EFFECT OF ENTERPRISE RISK MANAGEMENT ON PERFORMANCE OF WATER SERVICE PROVIDERS IN KENYA

BY

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MASTER OF SCIENCE IN COMMERCE (FINANCE & INVESTMENT)

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DECLARATION

I declare that, this dissertation is my original work, and has not been previously published, or submitted elsewhere for award of a degree. I also declare that this dissertation contains no material written or published by other person except where due reference is made.

Student Name: **Patricia Mutave Wambua** Reg. No **09/03658**

Signed …….. Date……..

I do hereby confirm that I have examined the master's Dissertation of
Patricia Mutave Wambua,

And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

Sign…… Date……..

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Dissertation Supervisor

ABSTRACT

The study of Enterprise Risk Management on water service providers is part of management strategic studies. Enterprise Risk Management studies have extensively been done on effects of risk management on performance of financial institutions, yet little have been done on effects of Enterprise Risk Management on performance of water service providers; and that was what motivated this study.

The scope of the study was water service providers, addressing challenges such as ineffectiveness and inefficiency affecting quality service delivery to the customers against the constitution requirement of quality and quantity water for all. The major objective of the study was to investigate the effect of Enterprise Risk Management on performance of water service providers. Three variables namely operational risk management, financial risk management and corporate governance risk management on performance of water service providers were tested. The sample size was calculated using Krejcie and Morgan (1970) and got sample size of 185 staff and response rate of 81.08 %, which was above the acceptable rate. A reliability test was done to all the variables using cronbach'salpha, which requires that variable, should be above 0.7 a criteria that was met as follows; operational risk management 0.830, financial risk management 0.705, corporate governance risk management 0.855 and performance 0.838. The result of regression analysis showed that the three variables influenced the performance of water service providers by 48.6%. It also showed that all the variables had p-values of less than 0.5, which were significant. The study established an existence of significant between the variables and performance of Water Service Providers. Further findings reviewed that operational risk had the highest influence at 38.7% followed by financial risk management at 26% and corporate governance risk management at 13.2% on performance of water service providers. In summary, the research established that all the three variables had a significant positive effect on performance of water service providers in Kenya. This meant that an increase in any variable help to improve on water companies financial performance, operational efficiency and service delivery. The research recommends the institutionalization of a holistic risk management framework in which training, implementation and continuous review of the ERM in WSPs needs to be effected.

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DEDICATION

I would like to sincerely, dedicate this research study to Silvanus Sewe, and my entire family, who have been a source of constant encouragement to me. To my supervisor, lecturers and friends for the endless support; God bless you all.

ACKNOWLEDGEMENT

I would like to express my sincere gratitude and appreciation to my supervisor for his guidance, continued motivation and invaluable advice and support throughout the research. I would also like to thank my family for the support and encouragement during the whole period of this study.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA Analysis of Variance

BOM Board of Management

COSO Committee of Sponsoring Organizations of the Treadway Commission

ERM Enterprise Risk Management

KIPPRA Kenya Institute for Public Policy Research and Analysis

NIC National Intelligence Council

NWMP National Water Master Plan

O+M Operation and Maintenance

PWC Price Water house Coopers

ROA Return on Asset

WaSREB Water Services Regulatory Board

WSP's Water Services Providers

DEFINITION OF TERMS

Enterprise Risk Management - is the process, by which board of directors, management, and other personnel, apply strategy across the enterprise, design and identify potential events that may affect the enterprise and manage risk to be within its risk appetite for it to achieve the enterprise objectives will be adopted COSO (2004).

Performance - is to achieve the goals that you have given in convergence with the company guidelines and that performance is not simply finding a product but rather of comparison the result and objectives. (Noyer,2002).

Non-Revenue Water–refers to the difference between the amount of water produced for distribution and amount of water billed to customers (WaSREB, 2016).

Hours of Supply - refers to the average numbers of hours per day that a utility provides water to its customers and hence measures the availability of water (WaSREB, 2016).

O+M Cost Coverage – is the extent to which internally generated funds cover the cost of running the utility (WaSREB, 2016).

Revenue Collection Efficiency – refers to the total amount collected by the utility expressed as a percentage of the total amount billed in a given period (WaSREB, 2016).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Enterprise Risk management (ERM) is a crucial factor in all organizations whether profit or nonprofit making especially in today's ever changing environment. In particular, organizations in the water sector should put in place proper enterprise risk management systems to enhance growth, sustainability and continuity. Due to changes in the climate and environment as well as the growth in demand of fresh water because of demographic changes, the water sector has experienced high-risk exposure as concerning water volumes, demand requirements and supply of the fresh water. This has affected both individuals' people groups as well as institutions (NIC, 2012).

Poor risk management by water companies leads to poor water connectivity, high level of leakage, poor customer service, losses to the company as well as decrease in their capitalization and poor financial performance (Magezi, 2003). A strong risk management framework can help organizations to reduce their exposure to risks and enhance their financial performance (Iqbal & Mirakhor, 2007).Further, argued that the selection of particular risk tools tends to be associated with the firm's calculative culture, the measurable attitudes that senior decision makers display towards the use of risk management models. While some risk functions focus on extensive risk measurement and risk based performance management, others focus instead on qualitative discourse and the mobilization of expert opinions about emerging risk issues (Mikes & Kaplan, 2014).

In the recent past, water supply organizations have improved their enterprise risk management. According to Meredith (2014), a careful analysis of the risk exposure by

management of these institutions will help avoid excessive losses. Thus, risk management is an important factor in improving performance (Okotha, 2003) of water companies.

1.1.1 Enterprise Risk Management

According to Beasley (2005), ERM aligns risk appetite and strategy to operational losses by identifying and managing enterprise risks, seizing opportunities and improving deployment of capital. Beasley (2005) and Committee of Sponsoring Organizations of the Treadway Commission(COSO) (2004) states that ERM is a function of the Board of Directors(BOD) and adds that the element of operational risks are important to evaluate them according to different business units, seize available opportunities and deploy the capital effectively to address the identified needs. The board‘s focuses on effective risk oversight to set the tone and culture, towards effective risk management through strategy setting, formulating high level objectives and approving broad based resource allocations (COSO, 2009). Enterprise Risk Management is the process by which board of directors, management and other personnel apply strategy across the enterprise, design and identify potential events that may affect the enterprise and manage risk to be within its risk appetite for it to achieve the enterprise objectives will be adopted COSO (2004).

AIRMIC (2011) identified several key factors at board of director level that can nurture risk management failure. These include inadequate board leadership in establishing a risk awareness culture, the inability of non-executive directors to exercise control and inadequate skills by the Board to understand the risks associated with the business. Further, Makomaski (2008) study observed that the role of BOD and Board of Management (BOM) in relation to ERM should explicitly separate the oversight role and the implementation as a clear way of separating decision-making process between the two entities. Stulz (2008) views ERM as the process of planning, organizing, leading and controlling the activities of an organization in order to minimize the effects of risk in an organization’s capital and performance. He

highlighted all factors, which French industrialist named Henry Fayol stated in the early 20th century as five main functions i.e. planning, organizing, leading, coordinating and controlling of management.

Alviunessen and Jankensgard (2009) emphasized that ERM is concerned about a holistic, company-wide approach in managing risks, and centralized the information according to the risk exposures. Both scholars clarified that ERM should be tackled at corporate level, when they stated that it is a holistic and company-wide approach. According to them managing risks in silos isn't the best way to deal with risks in a company. Razali and Tahir; (2011) states that ERM is a systematically integrated and discipline approach in managing risks within organizations to ensure firms achieves their objective which is to maximize and create value for their stakeholder.

Bharathy and McShane (2014),found out that many firms are attempting to implement ERM as a new holistic organizing principle to deal with the full set of risks resulting from a dynamic risk environment characterized by complex issues such as rapid changes in information technologies, the explosion of globalization, outsourcing and increased competition. Kerstinet (2014) feels that the main reason for a complex environment is that they face volatility, uncertainty, complexity and ambiguity. According to Horney, Pasmore and O'Shea, (2010) volatility is the nature and dynamics of change and change catalysts, uncertainty is lack of predictability of issues and events, complexity is the confounding of issues and the chaos that surrounds organizations and ambiguity is the uncertainty of reality and the mixed meaning of conditions, cause and effect confusion.

