents agreed that their project was completed with budgeted cost and the remaining 3.4 % of the participants responded that their project was completed with the amount below the budgeted cost.

The other concern in the second parts of the questionnaire is about the quality of the output of the projects in relation to specification or standard established at the beginning of the project. Table 10 below presents the response of the participants of the study.

Table 0-8: Response about project quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	6.9	6.9	6.9
	Uncertain	1	3.4	3.4	10.3
	Agree	25	86.2	86.2	96.6
	Strongly Agree	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As shown from the table, most of the projects (86.2%) implemented in the Commercial Bank of Ethiopia were completed within the specified and acceptable quality level at the beginning of the project. 6.9% of the respondents argued as their project was not completed within the specified

quality and 3.4% do not know whether the project was completed within the specified quality. Only 3.4% of the respondents were responding as their project was completed with above specified quality.

4.5 General Overview of Project Risk Management Practices

This part of the study discusses the general understanding of the project team in project risk management which is very useful to assess its relation with project success.

Table 0-9: Project risk management practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	17.2	17.2	17.2
	Disagree	16	55.2	55.2	72.4
	Uncertain	2	6.9	6.9	79.3
	Agree	6	20.7	20.7	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As illustrated in the above table, Responses on project risk management practices reveal that 17.2 % of the respondents strongly disagreed and 55.2 % of them disagreed to the existence of a defined or standard risk management practices in their project; where as 6.9 % are uncertain whether it exists. This indicates that the majority of respondents (72.4 %) disagreed in the presence of a standard that is to be followed in the course of risk management that needs to be followed in implementing projects in the Commercial Bank of Ethiopia. 20.7 % agreed that the project they managed has a defined or standard risk management process.

Table 0-10: Response about continuous Risk Management practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	6.9	6.9	6.9
	Disagree	20	69.0	69.0	75.9
	Uncertain	2	6.9	6.9	82.8
	Agree	5	17.2	17.2	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

The other issue that is considered in this part is whether risk management is practiced continuously throughout all phases of the project in order to accomplish the project effectively. In this regards, 6.9% of the respondents Strong disagreed and 69% disagreed with practicing risk management throughout the life cycle of the project continuously. According to response from the interview, risk management is mainly undertaken at the implementation stage which is risks mainly related with operation rather than risks that could affects the success of the project. 6.9% of them are uncertain whether it was practiced in the project. The remaining 17.2% of the respondents were practiced risk management continuously in the project they implemented.

Table 0-11: Response about the existence of risk management policy and Guidelines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	10.3	10.3	10.3
	Disagree	14	48.3	48.3	58.6
	Uncertain	6	20.7	20.7	79.3
	Agree	2	6.9	6.9	86.2
	Strongly Agree	4	13.8	13.8	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

In the Commercial Bank of Ethiopia, there has been risk management department and policy and guidelines are there for the daily business of the bank. But, with respect to the project about 20.7 % of the respondents were not sure whether the project they implemented had a defined policy and guidelines. Moreover, 58.6% of the respondents argued as there were no policy and guidelines and 20.7% (13.8% strongly agree and 6.9% agreed) had defined policy and guidelines for their project. According to the responses from the study, some of the projects had risk manager for their project and others had no responsible person to manage risk that may encounter the project.

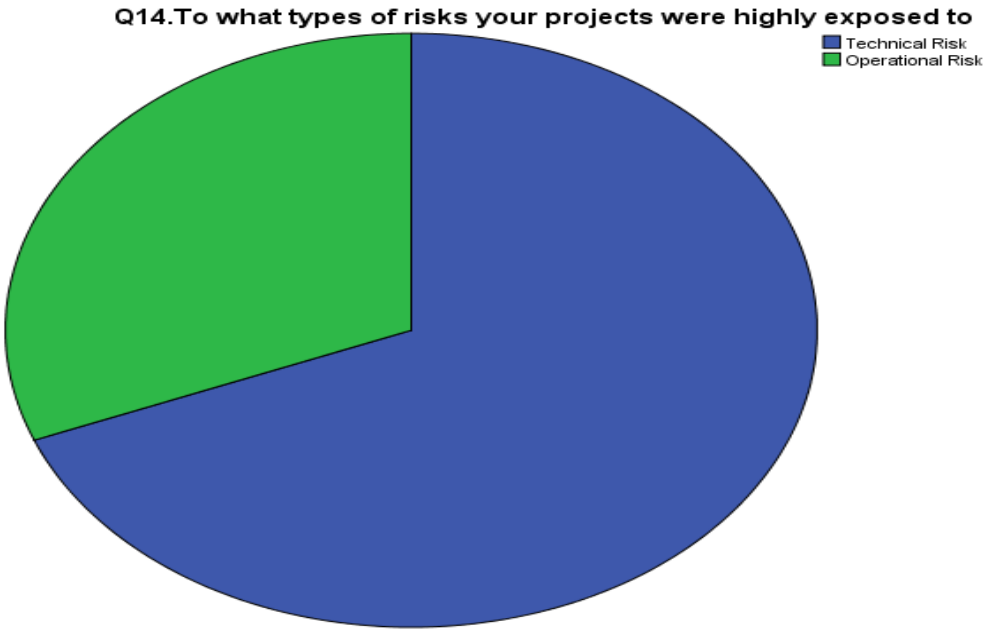
According to literatures, there are different types of risk that encounter the project which includes: Technical risk, operational risk, market risk, financial risk, political risk and others. Below shows the different risks that mostly considered in the projects taken as a sample in the Commercial Bank of Ethiopia.

