FINANCIAL RISK AND PERFORMANCE OF COMMERCIAL AND SERVICES LISTED COMPANIES IN NAIROBI SECURITIES EXCHANGE, KENYA

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university. No part of this thesis should be reproduced without authority of the author or/and Kenyatta University.

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To my husband David Wairia, our sons Jesse and Jonathan and daughter Gati, my siblings Walter and Nancy Onsongo; your daily prayers, perseverance and moral support have contributed to the success of this thesis.

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OPERATIONAL DEFINITION OF TERMS

Credit risk This is an indicator of the exposure level faced by the Commercial and Services companies by the money they owe creditors for loans, goods or services provided. In this study, credit risks were proxied by debt to income ratio.

Financial risk These are the indicators of the level of exposure faced by the commercial and services companies to financial losses. Financial risk was analysed by credit risk, liquidity risk and operational risk as they affect a firm's profitability.

Firm size Refers to the firm's total value and is proxied by the monetary measure of assets owed by the firm.

Liquidity risk An indicator of the exposure level on the ability of a firm to meet its obligations to suppliers without incurring unacceptable costs or losses. In this study, this risk was proxied by the current ratio.

Operational risk This is an indicator of the level of exposure faced by the commercial and services companies resulting from employee errors, fraud or any event that disrupts business processes. In this study, this risk was proxied by cost to income as the financial ratio of measure.

Performance This is a measure of how well or poorly a firm does in terms of returns generated in each period. In this study, performance was proxied by Return on Assets and Return on Equity.

ABBREVIATIONS AND ACRONYMS

ADSS	Atlas Development and Support Services
CMA	Capital Markets Authority
CAS	Commercial and Services
DTI	Debt to Income Ratio
EA	East Africa
GLS	General Least Square
KES	Kenya Shillings
KQ	Kenya Airways
NACOSTI	National Commission for Science, Technology, and Innovation
NBV	Nairobi Business Ventures
NMG	Nation Media Group
NSE	Nairobi Securities Exchange
ROA	Return on Assets
ROE	Return on Equity
SACCOS	Savings and Credit Cooperative Societies
SGR	Standard Gauge Railway
SPSS	Statistical Package for Social Studies
TPS	Tourism Promotion Services

ABSTRACT

There has been a declining trend in the performance of companies in Nairobi Securities Exchange in the recent past with seventeen companies issuing profit warnings to investors in the year 2019, fifteen in 2018, while eighteen firms issued in 2015. Most of the firms reporting inadequate profits were listed in the Commercial and Services sector of the Nairobi Securities Exchange. It raises concern whether companies listed in this sector were more exposed to financial risks in the business environment. The declining trend of performance in Commercial and Services listed companies between the years 2013 and 2019 triggered the desire for the researcher to undertake this study. The study's main purpose investigated how financial risk affected performance of the Commercial and Services companies. The specific objectives established effects of operational, liquidity and credit risks on Commercial Services companies' performance on Nairobi Securities Exchange. In addition, the study determined how firm size moderated the effect on financial risk on performance of Commercial and Services companies. The study was anchored on agency theory supported by information asymmetry theory and theory of signalling. Explanatory research design was used. The target population was 14 companies under the Commercial and Services segment in the Nairobi Securities Exchange, Kenya. Census of the companies was done. Panel data in published annual reports for the period 2013-2019 was collected. Panel regression model was applied with the random effect model being used based on the Hausman specification test. Findings indicated that credit risk and operational risks had a positive insignificant effect on Return on Equity with liquidity risk having a negative significant effect on Return on Equity. On the other hand, credit risk had a positive significant effect on Return on Assets. On the other hand, liquidity risk had a negative insignificant effect on Return on Assets and operational risk had a positive insignificant effect on Return on Assets. Firm size did not have moderating effect on the relationship between financial risks and firm performance but was rather found to be an explanatory variable. The study concluded that cost to income ratio had the most impact on Return on Assets while Return on Equity was impacted by the current ratio. The study recommends that the management of Commercial and Services companies should use cost to income and current ratios frequently to track how costs are changing and therefore impacting firm performance. Cost to income and current ratios signal an immediate indicator to firms of emerging problems in the cash flow. The study recommends that shareholders and management of companies listed in the Commercial and Services segment could take calculated credit risks to have a sound financial performance and avoid future insolvencies. In addition, the study recommended that firms should find ways of expanding their assets base since it is associated with better financial performance.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Commercial and Services companies consist of companies that buy and sell products and services in their area of competence. Unique characteristics of companies listed in this segment is that they fulfil an intermediary function and do not engage in synthesising of raw of materials as do the manufacturing companies that are engaged in transformation of raw materials to completion (Armstrong, 2017). In playing the intermediary role, these companies offer storage, transfer, distribute and sale of the products and services (Kihooto, Omagwa, Wachira & Emojong, 2016).