According to Andersen and Jensen (2003), the concept of maturity model refers to a state where the entity is in perfect condition to achieve its objectives. Jensen (2003) further elaborates that maturity model is used in numerous industries for the purposes of assessment

and benchmarking as they allow organizations to measure their relative performance position on a pathway to maturity representing an optimal state. Risk maturity models are useful tools in understanding the degree of sophistication of a business risk, management process, reliability and effectiveness in identifying, assessing and managing risks and opportunities (Chapman, 2011). There is a logical intimate link between risk management capability and success of projects; since risks are measured by their potential effect on achievement of project objectives (Ren, Yeo & Yingju, 2014). The study adopts COSO (2004) ERM definition which states that it is a process, by which board of directors, management, and other personnel, apply strategy across the enterprise, design and identify potential events that may affect the enterprise and manage risk to be within its risk appetite for it to achieve the enterprise objectives

1.1.2 Performance of Water Service Providers

Performance means reaching the strategic objectives. ERM is to provide a strategically aligned view of organizational challenges, which provides improved insight on how to effectively prioritize and manage risks to meet it objectives. Performance is a state of the enterprise's competitiveness, reached by a level of effectiveness and efficiency that ensure sustainable market presence (Niculescu & Lavalette, 1999). Verboncu and Zalman, (2005) states that performance is a particular result obtained in management, that print features of competitiveness, efficiency and effectiveness of the organization and its procedural and structural components. Performance involves also the economic concept of creation of wealth or value to the organization. Performance is the relationship between operational cost of the organization and the value of its benefits gained. Performance is to achieve the goals that you have given in convergence with the company guidelines and that performance is not simply finding a product but rather of comparison the result and objectives. (Noyer, 2002).

Performance is to achieve the goals that you have given in convergence with the company guidelines and that performance is not simply finding a product but rather of

comparison the result and objectives. According to Water Research Foundation (2014) performance benchmarking for effectively managed water utilities the following parameters are used to measure performance; Product Quality, customer satisfaction, employee and leadership development, operational optimization, financial viability, infrastructure stability, operational resiliency, community sustainability, water resource adequacy, stakeholder understanding and support. In this study, parameters used were Customer satisfaction, operational optimization, financial viability and infrastructure stability.

1.1.3 Enterprise Risk Management and Performance of Organizations

The financial sector in Kenya is the leader in the development and introduction of ERM into company profiles. This is because of the high risk posed by government debt, consumer spending, employment levels, fluctuating commodity prices, security threats and reduced investments resulting from the global credit crisis. Although it is the financial sector which is futuristic on risk, many industries are addressing the status quo without managing risks effectively and not looking to the future on how the geographical, political and financial future of Kenya in the global market place will be affected (PWC 2012).

In Kenya, Enterprise Risk Management is still in its infancy and dominated by multinational corporations and the financial industry (Deloitte, 2012). Though the concept of Risk Management is present throughout most industries, the process is limited in most cases to the financial aspects of organisations.Numerous risk related issues have risen as a result of the scandals in companies like Enron and WorldCom leaving the shareholders, executives and board of directors deliberating on the exposures their own organizations may face. According to (COSO), ERM is a process designed to identify possible events that affects the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. ERM in Kenya is weak, according to a survey done by

PricewaterhouseCoopers in Kenya in 2011 were they interviewed chief executive officers (CEOs) from various firms and felt that risk to their organizations is increasing and traditional risks were evolving (PWC, 2012). Waweru and Kisaka (2011) examined the state of ERM in Kenya and found out that there was positive relationship between firm's size on ERM and performance of listed firms in Kenya. According to Deloitte and Touche (2012), traditional risks such as operational, regulatory and market are the key risks affecting firms in Kenya. This means that ERM framework in Kenya is not effective or inadequate. Weak ERM has affected the performance of Kenya as a country in terms of competiveness (KIPPRA, 2009).

1.1.4 Water Service Providers in Kenya

The Constitution of Kenya 2010 states that every person has the right to clean and safe water in adequate quantities. To operationalize this requirement parliament enacted Water Act (2016), because the country had suffered a downward performance attributed to government's limited funding, poor management of utilities, mismanagement of funds and unprecedented growth in demand. The purpose of the Act is to provide for the regulation, management and development of water resources and water and sewerage services in line with the Constitution. Water services have witnessed a clear separation of functions; policy making being the sole responsibility of the state; regulations which is the responsibility of the regulator Water Services Regulatory Board (WaSREB); and service provision, which is the responsibility of the Water Services Board. Water Services Board appoints Water Services Providers (WSP's) as their agents for actual service delivery. The regulator produces Impact reports annually to measure and rank WSPs using performance indicators. According to WaSREB Impact Report (A Performance Review of Kenya's Water Services Sector 2014 – 2015) there are 86 WSP's; 84 publicly owned and 2 privately owned. This study concentrated on publicly owned WSPs and the data collected was from Nairobi City Water and Sewerage Company, Mavoko Water and Sewerage Company, Nakuru Water and Sewerage Company and Thika Water and

Sewerage Company. The resource and logistical constrains determined the scope.

1.2 Statement of the Problem

The performance of WSPs falls short of expectation because of several reasons, one of which is ERM. The real potential problems for water sector lies; in reducing wastages, improving service quality, maximizing on customer contribution and improving cash flows. This is a problem to the Kenya citizens as per the requirement of the Constitution of Kenya 2010, which states that every person has the right to clean and safe water in adequate quantities, lack of ERM strategies affects this requirement. It is a problem because wastages affect water quantities, reduces revenue for the service providers, hence degrading quality of service to the customers. Eventually the cost of production will be so high translating to high tariffs of water.

The Kenya Vision 2030 National Development Plan seeks to make water and basic sanitation available to all by 2030.The estimated total cost of investment needed in water sector is Kshs 1.7 trillion according to (NWMP 2030).Kenya Water Master Plan 2030, states that the available government budget is Kshs 592.4 billion leaving a short fall of Kshs1.2 trillions. To reduce the gap the sector should increase efficiency, maximizing consumer contributions through tariffs, and encouraging private sector funding.

Esponana (2011) revealed an existence of a positive relationship between the firm's risk management framework and its financial performance. Ernst and Young (2012), reinforced the point by suggesting that companies with effective ERM outperform their peers financially, and tend to generate the highest growth in revenue. Mwangi (2010) showed evidence that risk management and the related practices are significantly important to the operations and financial performance of these commercial banking institutions. Njoroge (2013) also conducted a research on the strategic risk management practices by AAR Insurance Kenya Limited showed that reputational risk is significant in insurance companies. The study emphasizes the

importance of risk management in insurance business. The few studies focus on financial sector and insurance companies, leaving a gap of studies on risk and performance in the water sector. This study on the relationship between the ERM practices aimed at addressing the challenges of ever emerging risks within the water sector in Kenya. It critically examined the various practices through which water companies manage the various types of risks that they face and determine the effect of ERM on performance of these companies.

1.3 Research Objectives

1.3.1 General objective

To investigate the effects of Enterprise Risk Management on performance of Water Service Providers in Kenya

1.3.2 Specific objectives

i. To find out the effect of operational risk management on performance of water service providers in Kenya.
ii. To establish the effect of financial risk management on performance of water service providers in Kenya.
iii. To evaluate the effect of corporate governance risk management on performance of water service providers in Kenya.

1.4 Research Questions

i. What is the effect of operational risk management on performance of water service providers in Kenya?
ii. What is the effect of financial risk management on performance of water service providers in Kenya?

iii. What is the effect of corporate governance risk management on performance of water service providers in Kenya?

1.5 Significance of the Study

This study was significant to water companies, public, students and the water management authority, as it offers valuable contributions from both a theoretical and practical perspective. Theoretically, it contributes to the general understanding of Enterprise Risk Management practices and their effect on performance. The study enables water companies in Kenya to improve their enterprise risk management process and to adopt efficient strategies to improve firm performance through the risk management processes. This enables the water companies to perform better and to grow their businesses and maintain a competitive advantage. Apart from benefiting the water companies, the public also benefits from the study through improved water services and better management of risks. This can results to affordable water services and reduction in levels of non-payment and fraud.

The study is helpful to the government in setting regulations on water companies in Kenya through the regulatory authorities and safeguards the water resource. Lastly, the study adds to the existing body of knowledge on enterprise risk management to benefit academicians and aid further research on enterprise risk management in the insurance sector and the financial sector.

1.6 Scope of the study

There are quite number of effects of Enterprise Risk Management on the performance of the Water Service Providers. This study limited itself to Water Service Providers in Kenya and data collected from four WSP's namely Nairobi City Water & Sewerage Company, Thika Water and Sewerage, Mavoko Water and Sewerage and Nakuru Water and Sewerage Company Limited

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this Chapter, the study reviewed literature that related to the effect of enterprise risk management on the performance of organizations. Discussed the theories on enterprise risk management and performance, reviewed empirical evidence on enterprise risk management and performance and presented a conceptual framework to demonstrate the relationships. Past studies on enterprise risk management and performance was the main source of the review. A study focused three objectives; to find out the effect of operational risk management on the performance, to establish the effect of financial risk management and to evaluate the effect of corporate governance risk management on the performance of water service providers in Kenya is undertaken.

2.2 Theoretical Review

The study discussed theories on enterprise risk management and financial performance and reviewed past studies that focus on the three objectives.