Table 0-12: Response about types of risk

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Technical Risk	20	69.0	69.0	69.0
	Operational Risk	9	31.0	31.0	100.0
	Total	29	100.0	100.0	

Sources: Own Survey, 2018

Figure 0-1: Types of risks



Source: Own Survey, 2018

As indicated in the above table and figure about 69% of the respondents claimed as their project was mainly exposed to technical risk and the remaining 31% of the projects selected as sample for the study was exposed to operational risks according to the respondents.

4.5.1 Responses on Project Risk Planning

Risk management planning had a substantial positive effect on project success. Cooke-Davies (2000) in his research found a positive effect of risk management planning on project success "By doing risk management planning, you inform project team members what you want to do about risk management; you indicate risk management is important ..." The response of the

participants of this study about project risk management planning is presented in this part of the study report.

Table 0-13: Responses about Risk Planning Practices:

	N	Mean	Std. Deviation
Q15.Risk management planning was implemented in your project before the project is launched	29	2.1724	1.07135
Q16.Relevant stakeholders are involved in risk management planning	29	2.0345	.94426
Q17.Environmental factors are taken into account during risk planning	29	2.7586	.98761
Q18.Risk management planning in your project communicates the intended actions	29	2.8621	1.05979
Valid N (listwise)	29		

Sources: Researcher's Survey, 2018

As shown in the above table, mean for risk management planning before project is launched is below average (2.17). These show that, risk management planning is not widely practiced in sample taken projects implemented in the Commercial Bank of Ethiopia. Stakeholder involvement in project risk planning is also below average as depicted in the table (2.03). This is to mean that, most of the project stakeholders such as project team members and others were not involved in developing risk management planning documents. But as shown in the table, more than average number of the respondents (mean 2.7) takes into account environmental factors while planning for the risk.

Most of the respondents in the study agreed with the importance and necessity of project risk management planning contributions for project. In this lists, even those who didn't develop risk management plan in their respective project believed in the necessity of this document to successfully complete project.

In general, as it can be seen from the table the concern given to project risk management planning is unsatisfactory and below average in projects implemented in the Commercial Bank of Ethiopia.

4.5.2 Responses about Project Risk Identification

Risk identification is the most used risk management activity according to different literature. This conforms to earlier results found by Voetsch et al. (2004) and Bannerman (2008), who found that the use of risk identification in projects is widespread. Risk identification is used in various formats; brainstorm sessions, moderated sessions, and meetings either with project members or experts. In this study also, respondents were required to state if their projects had carried out a comprehensive and systematic identification of its risks relating to the project. A likert scale was used to measure the degree of acceptance and below was the results:

Table 0-14: Response about project risk identification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	6.9	6.9	6.9
	Disagree	16	55.2	55.2	62.1
	Uncertain	3	10.3	10.3	72.4
	Agree	5	17.2	17.2	89.7
	Strongly Agree	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

Source: Own Survey, 2018

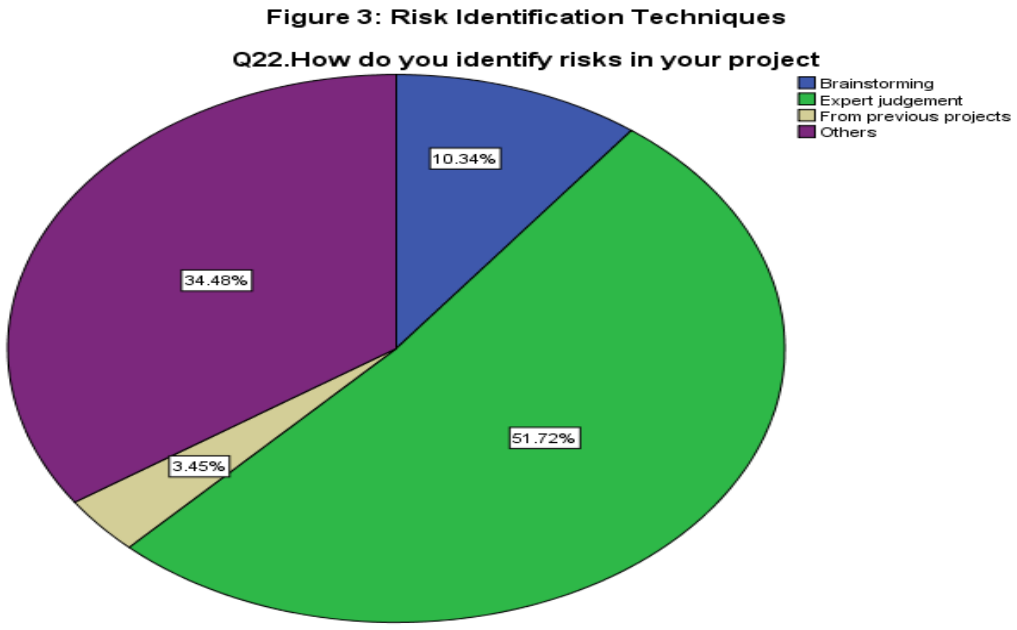
As shown in the table above, 6.9% of the respondents were not completely identify risks in relation to their project while 55.2% of the respondents of the study stated the absence of formal and predefined risk identification in their specific project. Thus, in general from the lists of participants in the study, about 62.1% didn't practice risk identification in their respective projects. This indicates that in such project, Project risk sources, areas of impact and their causes and potential consequences were not identified at the outset in an effort to generate a comprehensive list of risks that might influence the achievement of its objectives. 10.3% of the respondents were not sure whether their project had a defined and formal risk management practices.

In the study as shown in the table, 17.2% of the respondents were formally undertake risk identification at the outset and the remaining 10.3% of the respondents strongly agreed that they practices risk identification at the beginning and at the different stages of the project depending

on the need. This is also confirmed in the interview undertaken with some project team members in different project.