Commercial and services companies play three key roles in the economy. The first one is that they offer products to the end consumers by availing to consumers these products and services (Uchumi, 2017). This is because these companies are constantly in touch with the final consumer and are knowledgeable about the market needs (Kenya Airways, 2016). Examples from this segment are TPS Serena in the hotels and resorts sector and Longhorn Publishers (Longhorn Publishers, 2018). Secondly, they are responsible for developing the demand by generating specific needs of the product that they market and makes available to the consumer. Examples from this segment are Scangroup in the advertising and marketing sector, Nation and Standard Media groups. Finally, they satisfy the demand by supplying the consumers with what they need.

Global trends indicate that successful commercial and services companies are becoming obsessed about customer experience and are using online shopping to reduce costs thus

boosting sales and profits (KPMG, 2018; Rashid, 2020). Digital platforms are taking precedence in customer relationships managements amongst other revenue generation processes for example, purchase of air tickets is being done online, retail consumer purchases are being done through e-commerce websites of such as Amazon and Alibaba (Qicheng & Wei, 2017). Other global trends affecting performances of commercial companies include increased competition, changes in management and infrastructure structures and even rising fuel prices that are reducing the revenues posted by businesses in the airline sector (Agarwal, 2011, KPMG, 2018).

In Africa, according to the South African retail giant, Woolworth, any risks taken to expand performance of a business need to also consider the business' ability to deliver as per customer expectation and continuous innovation to evolving needs (Woolworths, 2018). In Kenya, the last few years has seen the NSE companies in the Commercial and Services (CAS) segment experience mixed fortunes. Examples are the Eveready East Africa Limited and Sameer Africa Limited which inorder to avoid risk of closure, have opted to remain afloat by importing batteries and tyres respectively from China (Otuki, 2016; Eveready, 2016; Sameer, 2017).

On the other hand, Deacons East Africa PLC, a Kenyan retailer, has had its performance dwindling since 2016 (Deacons, 2018; Njanja, 2018). This reflects on the performance of some several of them issuing profit warnings over the years. This could range from market risks, credit risk, liquidity risk, operational risk, or even legal risk (Muriithi, 2016; Deacons, 2018). To ensure better performance in the sector, financial risks could be investigated as to whether they are associated with poor performance.

1.1.1 Firm Performance

According to Agustina and Baroroh (2016), performance has been defined historically as a gauge over a time on the wellbeing of a company or organization. This gauge when standardised is then used for comparison across companies in similar trades (Erasmus, 2008). Performance gauges how well a business uses its assets to maximise returns on investments by its stakeholders (Mwangi, Makau & Kosimbei, 2014).

Performance of a company has been measured in various ways. Some of the measures from previous studies included cost-effectiveness, assets returns, share growth, revenue margins, net profit, sales turnover, Return on Equity, (Frosdick, 2007; Papadogonas, 2007; Liargovas & Skandalis, 2008; Mwangi, Makau & Kosimbei, 2014; Ochieng, 2014; Devraj, 2016; Onsongo, Muathe & Mwangi, 2019). Hence in this study, the researcher has used two of these measures namely Return on Assets (ROA) and Return on Equity (ROE).

In Kenya, the last few years has seen the performance of companies listed in the CAS segment of the NSE experience mixed fortunes. There are companies that reported profits throughout the study period, while others reported losses in the same period. The national airline carrier, Kenya Airways (KQ), for example which is listed under the commercial and services segment reported the country's worst ever corporate results in history US Dollars 258 million for the year 2015-2016 (Kenya Airways, 2016; Okoth & Achuka, 2016). On the positive side, there are companies that reported profits through the study period such as Longhorn Publishers which reported profits through the years (Longhorn Publishers, 2018; NSE 2020).