2.2.1 Jorion theory on operational risk management

The importance of operational risk for financial institutions is well recognized and discussed in detail in leading risk management textbooks (Jorion, 2007; Hull, 2012; Crouhy, Galai and Mark, 2014).However, the difficulties in quantifying operational risk have led most of the recent literature to focus almost exclusively on measurement and estimation issues. Several studies estimate the distribution of operational risk losses using techniques from extreme value theory and data on large and infrequent operational losses (Chavez-Demoulin, Embrechts and Neslehova, 2006; Coleman, 2003; de Fontnouvelle, Rosengren and Jordan, 2006; Ebnother, Vanini, McNeil and Antolinez-Fehr, 2001; Moscadelli, 2004). These estimates combined with VaR models, determine regulatory

capital against operational losses, as required by the Basel Capital Accord. De Fontnouvelle, Jordan, DeJesus-Ureff and Rosengren (2006) show that, the amount of capital held for operational risk may exceed capital for market risk. This theory provides a micro foundation of operational losses by considering the endogenous response of financial institutions to operational risk.

Following the intensity-based framework developed in the reduced credit risk literature (Jarrow and Turnbull, 1995; Lando, 1998; Duffie and Singleton, 1999; Jarrow and Yu, 2001; Duffie, Eckner, Horel and Saita, 2009), Jarrow (2008) and Chernobai, Jorion and Yu (2011) treat the arrival of operational losses as a conditional Poisson process. Jarrow suggests that both data internal to the firm and market are important to estimate the parameters of the operational loss processes. Using a large database of operational losses among U.S. financial institutions, Chernobai, Jorion and Yu find that young and more complex institutions tend to have a higher operational risk exposure, and identify a positive correlation between operational risk and credit risk.

Franks and Mayer (2001) provide a survey of the European asset industry, and identify misdealing, settlement problems, and errors in the computation of the asset value as the major sources of operational risk. These findings are confirmed by Biais, Casamatta and Rochet (2003) using a different sample of European fund management companies. Biais, Casamatta and Rochet also propose a theoretical model based on agency frictions in which investors cannot observe the effort that investment companies exert to reduce operational risk. They show that the level of funds' capital can be useful to provide incentives and hence to reduce operational losses.

In three recent papers Brown, Goetzmann, Liang and Schwarz (2008, 2009, and 2012) construct and use a measure of operational risk in the hedge fund industry, called the

ω-score, based on funds' mandatory disclosure of past legal and regulatory disputes. Exposure to operational risk, as measured by the ω-score, is associated with subsequent poor fund's returns (Brown, Goetzmann, Liang and Schwarz, 2008), and it may have more predictive power of future fund failure than financial risk (Brown, Goetzmann, Liang and Schwarz, 2009). The ω-score defined by integrating a database of operational due diligence reports conducted on behalf of fund investors (Brown, Goetzmann, Liang and Schwarz, 2012). Even though high operational risk could destroy investor value, the authors show that the investors' return-chasing behavior seems to be unaffected by the funds' exposure to this risk. The importance of this theory to the study is to help measure and estimate operational challenges in water sector. In the reporting period 2014/2015, overall performance in terms of operational cost coverage declined by 1% from 100% to 99%. Decrease performance in this indicator is because of operational cost increasing at a higher proportion 7% compared to revenues 5.4%. This increase in operational costs compared to the revenues results from lack of justified tariffs or failure to adhere to the approved budget ceilings. The continued decline in cost coverage is contrary to the sector aspiration towards self-financing (WaSREB, 2016).

2.2.2 Liquidity Risk Theory

Halling and Hayden (2006) explains that a bank should define and identify the liquidity risk to which it is exposed for all legal entities, branches and subsidiaries in the jurisdictions in which it is active. A bank's liquidity needs and the sources of liquidity available to meet those needs depend significantly on the bank's business and product mix, balance sheet structure and cash flow profiles of its on- and off-balance sheet obligations. As a result, a bank should evaluate each major on and off balance sheet position, including the effect of embedded options and other contingent exposures that may affect the bank's sources and uses of funds, and determine

how it can affect liquidity risk. A bank should consider the interactions between exposures to funding liquidity risk and market liquidity risk (Jeanne & Svensson, 2007).

A bank that obtains liquidity from capital markets should recognize that these sources are more volatile than traditional retail deposits. For example, under conditions of stress, investors in money market instruments may demand higher compensation for risk, require roll over at considerably shorter maturities, or refuse to extend financing at all. Moreover, reliance on the full functioning and liquidity of financial markets may not be realistic as asset and funding markets may dry up in times of stress (Perera et al., 2006).

Market illiquidity may make it difficult for a bank to raise funds by selling assets and thus increase the need for funding liquidity. A bank should ensure that assets are prudently valued according to relevant financial reporting and supervisory standards. A bank should fully factor into its risk management the consideration that valuations may deteriorate under market stress, and consider this in assessing the feasibility and impact of asset sales during stress on its liquidity position (Jenkinson, 2008). For example, a bank's sale of assets under duress to raise liquidity could put pressure on earnings and capital and further reduce counterparties' confidence in the bank, further constraining its access to funding markets. In addition, a large asset sale by one bank may prompt further price declines for that type of asset due to the market's difficulty in absorbing the sale. Finally, the interaction of funding liquidity risk and market liquidity risk may lead to illiquidity spirals, with banks stockpiling liquidity and not on-lending in term interbank markets because of pessimistic assumptions about future market conditions and their own ability to raise additional funds quickly in the event of an adverse shock (Guglielmo, 2008).

A bank should recognize and consider the strong interactions between liquidity risk and the other types of risk to which it is exposed. Various types of financial and operating risks,

including interest rate, credit, operational, legal and reputational risks, may influence a bank's liquidity profile. Liquidity risk often can arise from perceived or actual weaknesses, failures or problems in the management of other risk types. A bank should identify events that could have an impact on market and public perceptions about its soundness, particularly in wholesale markets (Akhtar, 2007).

This theory helps in identifying the risks and come up with measures to increase sector efficiency, maximizing consumer contributions through tariffs, and encouraging private sector funding. The option of tapping into private sector funding presents two challenges. First commercial lenders view the sector, as a high risk and secondly commercial interest are high. This means there is need for the sector to strategize liquidity management to enhance self-financing to ensure financial sustainability.

2.2.3 Agency Theory

Agency theory extends the analysis of the firm to include separation of ownership and control, and managerial motivation. In the field of corporate risk management, agency issues influence managerial attitudes toward risk taking and hedging (Smith & Stulz, 1985). Theory also explains a possible mismatch of interest between shareholders, management and debt holders due to asymmetries in earning distribution, which can result in the firm taking too much risk or not engaging in positive net value projects (Mayers & Smith, 1987). Consequently, agency theory implies that defined hedging policies can have important influence on firm value (Fite & Pfleiderer, 1995). Stulz (1984) first suggested a reason for the interest in risk management by managers of a firm. He asserts that managers work on behalf of firm owners and therefore, concern themselves with both expected profit and the distribution of firm returns around their expected value. They have an inclination to avoid risk in order to minimize the variability of firm returns and hence achieve. For firm owners, risk management saves on agency costs since,

by reducing the variability of returns of their firms, managers are working in line with the shareholders wealth maximization goal.

Managerial motivation factors in implementation of corporate risk management investigated in a few studies had negative effect (Faff and Nguyen, 2002; MacCrimmon and Wehrung, 1990; Geczy et al., 1997). Notably, Tufano (1996) found positive evidence in his analysis of the gold mining industry in the US. Financial policy hypotheses tested in studies of the financial theory, since both theories give similar predictions in this respect. However, the bulk of empirical evidence seems to be against agency theory hypotheses.

Agency theory provides strong support for risk management as a response to mismatch between managerial incentives and shareholder interests. Shareholders and managers have different interests to the firm and risk management objectives vary for the different stakeholders. While shareholders may require high risk – high return investments, management prefer low risk and return investments. The agency theory emphasizes the need for enterprise risk management to align the interests of managers and shareholders and to contribute to the financial performance of the firm.

2.3 Empirical evidence

2.3.1 Operational Risk Management and Performance

Operational risks are all operational activities that cause uncertainty in an organization hindering it to operate effectively and efficiently; this eventually might affects it performance in meeting the intended objectives. Pourquery and Mulder (2009) found that operational risk management practices is gaining acknowledgment as an essential component of the business. They reviewed secured 60 banks from around the world and the participant included retail, discount and all-inclusive banks. About 70 percent of organization CEOs viewed operational risk as imperative contrasted to 30 percent the of business heads. Business units have primarily

obligation to oversee operational risks on a day-to-day basis. Their support is essential to establishing a risk culture that pervades the bank and is effective at identifying, assessing and managing operational risk.