In some projects undertaken in the Commercial Bank of Ethiopia according to the response of the study through questionnaire and interview, risk identification is not done in most of the case or not done continuously throughout all stages; rather it is done at the implementation stage. According to PMI, project risk management standard, all stakeholders should participate in risk identification process of the project. Risk identification sessions should include as many as the following participants: Project team, Risk management team, Customers and end-user, outside experts and all other concerned bodies (PMI, 2008). In Commercial Bank of Ethiopia project, according to the interview with the project team members, the identification of risk was not inclusive. Here is the response from the finding of the study:

Figure 0-2: Response about Risk identification techniques



Source: Researcher's Survey, 2018

As shown in the above table, about 51.7% of the respondents explained that, expert judgment was used in risk identification in their project. About 34.48% were replied as some other techniques were employed to identify risks for their project and 10.34% of the response indicated about the inclusion of the project team in risk identification process in the sample taken project

of the Commercial Bank of Ethiopia. For proper identification of project risk, information from prior projects, experience, developments, hints, failures and risks of those former projects are useful in helping to identify risks in the new project. In this regard, only 3.45% of the respondents argued as they used prior similar projects experiences in risk identification.

In general, the importances attached to risk identification according to the perception of the participants of the projects were also treated in the study and the following findings were obtained.

Table 0-15: Respondents believe in importance of risk identification

	N	Mean	Std. Deviation
Q23.To what extent you agree with the statement "Effective identification of risk contributes to the success of the project".	29	4.2759	.59140
Valid N (list wise)	29		

Source: Researcher's Survey, 2018

As shown in the study, mean value is above average (4.27) which indicated that most of the respondents were agree with the necessity of risk identification for the successful implementation of the project even though some of the respondents were not implemented this process of project risk management in the respective project. This is also confirmed with the interview undertaken with some project team members in the data collection process.

4.5.3 Responses on Risk Analysis

The basis of risk analysis is risk identification. Risk analysis covers a complete and continuous evaluation which should be realized quantitatively as well as qualitatively for all identified risks. Risk analysis includes analyzing the risk and measuring its vulnerability or its impact. Frequency and severity of the risk will be analyzed as well. The goal is to detect possible interrelationships and enable the project manager and project team member to identify a kind of importance order, also called prioritizing. Furthermore, the consequences of the risks for the project itself and the organization are also concerned in the analysis (PMI, 2008). In this regard, the responses of the participants of the study in their respective projects are presented below:

Table 0-16: Response Related to Project Risk Analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	17.2	17.2	17.2
	Disagree	16	55.2	55.2	72.4
	Uncertain	1	3.4	3.4	75.9
	Agree	5	17.2	17.2	93.1
	Strongly Agree	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Sources: Researcher's Survey, 2018

As shown in the above table, about 17.2% of the respondents strongly disagreed with formal analysis of risks and their potential impacts on project success. 55.2% of the respondents disagreed with the formal practices of risk analysis in their project. Thus, in general, 75.9% of the respondents who were participated in this study argued that their project was not practiced risk analysis. Different literatures also support this argument. Besner and Hobbs (2006) as well as others, e.g. Bannerman (2008), Raz et al. (2002) and Voetsch et al. (2004) have investigated the various activities carried out within the risk management process of several types of projects. They have come to the conclusion that the sequence of identification, analysis, responses, and monitoring is often not followed. Risk identification is often included in the process; Voetsch et al. (2004) state that it is done in almost all of the projects. Risk analysis, however, is rarely done. Besner and Hobbs (2006) have observed that project managers do not regard risk analysis as potentially valuable, especially quantitative risk analysis.

On the other hand, 17.2% agreed and 6.9% strongly agreed that risks were formally analyzed with respect to their likelihood of occurrence and impact magnitude on project success in their respective projects. Only 3.4% of the respondents were not sure whether risk analysis was practiced in their project.

Each time project risks were identified, it should be registered on risk register and each time updated after assessment of the risk that might occur was undertaken. In this regard, the responses of the study participants were given in the table:

Table 0-17: Response about risk register table update

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	13.8	13.8	13.8
	Disagree	9	31.0	31.0	44.8
	Uncertain	10	34.5	34.5	79.3
	Agree	5	17.2	17.2	96.6
	Strongly Agree	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Source: Researcher's Survey, 2018

As shown in the table, about 44.8% of the respondents argued as they do not update their risk register. According to response by interview, some of the projects had no risk register at all. 34.5% of the respondents were not sure whether there project had risk register and whether it is updated continuously.

4.5.4 Responses Related to Risk Response and Control

This is the stage in risk management process at which decision in relation to risks is made depending on the acceptable choice to the project. The experiences of projects undertaken in the Commercial Bank of Ethiopia were presented in the following table.

Table 0-18: Risk Response Strategy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	17.2	17.2	17.2
	Disagree	17	58.6	58.6	75.9
	Agree	6	20.7	20.7	96.6
	Strongly Agree	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