Table 1.1 Profit warnings from companies on NSE per Sector from 2013 to 2019

Sector\Year	2013	2014	2015	2016	2017	2018	2019
Agricultural		18%		27%		13%	18%
Automobiles & Accessories		9%	6%				
Banking	14%		6%	9%	25%	13%	6%
Commercial & Services	43%	55%	39%	18%	25%	13%	12%
Construction & Allied		9%	17%		8%	20%	12%
Energy & Petroleum	14%					7%	6%
Insurance			17%	18%	8%	27%	24%
Investment			6%	9%			6%
Investment Services				9%			6%
Manufacturing & Allied	29%	9%	11%	9%	33%	7%	12%
Telecommunication & Technology							
Real Estate Investment Trust							
Exchange Traded Fund							
Total firms issuing profit warnings per year	7	11	18	11	12	15	17

Source: NSE Handbooks (2013 - 2019)

As shown on table 1.1, the most affected sector was the commercial and services segment with more companies issuing profit warnings. Profit warnings are statements issued by listed firms that signal that earnings for that year will be materially lesser as compared to the earnings of the previous financial year (Mwangi, 2014). Some of the factors cited as affecting the sector are aggressive growth plans, the financial risks and competition (Kenya Airways 2016; Mutegi, 2017; Uchumi 2017). It is therefore important to investigate how financial risk affects the performance of these commercial and services listed companies on NSE.

1.1.2 Financial risk

Bansal, Kauffman, Mark and Peters (1991) and Holton (2004) described risk as the unexpected change or unpredictability of returns. On the other hand, Wani and Ahmad (2013) described financial risk as an umbrella term for various classifications of hazard related with financial transactions. This risk is normally influenced by causes beyond the firm's control (Oliver, 2001; Harvey, 2008). In this study, the risk factor has been broken down to credit risk, liquidity risk and operational risk. Credit risk was proxied by debt to income ratio (Elder, 2016); liquidity risk was proxied by current ratio (Kamau & Njeru, 2016); while efficiency ratio was the proxy for operational risk (Muriithi, 2016; Wangalwa & Muturi, 2018).

Risk can yield the possibility of both pleasant surprises as well as adverse business results with a general hypothesis that the amount of risk taken has a direct impact on the potential for return (Gentry & Pike, 1970; Stulz, 1996; Woods, 2008; Kinyua, Gakure, Gekara, & Orwa, 2015; Were, 2015). How well or poorly a firm performs has been linked to risks taken by management of the firms and risks therefore remain a significant factor especially when they affect companies' performance (Muriithi, 2016).

Credit risk was indicated by the level of exposure of one of the parties in a transaction to be unable to meet its part of the bargain as per contract or agreement (Chartered Institute Management Accountants, 2005; Frosdick, 2007; Woods and Dowd, 2008). Credit risk is shown by, for example, non-repayment of loans by companies and consequently inability to pay creditors which eventually results in discontinuance of fixed cost expenditures in the operating infrastructure (Bansal, Kauffman, Mark & Peters 1991). An example of such as scenario from the Commercial and Services firms is Uchumi

supermarket, whose suppliers were reported to have been on a go-slow following month of unpaid supply. The retailer sought bailout from the Government of Kenya, shareholders, financial institutions and even sold some of its assets to remain afloat. (Uchumi, 2017).

Despite predicting growth in global economy from 3.4 percent in 2017 to 3.6 percent in 2018 up from 3.1 percent in 2016, foreign countries credit policies could have a ripple effect on others by leading to financial tightening in emerging market economies (Greuning & Bratanovic, 2009). China for example, a slowdown in its economy may ultimately translate to reduced advancements of such credit facilities to the country being a key financier of Kenya's major infrastructural projects, such as the Standard Gauge Railway (SGR) through loans (CMA, 2016). From a global perspective, this credit facilities trickle down to debt to income ratio of the borrowing nation.