John mark (2012) in his study of modeling operational risk in Sweden indicates that operational risks appear to be handled easily at first. Fit example information into a recurrence circulation and seriousness dispersion will begin mimicking losses and a few cells with numerous date focuses will be anything but difficult to distinguish. Operational risk management being such a wide concept to build up a model that incorporates numerous kinds is exceptionally troublesome particularly when you have a less information in a cell.

Herring (2002) challenges the underlying principle for employing capital charge suggested by New Basel Capital to mitigate operational risks. Operational risks deemed to be complex unlike other risks and therefore the consequences are huge. Tanase and Serbu (2010) suggest that banks with the help of their advance technology can manage the operational risks by offering innovative products like e banking which reduces the exposure to operational risks by cutting down any human intervention in their overall process.

Macha (2010) found that 56 financial intermediaries, only 20 of them have insurance against operational risk. According to Bank of Tanzania, it is very risk and possibility of the bank failure is very high if the bank will not secure its cash or properties by insuring them. The study showed that although there are a number of cash operation risks facing commercial banks, lack of integrity among the staff members and the nature of business that the banking organizations deal with are the major cash operation risks that face the commercial banks. The study further established that cash operation risk practices, are very critical business process, due to the nature of business that banks 21 engage in.

Hiwatashi (2002) pointed out several approaches to operational risk management in financial sector. He found out that banks usually controlled operational risks based on qualitative risk management policies, procedures and guidelines. This has become inadequate due to the increased complexity of the bank's operations. To achieve its objective the banks should first try to measure the operational risks by prioritizing risk control among different business lines and risk categories. Measuring those risks is equally important for the management to determine whether the bank has appropriate capital to absorb the risks. Measurement will also help the banks to tie performance to employees risk management effectiveness.

Yusuf (2005) in a survey approach examined the operational risk management in commercial banks in Kenya. The study indicates that quantification of risks into various categories was widely practiced by Kenyan commercial banks, the research indicate that only sixteen (16) out of twenty two (22) banks surveyed had segregated risks into various categories for management and thus only few of these banks used various models to quantify risks. Further, he studied that a Central Bank of Kenya survey of July 2005, published in the daily nation indicated that only seventeen (17) banks of the total banks registered in Kenya had put aside funds to cover against operations risk management activities and only ten (10) out of seventeen (17) has submitted adequate and consistent risk monitoring reports. Little was known about the interaction between operational and other risks that institutions face, and the choices they made to simultaneously manage the exposure to these risks. In water sector WSPs losses 43% of water produced from the sources due to dilapidated water network as result of leakages, illegal connections e.t.c; this translates to financial loss of Kshs 6.7 billion to the sector annually. Counties that are providing subsidies to WSPs with high water losses are supporting mismanagement at the expense of utilizing the resources for infrastructure development ;(WasReb Impact Report, 2016).

The objective of this study is to undertake a comprehensive analysis of the decision making of water service providers in the presence of operational risk. In particular, we study the implications of operational risk for an institution's optimal investment decisions within a simple standard dynamic asset allocation framework. When implementing the changes to its business, an institution exposes itself to uncertain operational errors and hence faces an additional source of risk, operational risk.

H_{01}: Operational risk has no significant effect on performance of WSPs

2.3.2 Financial Risk Management on Performance

Liquidity risk refers to an entity's inability to meet short-term obligations (Fabio, 2014). Also known as working capital management risk, it is determined by the levels of current assets and current liabilities maintained in the company. Exposure of organizations to risk is because of the market risks and funding risks (Joint Forum, 2006).

Donald Pagach and Richard Warr (2010) under took a research on the effect of adoption of Enterprise Risk Management principles on a firm's long-term performance by studying the change in market characteristics and financial assets when Enterprise Risk Management is implemented adoption. Martin F. Grace (2010) also studied the effect of risk management practices on the financial performance of insurance companies in the United States. Both studies observed that adoption of Enterprise Risk Management practice in an organization leads to creation of value and better performance.

Daniel Zeghal and Meriem El Aoun (2016) carried out a study of the 2007/2009 financial crisis through by studying the quality and volume of Enterprise Risk Management disclosure in the annual reports of a sample of 59 of the largest banks in the United States of America. Using the content analysis approach and descriptive statistics, of the annual reports they observed that ERM disclosure has a significant positive relationship bank size,

independence, duality and crisis and a significant negative relationship with the board size and profitability. They therefore concluded that the 2007/2009 financial crisis had a significant effect on the volume and the quality of ERM disclosure of the largest US banks.

Kargi (2011) also undertook a research on the relationship between credit risk, and financial performance of banks in Nigerian. Data for the credit risk and financial rations collected from the financial reports of the sampled banks in the period 2004-2008. The level of non-performing loan portfolios as the measure of credit risk was observed to be a significant factor to the financial distress of the banking sector. The study concluded that credit risk management has a significant effect on the profitability of banks in Nigeria.

Wanjohi (2012) studied the effect of financial risk management on the financial performance of commercial banks in Kenya. The research concluded that there was a positive correlation between financial risk management practices and financial performance of commercial banks in Kenya. A large share of the Kenyan banks practiced proper risk management. Waweru and Kisaka (2013) carried out a study of the relationship between Enterprise risk management implementation and value of 20 companies listed on the Nairobi Securities Exchange. Using Tobin Q as a measure of the company value and ERM level of implementation the study found out that there was a positive relationship between level of ERM implementation and a firm's value.

H_{02}: Financial risk has no significant effect on performance of WSPs

2.3.3 Corporate Governance Risk Management on Performance

Corporate governance defines how organization are controlled and directed. This function is mostly lead and guided by the board of directors; they expected to play a key role inculcating risk culture in an organization. Corporate governance practices affects performance of any

organization. Empirical evidence on the relationship between corporate governance and performance is mixed.

La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002) find evidence of higher firm performance in countries with better protection of minority shareholders. Klapper and Love (2003) report that better corporate governance is highly correlated with better operating performance. Further, they documented that firm-level corporate governance provision matter happens four more in countries with weak legal environments. Black, Jang, and Kim (2003) provide empirical evidence that there is a positive correlation between corporate governance and performance, but they have no explanation about the causal relationship.

Quaresma (2014) analyzed the relationship between the quality of corporate governance practices and the financial performance of internationally listed banks. This research concluded that there is a significant relationship between the best corporate governance practices and the financial performance of the studied banks. Macey and O'Hara (2001) argued that a broader view of corporate governance is to adapt in banking institutions. Further, argued that because of the unusual contractual form of banking and corporate governance, mechanisms for banks should capture depositors as well as shareholders. Managers and owners of banks showing efforts and intention to implement good corporate governance will increase market credibility. Subsequently they will collect funds at lower cost and lower risk. Further, arguments states that better corporate governance leads to higher performance. Black, Jang, and Kim (2003), investigated the relationship between corporate performance and good corporate governance in Korea and found positive relationship between performance and corporate governance. Claessen and Fan (2003) studied corporate governance in Asia and found that a combination of weak corporate governance and government interference are not only leading to poor performance and risky financing patterns but also favorable to macroeconomic crises. The review suggests that corporate governance in Asia,

including Indonesia, remains unresolved problems both in conceptual and empirical matters of corporate governance in banking sector. The research also covers the unresolved problem by examining the relationship sensitivity between corporate governance and performance for domestic-owned banks versus foreign owned banks.

La Porta (2002) study firm's performance from 27 developed countries. They find evidence that there is higher valuation of firms in countries with better protection of minority shareholders. Klapper and Love (2003) use firm-level data from 14 emerging stock markets and document that corporate governance provisions matter more in countries with weak legal environments. They also find that better corporate governance is highly correlated with better operating performance and higher market valuation. Drobetz (2004) also finds that higher corporate governance leads to high performance. However, the above empirical studies are more concerned about examining the differences and correlations than about causal relationships. On the other hand, Drobetz, Schillhofer, and Zimmermann (2003) explore the relationship between firm-level corporate governance and firm performance.