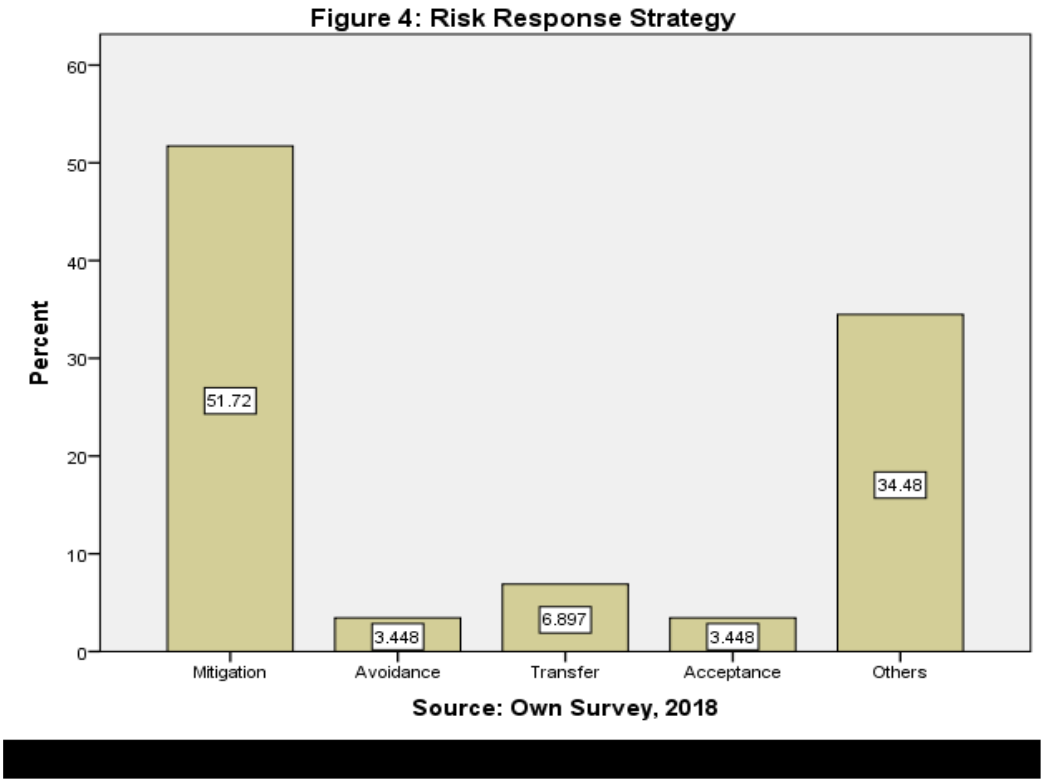
Source: Researcher's Survey, 2018

As shown in the table, about 17.2% of the respondents strongly disagreed and 58.6% disagreed that the response to the different risk and how to respond was well developed in the project they participated in. Thus, from the total participants of the study, 75.9% were not developed strategy within the project to respond and control to risks that may affects their project. On the other hand, 20.7

agreed and 3.4% strongly agreed with the practice of risk control and development of different strategy to respond to risks.

After having collected all data for the risk control, a risk might occur once. As a result, the project manager and project team has to decide how to react to it. The literature defines five main alternatives between which one can choose: mitigate, avoid, transfer, share or retain the risk (Potts et al, 2008). In this regards, the experiences of the different projects practiced in the Commercial bank of Ethiopia were presented below:

Figure 0-3: Risk Response Strategy



Sources: Researcher's Survey, 2018

As shown in the figure, response to risk taken is mainly mitigation. To mitigate the risk means a reduction of the impact and the possibility of risk occurrence.

4.6 Summary of Descriptive Analysis

To generalize about the finding of the descriptive analysis, the mean score for each of the four independent variables have been computed as shown in the following table:

Table 0-19: Mean Value of project risk management practices

	N	Mean	Std. Deviation
1. Risk management planning	29	2.1724	1.07135
2. Risk identification	29	2.6897	1.16813
3. Risks Analysis	29	2.4138	1.18072
4. Risk Response and Control	29	2.3448	1.11085
Valid N (list wise)	29		

Sources: Researcher Survey Finding, 2018

As shown in the table, all risk management practices in the Commercial Bank of Ethiopia is not good or unsatisfactory. Project risk identification has got relatively the highest score from all independent variables. This indicates that in overall, the sample taken projects in the Commercial Bank of Ethiopia were practiced well in identifying the different risks of the project. In contrast, the project office is weak in overall project risk management planning. The mean score value for this variable is relatively the lowest of all independent variables.

The mean score value for the dependent variables were presented in the table follow:

Table 0-20: Summary of Mean of Project Success Indicators

	N	Mean	Std. Deviation
1. Project completed on scheduled time	29	2.3448	1.00980
2. Project completed within the budgeted cost	29	2.4483	.98511
3. Project completed within specified quality	29	3.8621	.58089
Valid N (listwise)	29		

S***ources: Researcher Survey Finding, 2018***

As shown in the table, the mean value of the dependent variable of time and cost is below average. This indicates that most of the respondents in the study disagreed with on time and within budgeted cost delivery of the project. On the other hand, the mean value of the dependent value quality is above average which is 3.86 which implies that most of the projects in which the participants of this study took part were completed within the promised quality.

Thus, in the above two table (Table 4.19 and Table 4.20), the mean score of project risk management practices and the two project success indicators (Time and Cost) has a mean value below average. Thus, in the following part, the study is focused on analyzing if there were any relation between project risk management and project success by using statistical package of correlation and regression.

4.7 Correlation Analysis

Correlation analysis/test/was carried out to consider the relationship between the variables. Any correlation coefficient(r) that is positive indicates a direct or positive relationship between two measured variables. Negative r indicates indirect or inverse relationship. The following table indicated the correlation coefficient between the dependent variables (Time, cost and quality) and dependent variable (Project risk planning, risk identification, risk analysis and risk response and control) in the projects taken in the study.