In Kenya, any changes in the credit facilities from global financial partners may have an impact of the companies within the commercial and services segment for example in the transport and logistics sector such as Express Limited. According to Express Limited, the SGR trains is ferrying about 40% to 50% of port-bound cargo. This is hurting their businesses performance as the trains' have rendered a waste millions of shillings in investments in buses and trucks (Express Limited, 2017). This is an indicator on how credit risk can influence performance of companies.

Liquidity risk as used in this study gauges the firm's ability to fulfil its commitments in terms of cash payments to its suppliers (CIMA, 2005). In this study, liquidity risks were proxied by the current ratio. According to Jenkinson (2008), an indicator of liquidity

risk is the reputational damage of organization if it fails to fulfil immediate commitments due to its creditors.

According to the Capital Markets Authority (2016), most listed companies in the recent years have reported dismal performances. During times of liquidity constraints, large institutions may shut down, due to difficulty in meeting basic obligations (Chaplin, Emblow & Michael, 2000). There is a possibility that liquidity risk affects firm's earnings and should therefore be monitored by management (Luy, 2010)

Locally, The Kenya Airways, for example, made a loss of American dollars 258 million in 2015 mainly attributed to liquidity risk not well managed by the group (Kenya Airways, 2016). Another company listed in the Commercial and Services sector that downsized its operations due to liquidity problems was Eveready. It sold off the manufacturing plant in Nakuru in 2016 and the sales were used to settle long outstanding debts and financing costs that were weighing heavily on the business (Eveready, 2016). Similarly, in the year 2015, Uchumi Supermarkets was forced to curtail business amongst its regional subsidiaries in East Africa and the loss was blamed on cash flow management, a liquidity risk (Uchumi, 2017).

Operational risk is a probability of loss faced by companies due to employee errors, fraud or any event that disrupts business processes and the value of its business (Bansal, Kauffman, Mark & Peters, 1991). Due to the dynamic nature of businesses, some listed companies have faced challenges arising from mismanaging their cashflows. During times of liquidity constraints, companies may shut down, due to difficulty in meeting basic obligations (Chaplin, Emblow & Michael, 2000). Operational risk adversely affects

firm's earnings and should therefore be prioritized by management to ensure the business operations run smoothly.

Uchumi supermarket for example has faced a lot of operational risks. According to Bwire (2015), Uchumi supermarket troubles began from conflict of interest from the senior management who were also the chain store's vendors. With time, this became the norm of the business such that self-interest versus business interests could not be distinguished with Uchumi paying for goods that were overpriced by these managers cum suppliers (Uchumi, 2017). This highlights the principal-agent problem because the managements interests who are the agent were against the shareholders' interests as the principal (Jensen & Meckling,1976; Fama, 1980).

1.1.3 Firm Size

The company's total value proxied by the monetary measure of assets owned by the firm defined the firm size as used in this study. Other definitions of firm size include the capacity of production or the range of services that can be provided at the same time by a business to its clientele (Pervan & Višić, 2012). Traditional neoclassical views have argued that firm size plays a key role in determining the profitability of a company due to benefits accruing from economies of scale (Majumdar, 1997; Ammar, 2003; Amato & Burson, 2007; Lee, 2009; Vijayakumar & Tamizhselvan, 2010; Niresh & Velnampy, 2014).

It is assumed firm size and profitability to have a positive relationship between them (Ammar, 2003; Amato & Burson, 2007; Pervan & Višić, 2012). However, there are other differing theories include one from Amato and Wilder (1985) that state that firms that

are considered big face more problems between management and the shareholders. This is because managers pursuing self-interested goals control the risk investments undertaken therefore substituting the objective of profit maximization.

In this study, the moderating effect of firm size was studied to determine the possibility of any influence on the interaction between financial risk and performance. Firm size plays a big role in terms of competitive advantage due to economies of scale, which can range from financial, organizational to technical. A study by Pervan and Višić (2012) and Odalo, Achoki and Njuguna (2016) showed benefits as a result of scales of economy that occur from firm size include negotiating for favourable interest and discount rates, efficient use of human and technical resources and specialization of production. In this study, firm size refers to total value proxied by the monetary measure of total assets.