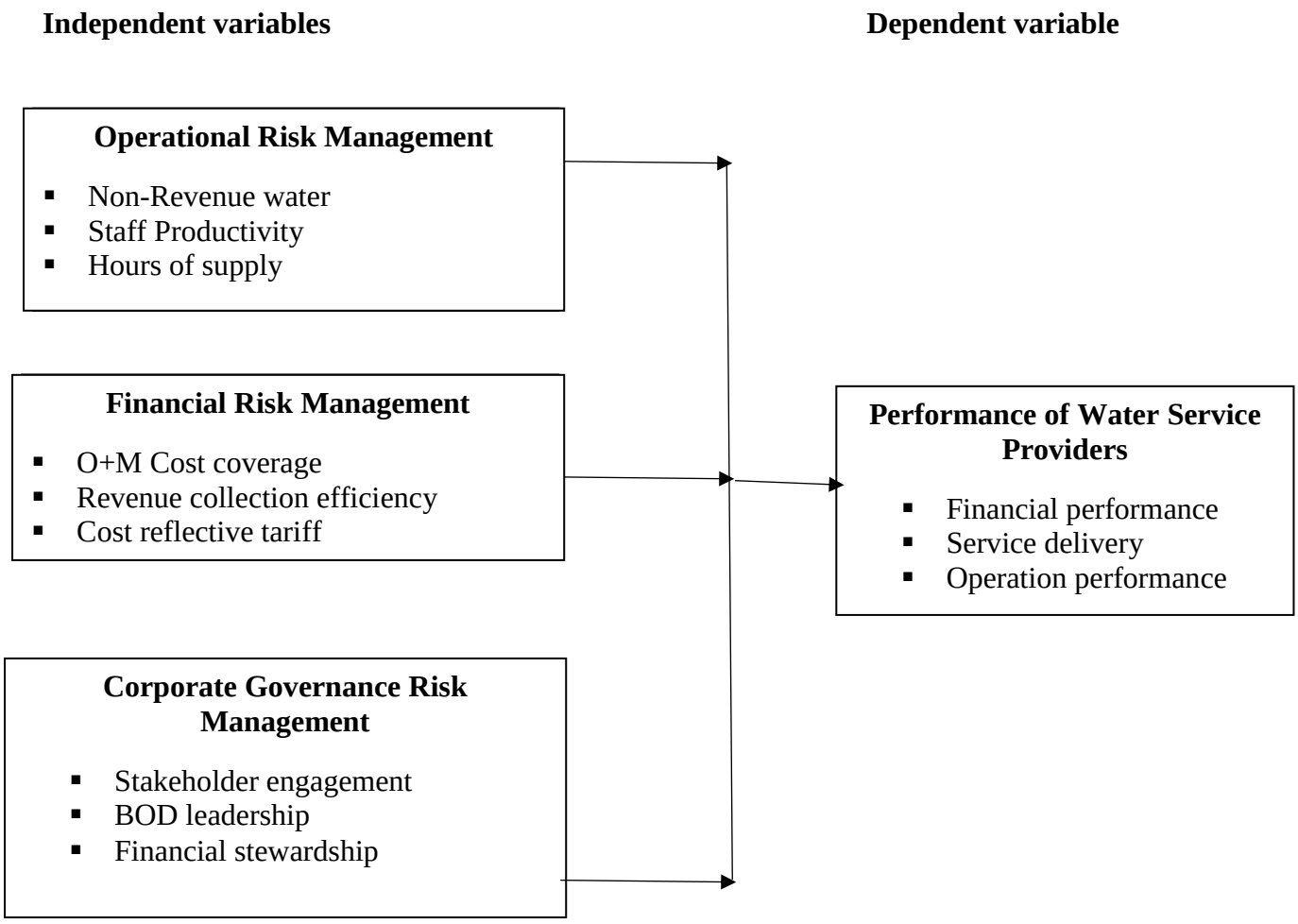
They suggest that good corporate governance leads to higher firm performance hence, investors are willing to pay a premium, and corporate should avoid bad corporate governance practices. Risk being one of the key functions of the board, this study examined the effects of corporate governance risk management on performance of WSPs. Most studies have concentrated on risk management and performance in financial and insurance sectors.

H_{03}: Corporate governance risk has no significant effect on performance of WSPs

2.4 Conceptual framework

A conceptual framework is the diagrammatic presentation of variables, showing the relationship between the independent variable and dependent variables. In this study, the independent variables are Operational Risk Management, Financial Risk Management and Corporate Governance. Various scholars have researched the on independent variables. Pourquery and Mulder (2009) found that operational risk management practices is an essential component of the business,while Martin F. Grace (2010) stated that risk management practices have effect on the financial performance, and Klapper and Love (2003) reported that better corporate governance is highly correlated with better operating performance, which have effect on ERM. The study sought to establish the effect of the three independent variables on performance of the water service providers. The conceptual framework in Figure 2.1 schematically presents the relationship between the independent variables and dependent variable.

Fig. 2. 1: Conceptual Framework



2.5 Operationalization of Variables

Table 2.1 defines variable type, variable name and the operational meaning. It operationalize the variables under study. The table defines the performance indicators of water service providers

Table 2. 1: Operational Variables

Variable Type	Variable Name	Measurement	Scale	Questions in questionnaire
Independent Variable	Operational Risk Management	▪ The difference of water produced and amount of water billed to customers ▪ No of staff per 1000 connections ▪ No of connections with functional meters ▪ No of hours per day WSPs provides water to its customers ▪ No of connections that have been disconnected	Interval	Qn4a-e
	Financial Risk Management	▪ Extent to which internally generated funds cover the cost of running the company ▪ Revenue collection efficiency ▪ Personnel expenditure as a percentage of revenue collection ▪ Cost reflective tariff	Interval	Qn5a-d
	Corporate Governance Risk Management	▪ Stakeholder engagement ▪ Risk management framework ▪ Evaluate accountability ▪ Financial stewardship ▪ BOD leadership	Interval	Qn6a-e
Dependent Variable	Performance of WSPs	▪ Financial performance ▪ Operational performance ▪ Customer satisfaction ▪ Service delivery ▪ Network coverage	Interval	Qn7a-d

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, study discussed the research methodology adopted. It outlined the research design, model specification; the target population, the sample and sampling technique used. A discussion on the data type and sources, data collection and data analysis techniques applied.

3.2 Research Design

This study adopted descriptive design. The researcher used descriptive research design when describing the specific characteristics of an entity as it occurs in the environment (Greener, 2008). The design helped in investigating the effect of ERM on the performance of WSPs in Kenya. Mugenda & Mugenda (2003) discussed that the goal of a descriptive research design is to define and report the way things are and it helps in establishing the status of the population under study. According to Borg and Gall (1996), descriptive research design produces information on the aspects of a study that interest policymakers.

3.3 Target Population

A population is as a collection of all elements that conform to some general set of specifications as defined by (Paton, 2002). According to Mugenda & Mugenda (2003), the observed that features of a population should relate to the features anticipated generally by the study. The target population in this study was all the 86 WSPs in Kenya as at 31 December 2016 using reports from the Water Services Regulatory Board (WaSREB, 2016).

According to WaSREB Impact Report (A Performance Review of Kenya's Water Services Sector 2014 – 2015) there are 86 WSP's; 84 publicly owned and 2 privately owned (Appendix II). This study only concentrated on publicly owned WSPs and the population comprised of management staff of four selected WSPs; Nairobi City Water and Sewerage Company, Mavoko

Water and Sewerage Company, Nakuru Water and Sewerage Company and Thika Water and Sewerage Company. The target population was all the 358 management staff of the four WSPs. (WasReb Impact Report, 2016).

3.4 Sample Size and Sampling Procedure

The study used simple random sampling to select a sample of the respondents from the target population of the management team. The method was adopted because it gives each member an equal chance to be selected. The study used Krejcie and Morgan Formula to calculate the sample size.

$$S = \frac{x^2 NP(1-P)}{d^2(N-1) + x^2 P(1-P)}$$

S = required sample size

x^2 = the table value of chi-square for one degree of freedom at the desired confidence level= 3.841

N = the population size = 358

P = the population proportion (assumed to be .50 since this would provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (.05)

With a target population of 358 staff, the sample size was 185 Management staff. The sample size is therefore much representative as shown in table 3.1.

Table 3. 2: Target population and sample size

Water Services Providers	Management Levels	No Per Level	Population	Size per Level	Sample size of the staff per company	Percentage
Nairobi City Water and Sewerage company	Senior	8	284	4	147	51.7%
	Middle	33		17		
	Lower	243		126		
Thika Water and Sewerage Company	Senior	4	26	2	13	51.7%
	Middle	7		3		
	Lower	15		8		
Mavoko Water and Sewerage Company	Senior	3	18	1	9	51.7%
	Middle	5		3		
	Lower	10		5		
Nakuru Water and Sewerage Company	Senior	5	30	3	16	51.7%
	Middle	9		5		
	Lower	16		8		
TOTAL			**358**		**185**	**51.7%**

Source: WasReb Impact Report, 2016

3.5 Instrumentation and Data Collection

The study used closed ended questionnaires to collect primary data. A questionnaire collects and collates data from respondents who receive and respond to it. The responses in a closed ended questionnaire have a fixed boundary only has options for the respondents to choose from. The key merit of using the closed ended method is to provide the respondent with alternatives on the study objectives. The closed ended questionnaire is a quick method of collecting data. The questionnaire had five parts as follows: Part A background information, Part B operational risk, Part C financial risk, Part D corporate governance risk and Part E performance of WSPs. The management staff of the four WSPs filled the questionnaires and returned them for analysis. The response rate from the respondents was high enough for analysis. Pilot test conducted confirmed reliability and validity of the collection instruments. The questionnaires were self -administered and dropped to the respondents who filled and returned on time to the researcher. The researcher also used secondary data from library books, journal articles, websites, financial statement, government reports e.t.c in the study.