Table 0-21: Correlation between Project Risk Management Practices and Project Success

Correlations		*Project completed with time*	*Project completed with budget*	*Project completed with quality*
Risk Planning	Pearson Correlation	.504**	.466*	.154
	Sig. (2-tailed)	.005	.011	.424
	N	29	29	29
Risk Identification	Pearson Correlation	.760**	.684**	.198
	Sig. (2-tailed)	.000	.000	.304
	N	29	29	29
Risk Analysis	Pearson Correlation	.325	.418*	.190
	Sig. (2-tailed)	.085	.024	.323
	N	29	29	29
Risk response and control	Pearson Correlation	.845**	.865**	.187
	Sig. (2-tailed)	.000	.000	.331
	N	29	29	29
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Researcher's Survey, 2018

From the table, we can see that:

- There are positive and strong correlation between project completion on time and risk management planning, risk management identification and risk control and response taken. But, the relation between project completion on time and risk analysis were not significant.
- There are positive and strong correlation between project completion within the budgeted cost and project risk identification and project risk control and response. On the other hand, the correlation between project completion within the budgeted cost and project risk planning and project risk analysis is moderate.
- The correlation between project quality as success criteria and project risk management practices were positive but insignificant. Thus, the impact of risk management on the quality of the project in this study is insignificant even though it is not inversely related.

In general, from the table, we can clearly see that project risk management practices had positive and strong correlation with project completion within time and budgeted cost. On the other hand, even though the correlation is positive it is insignificant for the relation between project risk management practices and project completion within the promised quality in the sample taken project according to the response collected from project participants. In the table, it is also clearly indicated that, from all project risk management process, project risk control and responses taken is highly correlated with project completion within scheduled time and within budgeted cost.

4.8 Regression Analysis

A multiple linear regression analysis is carried out to predict the values of a dependent variable, given a set of explanatory variables. Albaum (1997) noted that regression is a technique used to predict the value of a dependent variable using one or more independent variables. Malhotra (2007) showed that regression analysis is a statistical tool for the investigation of relationships between variables. In order to ascertain the causal effect of one variable upon another, researchers assemble data on the underlying variables of the causal variables upon the variable that they influence.

Thus, in this study, the researcher tested the hypothesis by using regression.

H1: There is no any relationship between project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) and project completion on time.

To test the effects of project risk management practices (Project risk planning, project risk identification, project risk analysis and project risk control and response) on project timely completion, the researcher employed multiple linear regressions. Thus, the finding from the regression analysis is presented in the following tables.

Table 0-22: Model Summary for the first hypothesis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903[a]	.815	.784	.46926

a. Predictors: (Constant), 1.Risk response and control, 2.Risk Planning, 3.Risk Analysis, 4.Risk Identification

b. Dependent Variable: Project completed with time

Source: Researcher's Survey, 2018

In the above table, R is the correlation coefficient between the dependent variable (project time) and independent variables (risk management practice). The ***R*** was 0.903 at level ($\alpha \leq 0.05$); whereas the model's coefficient of determination, ***R2*** was 0.815. Adjusted ***R2*** = 0.784 with estimated standard deviation 0.46926, the regression model is statistically significant since the probability level is 0.000. The adjusted R2, also called the coefficient of multiple determinations, is the percentage of the variation in the dependent variable explained uniquely or jointly by the independent variables. 78.4% of the variations in the timely completion of the sample projects in the Commercial Bank of Ethiopia were attributed to the combined effect of the predictor variables of project risk management. This means that 21.6% of the changes attributed by other factors than risk management.

Table 0-23: ANOVA Test for Hypothesis one

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.267	4	5.817	26.415	.000[b]
	Residual	5.285	24	.220		
	Total	28.552	28			

a. Dependent Variable: Project completed with time

b. Predictors: (Constant), Risk response and control, Risk Planning, Risk Analysis, Risk Identification

Source: Researcher's Survey, 2018

In the above table, The F statistic represents a test of the null hypothesis that the regression coefficients are all equal to zero. Put another way, this F statistic tests whether the R square proportion of variance in the dependent variable accounted for by the predictors is zero. If the null hypothesis were true, then that would indicate that there is no regression relationship between the dependent variable and the predictor variables. The ANOVA analysis shows that, there is a significant main effect of successful risk management practices on delivery time of the project F (4, 24) = 26.415, p <0.01 at the 0.05 alpha level (F calculated, 26.415> Ftable, 3.95) showing that the model is significant. The mean square, which indicates the amount of variance (sums of squares) divided by the degrees of freedom, equals 5.817.

Table 0-24: Hypothesis One Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.151	.267		.564	.578
	Q15.Risk Planning	.074	.108	.078	.681	.503
	Q20.Risk Identification	.293	.115	.339	2.557	.017
	Q24.Risk Analysis	-.041	.086	-.048	-.476	.638
	Q28.Risk response and control	.574	.109	.631	5.245	.000

Dependent Variable: Project completed with time

Source: Researcher's Survey, 2018

In the above table, B value which is called unstandardized coefficient indicates effects of change in the independent variables on the dependent variable. Accordingly, a one unit increase or improvement in risk planning leads to 0.074 change in schedule, keeping all other thing constant. A 100% increase in risk identification leads to 29.3% enabled project to be completed within the scheduled time. The relation between risk planning and project completion within budget is negative. 100% increase in the analysis of risk forced the project to delay by 4.1% as stated in the above table. The relation between risk response and control and project completion within time is high in this study. As stated in the table, 100% improvement on control and response taken on project enabled the project to be completed within time by 57.4.

Therefore, according to the study, there are significant effects of project risk planning, risk identification and risk control and response on project completion on time. Thus the null hypothesis is rejected.

H2: There is no any relationship between project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) and project completion within budgeted cost

This is mainly focused on the effects of project risk management practices (*Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control)* on the budgeted cost completion of the project. The study finding was presented in the next three tables.

Table 0-25: Model Summary for Hypothesis two

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.891[a]	.794	.760	.48264

a. *Predictors: (Constant), Risk response and control, Risk Planning, Risk Analysis, Risk Identification*

b. *Dependent Variable: Project completed with budget*

Source: Researcher's Survey, 2018

R value (which measures the correlation coefficient between project risk management practices and project completion within budget) is 0.891 at level ($\alpha \leq 0.05$); whereas the model's coefficient of determination, ***R2*** is (0.794). In the table above, Adjusted ***R2*** = 0.760 which indicated that 76% change in cost come from change in risk management practices with estimated standard deviation 0.48264 the regression model is statistically significant since the probability level is 0.000.

Table 0-26: Hypothesis two ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.582	4	5.395	23.163	.000[b]
	Residual	5.591	24	.233		
	Total	27.172	28			

a. *Dependent Variable: Project completed with budget*

b. *Predictors: (Constant), Risk response and control, Risk Planning, Risk Analysis, Risk Identification*

Sources: Researcher's Survey, 2018

In the above ANOVA analysis, there is significant main effects of project risk management practices on project cost F (4, 24) = 23.163, p <0.01 at the 0.05 alpha level. The mean square, which indicates the amount of variance (sums of squares) divided by the degrees of freedom, equals 21.582.

Table 0-27: Hypothesis two Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.297	.274		1.083	.289
	Q15.Risk Planning	.059	.111	.064	.532	.599
	Q20.Risk Identification	.180	.118	.213	1.524	.141
	Q24.Risk Analysis	.044	.088	.052	.495	.625
	Q28.Risk response and control	.611	.112	.690	5.436	.000

Dependent Variable: Project completed with budget

Source: Researcher's Survey, 2018

In the above table, B value (unstandardized coefficient) can be interpreted as follows:

- 100% increase or improvement in risk planning enabled the project to be completed within the budgeted cost by 5.9% keeping other thing constant.
- 100% increase in effective risk identification enabled the project by 18% to be completed with the budgeted cost given other thing constant.
- 100% change risk analysis and risk response and control enabled the project to be completed within the stated budget by 4.4% and 61.1% respectively given all other thing constant and unchanged.

In general, effective practices of project risk management enabled the project to be completed within the budgeted cost. Therefore, *there exist relationship between project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) and project completion within budgeted cost at level ($\alpha \leq 0.05$), so the hypothesis is rejected.*

H3: There is no any relationship between project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) and project quality.

The last hypothesis to be tested for this study is focused on the impacts of project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) on project quality. The following tables will present it.

Table 0-28: Hypothesis three Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.250[a]	.062	-.094	.60752

a. *Predictors: (Constant), Risk response and control, Risk Planning, Risk Analysis, Risk Identification*

b. *Dependent Variable: Project completed with quality*

Source: Researcher's Survey, 2018

In the above table, R explains the correlation coefficient between independent variable and dependent variables. As shown, the coefficient is not significant even though there is correlation between those variables. Adjusted ***R2*** = -0.094 with estimated standard deviation 0.60752, the regression model is statistically not significant. According to literatures, this occurs when the model contains variables that do not help to predict the dependent variable. Thus, project risk management practices were not significantly predicts the value of project quality. Thus, we accept the null hypothesis.

Let further see the coefficient of each variables with respect to the dependent variables in the following table.

Table 0-29: Hypothesis three Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.453	.345		9.999	.000
	Q15.Risk Planning	.008	.140	.015	.059	.953
	Q20.Risk Identification	.066	.148	.132	.443	.662
	Q24.Risk Analysis	.068	.111	.138	.609	.548
	Q28.Risk response and control	.022	.142	.042	.154	.879

Dependent Variable: Project completed with quality

Sources: Researcher's Survey, 2018

As shown in the above table, all the B values (Unstandardized Coefficients) are insignificant. Thus, *there is no any significant relationship between project risk management practices (Risk Planning, Risk Identification, Risk Analysis and Risk monitoring and control) and project quality.* **Thus, we accept the null hypothesis.**

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

This Study was mainly focused on assessment of the role of project risk management for project success by taking projects implemented in the Commercial Bank of Ethiopia. In the previous four chapters, different aspects about the background of the study; different literatures related with the topic of the study; methodology employed to collect and analyze data; sample and sampling techniques used were discussed. In chapter four, the collected by different methods were discussed and analyzed by using different data analysis techniques specified in the methodology part.

This chapter, being the final chapter of this thesis, places the value question, with which the introduction of this thesis began, in a central position. Thus, in this chapter the summary of the major finding of the study, the conclusion that should be drawn from data analysis and recommendations, that the researcher propose about the risk management practice of the project to enhance effective implementation of the project by stakeholders was forwarded.

4.1 Summary of Basic Finding

In this study, researcher took sample projects undertaken in the Commercial Bank of Ethiopia to analyze the Role of Risk Management Practices on Project Success. The result from the study provides good understanding about the practice of each risk management process group (Risk planning, Risk Identification, Risk analysis and Risk control and response) by reviewing different literatures and discussing the practical experiences in the real projects.

The study took 12 projects as a sample and distributes 36 questionnaires to the project team members involved in the project. From this, 29 were retrieved and subjected to the investigation in order to answer the research questions. In the study, the first part of data analysis employed descriptive statistics in order to explain the general demographic of the respondents, the success level of their projects and risk management practices of those projects and that in this part project success indicators and risk management practices were discussed separately. The second part of the study was undertaken by using quantitative analysis of correlation and regression. This part mainly discussed the level of correlation between project risk management practices and project success and test the hypothesis by regressing the independent variables (risk planning, risk identification, risk analysis and risk response and control) against the dependent variable (time, cost and quality).