3.6 Validity and Reliability Tests

The questionnaire used pilot test to test its validity and reliability. According to Schindler and Coopers (2003), a test for validity indicates the extent to which a measure or a set of measures appropriately characterizes the concept in the study. A test for validity is critical in ascertaining weaknesses in the questionnaire structuring, clarity of questions and the relevance of the questions. According to the feedback collected, the instruments met validity and reliability tests. Hinton et al. (2004), states that reliability test, tests for the consistency of the measure. We used the Cronbach's alpha (α) test to test the reliability of the instrument. A Cronbach's alpha value that is greater than 0.7 will mean that the questionnaire is reliable.

3.7 Data Analysis

The questionnaires collected from the respondents were complete, consistency and accurate as checked and verified by the researcher. They were coded and put in a SPSS application system, and ran descriptive statistics, correlation, regression analysis and normality test.

Specify the multiple regression analysis model used as follows:

$$Y=\alpha_o+\beta_1X_1+\beta_2X_2+\beta_3X_3+\varepsilon_o$$

Where;

Y = Performance of WSPs

β_1, β_2, β_3= Coefficients Operational risk management, financial risk management and corporate governance risk management

X_1 = operational risk management

X_2 = financial risk management

X_3 =corporate governance risk management

ε_o = Error term

α_o = Constant term, indicating the performance of the WSPs in the absence of ERM measures

Results of data analysis were presented using tables.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter discusses research findings and data analysis. The researcher first analyzed and discussed the demographic information of the staff interviewed on this research. Descriptive and inferential statistics are also used to discuss the research questions presented earlier. Statistical Packages for Social Sciences (SPSS) was used in the analysis of these statistics. We use tables to present this analysis.

4.2 Response Rate

The target sample size in this study was the 185 staff working in the lower, middle and senior levels of management of the four water companies. There was 81.08% response rate as shown on Table 4.1 below where 150 officers managed to complete and return the questionnaire. A response rate of 50% is an adequate representative for analysis and discussion while a more than 70% response rate was considered excellent Mugenda & Mugenda (2003). The 81.08% response rate was therefore excellent for this type of study.

Table 4. 3: Response Rate

Questionnaire	**Frequency**	**Percentage**
Filled and Returned	150	81.08
Unreturned	35	18.92
Total Issued	**185**	**100.0**

Source: Primary data, 2017

4.3 Reliability Analysis

Cronbach's Alpha test was used to undertake a reliability and consistency analysis of the questionnaire. Cronbach's Alpha test measured the mean of measurable items and its correlation.

Table 4. 4: Reliability Analysis

Constructs	Cronbach's Alpha	Number of Likert Items
Operational Risk Management and Performance	0.830	5
Financial Risk Management and Performance	0.705	4
Corporate Governance Risk Management and Performance	0.855	5
Performance of water service providers	0.838	4

Source: Primary data, 2017

The results from table 4.2 above shows that Cronbach's alpha for all the variables under study were higher than 0.7 thresholds suggested by (Field, 2005) that α greater than 0.9 is excellent, α greater than 0.8 is good and α above 0.7 is acceptable and below 0.7 is questionable. It implies that the data was reliable.

4.4 Background information of the respondents

Descriptive statistics on the information on the gender, level of education and work service in years for the respondents was analyzed, and tabulated as below.

Table 4. 5: Gender

	Frequency	Percent
Male	90	60
Female	60	40
Total	150	100.0

Source: Primary data, 2017

As shown in table 4.3 above, majority of the respondents were males at 60% while females were 40%. These findings indicate that both genders were involved in this study and thus the results did not suffer from gender biasness.

Table 4. 6: Work Service in years		
	Frequency	Percent
1-3 years	35	23.3
4-6 Years	43	28.7
7-10 Years	22	14.7
Over 10 years	50	33.3
Total	150	100.0

Source: Primary data, 2017

Table 4.4 shows that a majority of the respondents (33.3%) had worked for more than 10 years, while 28.7% of the respondents had worked for 4-6 years, 23.3% of the respondents had worked for 1-3 years while only 14.7% had worked for 7-10 years. This implies that the management staff had worked for a considerable period and therefore they provided information, which was necessary for the study.

Table 4. 7: Level of education		
	Frequency	Percent
Primary	4	2.7
Secondary	2	1.3
College	49	32.7
University	95	63.3
Total	150	100.0

Source: Primary data, 2017

Table 4.5 indicates that majority of the respondents (63.3%) had a university education, 32.7% had a college education, 2.7% had a primary education and 1.3% had a secondary education. These findings show that respondents who participated in this study had attained the basic education to understand the questions and thus they provided credible information.

4.5 Effect of operational risk management on performance of water service providers in Kenya

The study sought to establish the effect of operational risk management on performance of water service providers in Kenya. Questions relating operational risk management on performance of water service providers in Kenya were well structured in the questionnaire. In each question, a likert scale of 1-5 where 1= Strongly disagree, 2= Disagree, 3=Neutral, 4=Agree and 5=Strongly Disagree was used. Descriptive statistics (mean and standard deviation) for each question was also analyzed to establish the average response of the respondents.

Table 4. 8: Frequency and Mean Analysis of effect of operational risk management on performance

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. Deviation
The company has put adequate measures in place to reduce water wastages	6.7	12.0	23.3	43.3	14.7	3.47	1.091
Staff productivity levels meets the sector benchmark	1.3	15.3	20.0	50.7	12.0	3.57	.939
The company has been able to balance operational meters and a number of active water connections.	4.0	12.0	28.0	38.0	18.0	3.54	1.047
The supply of water to the customers are reliable	6.0	20.7	26.0	35.3	10.0	3.23	1.086
The company has done enough to deal with connections, which have remained disconnected for over 90 days.	7.3	17.3	28.7	36.0	10.7	3.25	1.094

Source: Primary data, 2017

According to Table 4.6 on mean analysis, the statement with the highest score was staff productivity levels meet the sector benchmark, which had a mean of 3.57 with a standard deviation of 0.939. This indicates that the respondents on average agree to the statement. The statement that the company has put adequate measures in place to reduce water wastages had a mean of 3.47 with a standard deviation of 1.091. This indicates that the respondents on average agree to the statement. The statement that the company has been able to balance operational meters and a number of active water connections had a mean of 3.54 with a standard deviation of 1.047. This indicates that the respondents on average agree to the statement. The statement that the supplies of water to the customers are reliable had a mean of 3.23 with a standard deviation of 1.086. Considering the standard deviation, the respondents on average agree to the statement. The statement that the company has done enough to deal with connections, which have remained, disconnected for over 90 days had a mean of 3.25 with a standard deviation of 1.094. Also considering the standard deviation, the respondents on average agree to the statement.

All the mean values and the standard deviation indicate that the agreed with the five statements (mean of 4). The research therefore observed that the respondents agree that operational risk management has an effect on performance of water service providers in Kenya.

4.6 Effect of financial risk management on performance of water service providers in Kenya

The study sought to establish the effect of financial risk management on performance of water service providers in Kenya. Questions relating to financial risk management and performance of water service providers in Kenya were well structured in the questionnaire. In each question, a likert scale of 1-5 where 1= Strongly disagree, 2= Disagree, 3=Neutral, 4=Agree and

5=Strongly Disagree was used. Descriptive statistics (mean and standard deviation) for each question was also analyzed to establish the average response of the respondents.

Table 4.9: Frequency and Mean Analysis of effect of financial risk management on performance

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. Deviation
Revenue generated is enough for capital investment	11.3	19.3	21.3	33.3	14.7	3.21	1.239
The company meets acceptable revenue collection efficiency	3.3	13.3	24.0	49.3	10.0	3.49	.961
The company personnel cost is within the acceptable standard	9.3	18.0	22.7	36.7	13.3	3.27	1.180
Water tariffs are affordable to customers	2.0	6.7	11.3	38.7	40.0	4.09	.985

Source: Primary data, 2017

According to Table 4.7 on mean analysis, the statement with the highest score was water tariffs are affordable to customers, which had a mean of 4.09 with a standard deviation of 0.985. This indicates that the respondents on average agree to the statement. The statement that revenue generated is enough for capital investment had a mean of 3.21 with a standard deviation of 1.239. Taking into consideration the mean and the standard deviation, we observe that the respondents on average agree to the statement. The statement that the company meets acceptable revenue collection efficiency had a mean of 3.49 with a standard deviation of 0.961. This indicates that the respondents on average agree to the statement. The statement that the company personnel cost is within the acceptable standard had a mean of 3.27 with a standard deviation of 1.180. Taking into consideration the mean and the standard deviation, we observe that the respondents on average agree to the statement.