The summary of results of the study includes:

- According to the ratings of respondents obtained about the success rate of the project with respect to time, cost and quality, most of the study participants replied as their project overrun cost and delay in delivery time.
- According to the response obtained with respect to the general overview of the practice of risk management in the projects, most of the respondents replied that the project they participated in had no defined risk management, the policy and guidelines were inadequate, and that they didn't practice risk management continuously.
- The practice of developing an effective risk management plan in the projects implemented in the Commercial Bank of Ethiopia is rated below average. In the same manner, the involvement of the stakeholder in this part is also low as a response of the study participants.
- Risk identification practiced in the sample taken projects in the Commercial Bank of Ethiopia is below average. In chapter four it was also clearly indicated that project risks in the sample taken projects were identified by expert judgment. Project team members were not fully participated in the risk identification process.
- The practice of risk analysis is also below average as indicated in chapter four of this study. According to the response from most of the participants of the study, formal risk analysis with their likelihood of occurrences and level of impacts were not practiced in most of the project.
- The response developed to the risk that may encounter the project is not also well developed and that it is below average.
- The study also identify, risk management practices were not practiced throughout the project life cycle. Rather, in most of the case risk management practices were undertaken at the implementation stage of the project.
- Similarly, the influence of each of project risk management practices on each project outcome was identified using correlation and regression analysis from the gathered data. The independent variables in this study for the risk management process have positive and significant correlation with the overall project success (especially on project time and cost), which implies that the variables had effect on the successful completion of the

sample projects. The relationship between project risk management and project quality were not clear in this study.

- Project risk management practices had an impact on the success of the project according to finding of the study.

4.2 Conclusion

This study has been conducted in the assessment of the role of project risk management on project success by taking projects in the Commercial Bank of Ethiopia as a sample. The results provide supports for the important role of project risk management for project successes. Moreover the influence of each of project risk management practices (Project risk planning, project risk identification, risk analysis and risk response and control) on each project success indicator was identified using correlation and regression analysis from the gathered data.

According to the finding from the study, not all risk management process group equally practiced in the sample taken project. It remains remarkable that there is such a large gap between project risk management in theory and project risk management in practice. Project management Bodies of Knowledge (Association for Project Management, 2006; Project Management Institute, 2008) advocate the use of the complete risk management process, including planning, identification, and analysis and taking action. Findings from this research indicate that the complete risk management process is often not followed, or even that practitioners do not see the value of executing particular steps of the risk management process while they undertook project.

The study also clearly indicated that an individual risk management activity is able to contribute to elements of project success. The impacts of each risk management process on project success is also demonstrated in the study and that risk identification and risk control and response taken are strongly correlated with project success. On the other hand, project risk planning and project risk analysis had correlation with project success but the correlation is not strong.

According to Project Management Body of Knowledge, project success is mainly measured with the completion of the project on time, within allotted budget and agreed quality standards (PMBok, 2008). In this study, the relationship between project risk management practices and project quality is not clear. According to responses from study participants, there is no clear implication whether project risk management had impacts on quality of the project. Researcher tried to see the response of each individual participant in the study with respect to the relation

between project risk management practices and project completion within the stated quality and that the response indicate that for those projects not practicing risk management effectively, projects were completed within the stated quality and in some other not. On the other hand, for projects practicing risk management the standard quality is achieved and in some other case the project quality is poor according to the respondents. Thus, there were no clear relationship between project risk management and project quality in this study. This is may be an area of study for future researcher to see the effects.

4.3 Recommendation

There are different literatures which argue that the presence of formal and effective project risk management leads to success of the project. According to project stakeholders, performing risk management activities contributes to the success of a project (de Bakker et al., 2011). Research by Cooke-Davies (2000) also provides indications that individual risk management activities positively influence project outcomes. This study also supports those literatures and forward the following recommendation based on the finding from the analysis.

- Risk identification has to be done throughout all project phases continuously. If it is treated like a one-time event, then the whole project runs the risk of overlooking new emerging problems. In addition to this, defined guidelines and procedures for managing risks should be developed and followed in the project.
- Project team members should actively participate in project risk management and identification in order to create awareness to all participants.
- According to the finding of the study project success factors (mainly time and cost) have relationships with project risk management. Accordingly the study recommends that during all phases, it is highly recommended that the project team members should give attention and spend time on the project risk management (identification of risk, planning risk management, analyzing risk and developing response strategy and closely controlling) even though the level of importance attached to each may differ, besides the other project management knowledge areas.
- In general, due to the nature of the banking business which is very sensitive, complex and vulnerable to fraud and financial loss, risk ought to be handled with a lot of care and due diligence especially in the normal daily operation specifically in the Commercial Bank of Ethiopia. These practices should be adapted and undertaken effectively in projects

implemented in the Commercial Bank of Ethiopia in particular and other project running organization in general. This is mainly because, according to the finding of this study effective risk management practices are major contributors towards project success amongst other project management strategies.

4.4 Limitations and Suggestion for Future Research

The outcome of the study is solely dependent on the individual responses of the respondents that participated in the study. Moreover, as the sample is small compared to the total population, the results might not be generalizable beyond the specific division from which the sample is drawn. This study employed the cross sectional data and it is difficult to determine the time series link across variables. Hence, the research result may differ if it is conducted in other time. The limitation of sample size implied that the finding cannot be generalized across all projects in the Commercial Bank of Ethiopia or projects practiced in other different sectors. Therefore, the researcher proposes to conduct a longitudinal research with more sample and improvement sampling method to generalize the study results.

In addition to the above, researcher recommends that further research be conducted on the subject by using projects from different and unrelated sectors to assess the practice of risk management in those projects and explore its impacts on perceived project success. In addition, in this study the relationship between project risk management practices and project quality were not clearly indicated. Thus, any interested researcher can explore this area and clarify the relationship.

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I. Appendix: Questionnaire

Addis Ababa University School of Commerce

Department of Project Management

Post Graduate Program

Introduction

Hello. My name is **Gudeta Kuma.** I am a student at Addis Ababa University School of Commerce Department of Project Management**.** I am conducting a survey on the Role of Project Risk Management Practices on Project Success in the Case of projects that was implemented in the Commercial Bank of Ethiopia as part of my academic requirement. I request you to fill this questionnaire for my study purpose. The answers you give will strictly be used for purposes of this study and your identity shall be kept anonymous. However, the outcome of the research can be made available to you if you desire.