All the mean values and the standard deviation indicate that the agreed with the four statements (mean of 4). The research therefore observed that the respondents agree that financial risk management has an effect on performance of water service providers in Kenya.

4.7 Effect of corporate governance risk management on performance of water service providers in Kenya

The study sought to establish the effect of corporate governance risk management on performance of water service providers in Kenya. Questions relating to corporate governance risk management and performance of water service providers in Kenya were well structured in the questionnaire. In each question, a likert scale of 1-5 where 1= Strongly disagree, 2= Disagree, 3=Neutral, 4=Agree and 5=Strongly Disagree was used. Descriptive statistics (mean and standard deviation) for each question was also analyzed to establish the average response of the respondents.

Table 4. 10: Frequency and Mean Analysis of effect of corporate governance risk management on performance

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. Deviation
The company values stakeholder participation	3.3	7.3	12.0	46.0	30.7	3.94	1.015
The company implements risk management strategies	2.7	10.7	17.3	45.3	23.3	3.77	1.016
Board members are accountable for risk management strategies	5.3	19.3	33.3	31.3	10.7	3.23	1.050
The management abides to its fiduciary duties	2.7	12.7	24.0	49.3	10.7	3.53	.941
The board provides leadership and direction	11.3	11.3	24.0	38.0	14.0	3.32	1.196

Source: Primary data, 2017

According to Table 4.8 on mean analysis, the statement with the highest score was the company values stakeholder participation, which had a mean of 3.94 with a standard deviation of 1.015. This indicates that the respondents on average agree to the statement. The statement that the company implements risk management strategies had a mean of 3.77 with a standard deviation of 1.016. This indicates that the respondents on average agree to the statement. The statement that the Board members are accountable for risk management strategies had a mean of 3.23 with a standard deviation of 1.050. Taking into consideration the mean and the standard deviation, the researcher observed that the respondents on average agree to the statement. The statement that the management abides to its fiduciary duties had a mean of 3.53 with a standard deviation of 0.941. This indicates that the respondents on average agree to the statement.

All the mean values and the standard deviation indicate that the agreed with the five statements (mean of 4). The researcher therefore observed that the respondents agree that corporate risk management has an effect on performance of water service providers in Kenya.

4.8 Performance of Water Service Providers

A set of elements of performance of water service were incorporated in the questionnaire. The respondents indicated the level of agreement with the statements as shown in table 4.9 below.

Table 4. 11: Frequency and Mean Analysis of Performance of Water Service Providers

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. Deviation
The company financial performance improved	3.3	6.0	11.3	46.0	33.3	4.00	.997
The company operationally efficiency has improved	1.3	12.7	13.3	46.7	26.0	3.83	.999
Customers are delighted with services of the company	1.3	15.3	36.7	32.7	14.0	3.43	.958
The company has expanded its water network systems	3.3	10.0	18.0	40.7	28.0	3.80	1.062

Source: Primary data, 2017

According to Table 4.9 on mean analysis, the statement with the highest score was the company financial performance improved, which had a mean of 4.00 with a standard deviation of 0.997. This indicates that the respondents on average agree to the statement. The statement that the company operationally efficiency has improved had a mean of 3.83 with a standard deviation of 0.999. This indicates that the respondents on average agree to the statement. The statement that the customers are delighted with services of the company had a mean of 3.43 with a standard deviation of 0.958. Taking into consideration the mean and the standard deviation, the researcher observed that the respondents on average agree to the statement. The statement that the company has expanded its water network systems had a mean of 3.80 with a standard deviation of 1.062. This indicates that the respondents on average agree to the statement.

All the mean values and the standard deviation indicate that the agreed with the four statements (mean of 4). The research observed that the respondents agree that performance of water service providers in Kenya has improved.

4.9 Regression Analysis

Fator analysis was undertaken on the cases in order to reduce the dimensions and determine the variables to be used for regression.

Table 4. 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705[a]	.497	.486	0.7157

a. Predictors: (Constant), operational risk management, financial risk management, corporate governance risk management

The table 4.10 above shows the model summary of regression analysis. R Square represents the percentage of the response variable variations that can be explained by the linear model. From the table above, the R Square value is 0.497 while the adjusted R Square 0.486 and a standard error of estimate of 0.7157. The R Square of 0.497 indicates that operational, financial and corporate governance risk management influences 49.7% of performance of water service providers in Kenya and 50.3% is explained by other variables. The study sought to answer the following questions:

i. What is the effect of operational risk management on performance of water service providers in Kenya?
ii. What is the effect of financial risk management on performance of water service providers in Kenya?
iii. What is the effect of corporate governance risk management on performance of water service providers in Kenya?

A multiple regression analysis was used to answer the questions. The dependent variable was performance of the water service providers while the three independent variables were operational risk management, financial risk management and corporate governance risk management.

The following regression model was used:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where:

$\beta_1, \beta_2, \beta_3$= Regression coefficients of independent variable.

Y = performance of the water service providers

X1= operational risk management

X2= financial risk management

X3 = corporate governance risk management

β_0= Constant. Value of dependent variable; Compliance with the Code of ethics when all the independent variables are held constant at zero

ε = Error of prediction

Table 4. 13: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.006	.060		.107	.915
	operational risk management	.387	.100	.389	3.870	.000
	financial risk management	.260	.088	.264	2.943	.004
	corporate governance risk management	.132	.037	.134	3.561	.013
a. Dependent Variable: Performance of water service providers						

The observation from Table 4.11 was that all variables are significant. However, the constant term is insignificant. This is shown by the p-values for all the three independent variables, which are less than 0.05. The study therefore responds to the three questions that

operational risk management, financial risk management and corporate governance risk management have a positive effect on the performance of water service providers

The regression equation is therefore:

$Y = 0.006 + 0.387X_1 + 0.260X_2 + 0.132X_3$

From the above regression equation, it was revealed that holding operational risk management, financial risk management and corporate governance risk management to a constant zero, the performance of water service providers would be at 0.006. Holding other factors constant an increase on operational risk management by 1 unit leads to an increase in performance of water service providers by 0.387 units. The results from financial risk management showed that a unit increase in financial risk management leads to an increase in performance of water service providers by 0.260 units. An increase on corporate governance risk management by 1 unit leads to an increase in performance of water service providers by 0.132.

Table 4. 14: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	69.791	3	23.264	45.416	.000[b]
	Residual	70.688	146	0.512		
	Total	140.488	149			

a. Dependent Variable: Performance of water service providers
b. Predictors: (constant)operational risk management, financial risk management, corporate governance risk management

From ANOVA (Analysis of Variance) analysis in Table 4.12,it shows that the model is significant as the p-value was less than 5% thus indicating the appropriateness of the model in testing the relationship between independent and dependent variables. This was also confirmed by F-statistic that was significantly greater than 1 (45.416). Thus, the model is appropriate for use in investigating the effect of Enterprise Risk Management on performance of Water Service Providers in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter deliberates the summary of the finding in chapter four based on the specific questions presented in chapter one. Conclusions and recommendations are then drawn from these findings in relation to the objectives of the study, which was to evaluate the effect of corporate governance risk management on performance of water service providers in Kenya.

5.2 Summary of the Study

The general objective of the study was to evaluate the effect of Enterprise Risk Management on performance of Water Service Providers in Kenya. Specifically the study sort to find out the effect of operational risk management on performance of water service providers in Kenya, to establish the effect of financial risk management on performance of water service providers in Kenya and to evaluate the effect of corporate governance risk management on performance of water service providers in Kenya. Each of the objective was discussed as below.

5.2.1 Operational risk management and performance of water service providers in Kenya

The research established that operational risk management has a significant positive effect on performance of water service providers in Kenya. This means that increased operational risk management help to improve on water company's financial performance, operational efficiency and service delivery.

The study agrees with findings of Tanase and Serbu (2010) who suggested that banks with the help of their advance technology could improve their financial performance through operational risks management. It also concurs with Macha (2010), studied on operational risk management in the financial sector in Tanzania, which established that operational risk management has an effect on the performance of firms.

5.2.2 Financial risk management and performance of water service providers in Kenya

This study also found out that financial risk management has a significant positive effect on performance of water service providers in Kenya. This means that increased financial risk management help to improve on water company's financial performance, operational efficiency and service delivery.

The research findings concurs with that of Wanjohi (2012) who carried out a study of the effect of financial risk management on the financial performance of commercial banks in Kenya. The research concluded that there was a positive correlation between financial risk management

practices and financial performance of commercial banks in Kenya. It also concurs with Kargi (2011) who undertook a research on the relationship between credit risk and financial performance of banks in Nigerian. The study concluded that credit risk management has a significant effect on the profitability of banks in Nigeria.

5.2.3 Corporate risk management and performance of water service providers in Kenya

The researcher also established that corporate governance risk management has a significant positive effect on performance of water service providers in Kenya. This means that increased corporate governance risk management helped to improve on water company's financial performance, operational efficiency and service delivery.

These results agree with findings Klapper and Love (2003) who reported that better corporate governance is highly correlated with better operating performance. It also agrees with Black, Jang, and Kim (2003) who provided empirical evidence that there is a positive correlation between corporate governance and performance. The results also concur with Quaresma (2014) who analyzed the relationship between the quality of corporate governance practices and the financial performance of internationally listed banks. This research concluded that there is a significant relationship between the best corporate governance practices and the financial performance of the studied banks.

5.3 Conclusion

From this research, it was found out that operational risk management, financial risk management and corporate risk management all have a significant positive effect on performance of water service providers in Kenya. In regard to operational risk management the respondent agree that the company's efforts to put adequate measures in place to reduce water wastages, staff productivity levels meets the sector benchmark, balance operational meters and a number of active water connections, make supply of water to the customers to be reliable has

affected their performance. The research concludes that there was a positive effect of operational risk management on performance of water service providers in Kenya.

On the effect of financial risk management on the company's performance the respondent agree that the company's targets to ensure revenue generated is enough for capital investment, the company meets acceptable revenue collection efficiency, the company personnel cost is within the acceptable standard and that water tariffs are affordable to customers had also affected their performance. The study concluded that there was a positive effect of financial risk management on performance of water service providers in Kenya. To enhance corporate risk management the respondents indicated the company's efforts to ensure the company values stakeholder participation, implements risk management strategies, Board members are accountable for risk management strategies, the management abides to its fiduciary duties and the board provides leadership and direction. The study concludes that there was a positive effect of corporate risk management on performance of water service providers in Kenya.

5.4 Recommendations

It has established that enterprise risk management has a positive effect on the performance of water service providers. The researcher recommended institutionalization of a holistic risk management framework in all the service providers in Kenya in which training, implementation and continuous review of the enterprise risk management in water service providers needs to be effected. The water service providers should invest in putting adequate measures in place to reduce water wastages, improve staff productivity levels to meet the sector benchmark and make supply of water to the customers to be reliable has affected their performance.

They should also work to improve the revenue collection efficiency, manage the personnel cost within the acceptable standard and make water tariffs affordable to customers. Equivalently, they should ensure the company values stakeholder participation, implements risk management

strategies, hold the board members accountable for risk management strategies, ensure management abides to its fiduciary duties and the board provides leadership and direction.

5.5 Recommendations for Further Research

The study addressed the effect of Enterprise Risk Management on performance of Water Service Providers in Kenya. The researcher recommended further research in other sectors of the economy. The study specifically addressed three key areas of risk management. Further, the research can be used to study the effect of the comprehensive enterprise risk management on performance of other government state enterprises.

5.6 Limitations of the Study

The response rate of the questionnaires was good to conduct the study. However, it did not meet the researchers' expectation of a higher response rate. Since the study only chose four companies out of 86 there is need to conduct a more elaborate data collection to get a more representative view of ERM for WSPs in Kenyan context.

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APPENDICES

APPENDIX 1

QUESTIONNAIRE

EFFECT OF ENTERPRISE RISK MANAGEMENT ON PERFORMANCE OF WATER SERVICE PROVIDERS IN KENYA

The effect of enterprise risk management on performance is a part of the management and strategic studies. The existence of ERM is based on the argument that different sectors may have different strategic goals

SECTION A: BACKGROUND INFORMATION **Tick (√) as appropriate**

1) What is your gender?

Male [ ] Female [ ]

2) What is your highest level of education?

Primary [ ] Secondary [ ] College [ ] University [ ]

3) How many years have you served in this Company?

1-3 [ ] 4- 6 [ ] 7 -10 [ ] Over 10 years [ ]

SECTION B: OPERATIONAL RISK MANAGEMENT AND PERFORMANCE

3 What is your level of agreement with the following statements that relate to effects of enterprise risk management on performance of water services providers in Kenya? (1 Strongly Disagree, 2- Disagree, 3-Neutral, 4- Agree, 5-Strongly agree,)

	Operational risk management and performance of your company	**SD**	**D**	**N**	**A**	**SA**
		1	2	3	4	5
A	The company has put adequate measures in place to reduce water wastages					
B	Staff productivity levels meets the sector benchmark					
C	The company has been able to balance operational meters and a number of active water connections.					
D	The supply of water to the customers are reliable					
E	The company has done enough to deal with connections which have remained disconnected for over 90 days.					

SECTION C: FINANCIAL RISK MANAGEMENT ON PERFORMANCE

4 What is your level of agreement with the following statements that relate to effects of financial risk management on performance? (1 Strongly Disagree, 2- Disagree, 3-Neutral, 4- Agree, 5-Strongly agree)

Financial Risk Management and performance of your Company	**SD**	**D**	**N**	**A**	**SA**
	1	2	3	4	5

A	Revenue generated is enough for capital investment					
B	The company meets acceptable revenue collection efficiency					
C	The company personnel cost is within the acceptable standard					
D	Water tariffs are affordable to customers					

SECTION D: CORPORATE GOVERNANCE RISK MANAGEMENT ON PERFORMANCE

5 What is your level of agreement with the following statements that relate to effects of corporate governance risk management on performance? (1 Strongly Disagree, 2-Disagree, 3-Neutral, 4- Agree, 5-Strongly agree,)

Corporate governance risk management and Performance		**SD**	**D**	**N**	**A**	**SA**
		1	2	3	4	5
A	The company values stakeholder participation					
B	The company implements risk management strategies					
C	Board members are accountable for risk management strategies					
D	The management abides to its fiduciary duties					
E	The board provides leadership and direction					

SECTION E: Performance of Water Service Providers

6 What is your level of agreement with the following statements that relate to performance of WSP's? (1 Strongly Disagree, 2- Disagree, 3-Neutral, 4- Agree, 5-Strongly Agree,)

Performance of WSP's		**SD**	**D**	**N**	**A**	**SA**
		1	2	3	4	5
A	The company financial performance improved					
B	The company operationally efficiency has improved					
C	Customers are delighted with services of the company					
D	The company has expanded its water network systems					

APPENDIX II

A list of water service providers in Kenya

Serial No.	**Water Service Providers**	**No.of total staff**
PUBLIC WATER SERVICE PROVIDERS		
1.	Nairobi	2948
2.	Eldoret	265
3.	Mombasa	382
4.	Nakuru	234
5.	Thika	216
6.	Kisumu	285
7.	Nyeri	105
8.	KakamegaBusia	162
9.	Nzoia	198
10.	Kirinyaga	161
11.	KilifiMariakani	226
12.	OthayaMukurweni	107
13.	Embu	105
14.	Mathira	65
15.	Malindi	130
16.	Muranga South	128
17.	Gatundu	89
18.	Nakuru rural	142
19.	Kericho	136
20.	Gusii	128
21.	Nanyuki	78
22.	Kahuti	87
23.	Nyahururu	113
24.	Ruiru- Juja	47
25.	Kwale	131
26.	Tetu	79
27.	Tavevo	119
28.	Imetha	136
29.	Muranga	108
30.	Bomet	68
31.	Meru	92
32.	NgandoriNginda	66
33.	Sibo	84

34.	Mavoko	80
35.	Kitui	76
36.	Garissa	115
37.	Oloolaiser	101
38.	Kikuyu	56
39.	Gatamathi	57
40.	Nithi	51
41.	Nyagaka	41
42.	Machakos	60
43.	Isiolo	54
44.	Tililbei	47
45.	Karimenu	49
46.	Kyeni	33
47.	Tuuru	59
48.	Limuru	53
49.	Githunguri	35
50.	Amatsi	61
51.	Lodwar	58
52.	Kiambu	51
53.	NolTureshLoitoktok	87
54.	KibweziMakindu	56
55.	Karuri	34
56.	Embe	20
57.	Nyandarua	33
58.	MurugiMugumangu	29
59.	Eldama Ravine	31
60.	Lamu	32
61.	Mikutra	65
62.	KiambereMwingi	44
63.	Kapsabet Nandi	28
64.	Naivasha	51
65.	Olkejuado	20
66.	Kapenguria	30
67.	Muthambi 4k	17
68.	Yata	26
69.	ItenTambach	26
70.	Narok	37
71.	Olkalou	16
72.	Ndaragwa	24
73.	Rukanga	20
74.	Kikanamku	11
75.	Namanga	11

76.	Mararal	33
77.	Mbooni	20
78.	Engineer	8
79.	Wote	20
80.	Tachasis	12
81.	Moyale	30
82.	Nyakanja	7
83.	MatunguriKangundo	10
84.	Nyasare	11
PRIVATE OWNED WATER SERVICE PROVIDERS		
1.	Runda	30
2.	Kiamumbi	9

Source: Wasreb Report (2016)