General instruction and information: Part I contains questions on general demographic characteristics of the respondents, part II contains questions that are directly related to the research objectives. Please attempt to answer all the questions and indicate your opinion by marking the appropriate number corresponding to your choice for the five point scale questions and by circling the letter of your choice for the multiple choice questions that best describes how you perceive risk management is applied in the project.

Part I: General questions on demographic characteristics of respondents						
1	Gender	1. Female ☐	2. Male ☐			
2	Age	1. 20-30yrs ☐	1. 31-40yrs ☐	3. 41-50yrs ☐	4. 51-60yrs ☐	Above 60 yrs ☐
3	Level of Education	1. Diploma	2. Degree	3.Postgraduate	4.Other	
4	Years of Work Experience	1. Below 2 Yrs ☐	2. 3 - 5 Yrs ☐	3. 6 - 10 Yrs ☐	4. 11 -15 Yrs	5. Above 15 Yrs
5	How many years have you been working on the project?	1. Below 1 Yr ☐	2. 1 -2 Yrs ☐	3. 2 -3 Yrs ☐	4. Above 3 Yrs ☐	

Part II: Questions on project risk management practices, please answer by marking the box that corresponds to your choice (1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain , 4 = Agree and 5 = Strongly Agree)

Question Related to Project Success						
6	Does your project completed within the scheduled time?	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
7	To what extent your project is completed within the budgeted cost?	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
8	Does your project completed within the specified quality?	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
Question Related to General Overview of Risk Management Practices						
9	The project has a defined or standard risk management process.	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
10	Risk management is treated as a continuous process in the project	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
11	There is a policy or guideline that recommends how to manage unexpected uncertainties.	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
12	There is a responsible person or department assigned to handle risk when it occurs.	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
13	In general, the responsibility of risk management is completely understood in your Project.	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
14	To what types of risks your projects were highly exposed to?	1.Financial Risk ☐	2. Technical Risk ☐	3.Market ☐	4.Operational Risk ☐	5. Others ☐
Questions on Project risk planning in Your Project						
15	Risk management planning was implemented in your project before the project is launched	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
16	Relevant stakeholders are involved in risk management planning	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐

17	Environmental factors are taken into account during risk planning.	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
18	Risk management planning in your project communicates the intended actions	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
19	To what extent you agree that effective risk planning at the beginning of the projects contributes to the success of the projects?	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
Questions on Project Risk Identification						
20	Structured and formal risk identification is practiced in our project	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
21	Sources of risks, areas of impacts, and their corresponding causes and potential effects were identified in the project.	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
22	How do you identify risks in your project?	1.Brainstorming	2.Expert Judgment	3. From previous projects	4. Delphi techniques	5. Others
23	To what extent you agree with the statement "effective identification of risk contributes to the success of the project"?	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
Questions on Project Risk Analysis						
24	Risks are formally analyzed with respect to their likelihood of occurrence and impact magnitude on project success	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
25	We asses impacts of identified risks fast enough to see its impacts on project success	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
26	Project documents and risk register are updated after assessment of the risk that might occur was undertaken.	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐

27	To what extent you accept the statement "Effective risk analysis contributes to project success"?	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
Questions on Risk Response and Control						
28	There were a well developed strategy within the project to respond and control to risks that affects project	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐
29	What is the response to risk you selected for your project?	*1.Mitigation* ☐	*2.Avoidance* ☐	*3.Transfer* ☐	*4.Acceptance* ☐	*5.Others* ☐
30	To what extent you agree or disagree with the statement "The response taken to different risk have an impacts on project success"?	1.Strongly Disagree ☐	2.Disagree ☐	3.Uncertain ☐	4.Agree ☐	5.Stronly Agree ☐

Thank You Very Much for Your Cooperation and Time!!!!

II. Appendix: Interview Guide

Addis Ababa University School of Commerce
Department of Project Management
Post Graduate Program

Interview Guide

Assessment of the Role of Project Risk Management Practices for Project Success: The Case of Projects in the Commercial Bank of Ethiopia

1). Can you please tell me about risk management system in the project? Is there a standard risk management process which is being followed with in the projects?

2). Is there a standardized or formal documented process on how to manage uncertainties within the project? What is the current practice of risk management within the project?

3). Are team members within the project aware on how to manage risk in a way that doesn't affect the objective or goal of the project?

4). Is there a special department or assigned person to handle uncertainties that occur within the lifecycle of the project? At which stage of the project are risks managed in the projects?

5). Is planning done carefully on how to manage risk at your project? If yes, how do you plan and who is involved in planning process?

6). Are risks that might occur identified early while the project is at startup phase? or at all stages of project life cycle When the impacts observed? or risks were identified by examining local/international experiences? or other...? And what methods are used to identify them?

7. Have you experienced unidentified risks coming in the middle of the project or after the project started and threatened to damage your project? If you answer is yes, was the impact financial, schedule, quality or other? how did you manage it ?

8). Within the project are risks analyzed to assess its probability of occurrence and level of impact?

9). What are the tools and techniques used to risk analysis of CBE Birr project? Brainstorming?, Sensitivity analysis?, Delphi method? or other, please state

9). While taking action or responding to uncertain events within the project what factors are kept in consideration? Are factors such as schedule, budget and objective of the project considered?

10). Which of the following risk response strategy was used in the CBE Birr project? Why?

A. Avoidance

B. Transfer

C. Acceptance

D. Mitigation

11). From lists of risks, for which types of risk(s) was/were your project highly exposed to?

A). Financial

B). Technological

C). Political

D). Market

E). Others. Please specify