1.1.4 Commercial and Services Listed Companies

The NSE decided to classify listed companies into twelve categories in the year 2011so as to realign them with the sectors in the economy and make comparison of performance of similar companies easier. One of the twelve clusters was the Commercial and Services segment. Previously there had only been two main market segments. These were the main and the alternative investments market segments (CMA, 2016). According to the then chief executive officer of the Nairobi Securities Exchange, Mr Peter Mwangi, the move was intended to make it easier for investors and analysts to make comparisons between performance of similar companies, analyse trends in companies trading in similar industries, predict risks in the business environment and improve consistency in the market (NSE, 2013).

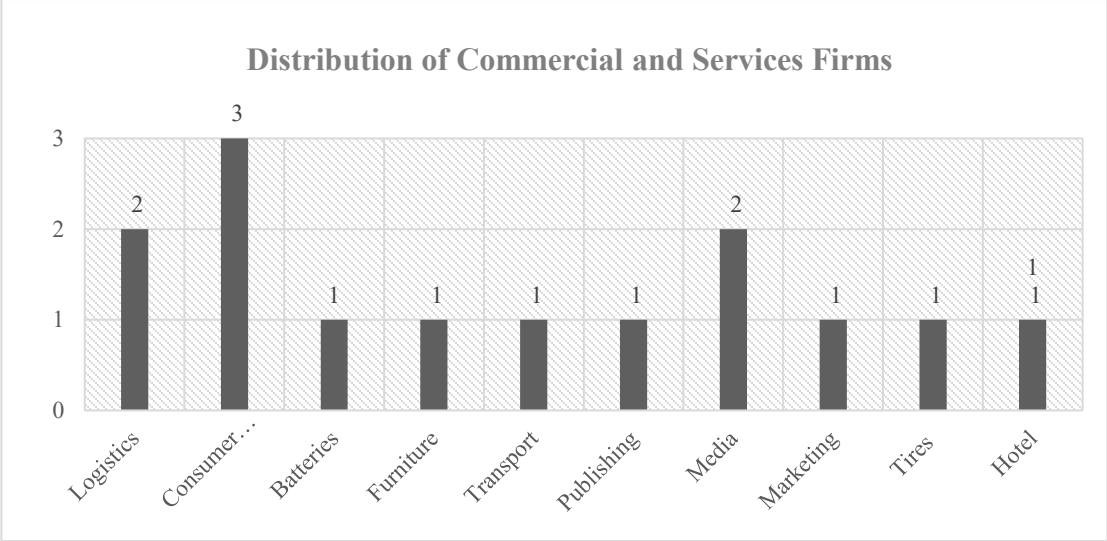


Figure 1.1: Distribution of Commercial and Services Sector

Source: (Researcher, 2018)

Figure 1.1 shows majority of companies listed under CAS sector deal in consumer goods at 22% stake. These include retail establishments selling food stuff, clothing, footwear, home-furnishings, and goods amongst other items. Companies in this category are Deacons, Nairobi Business Ventures and Uchumi Supermarkets. Another 22% dealt with media advertising and digital operations. These media related companies are Nation Media group (NMG), Standard Group and WPP Scangroup. Another 14% dealt with logistics including both air and sea. These were Atlas and Express Kenya (Atlas, 2015). The remaining 42% was evenly spread across six sectors namely portable power solutions, Eveready; producing tyres, Sameer Africa; accommodation, conference and holiday solutions, TPS Serena; regional and domestic carriage of passengers, KQ; books publishing, Longhorn; furniture Hutchings Biemer.

1.2 Statement of the problem

According to the Capital Markets Authority, there has been a declining trend in financial performance results posted by companies in the Nairobi Securities Exchange, with seventeen companies out of the sixty-seven registered companies issuing profit warnings in the financial year of 2019 alone (CMA, 2020). The period between 2013 to 2019 saw the following firms under the commercial and services segment issue profit warnings: Uchumi supermarkets, Kenya Airways, Deacons, Hutchings Biemer, Atlas Development (ADSS), Eveready East Africa, Nairobi Business Ventures, Standard group, Sameer Africa, Express Kenya, TPS Eastern Africa, and logistics firm Express Limited which have been on the spotlight (Bwire, 2015; Kangethe, 2015; Aglionby, 2016; Munda, 2017).

Through the years 2013 to 2019, firms listed under the CAS sector were the most affected as compared to other market segments (appendix I). Companies previously listed in other segments such as automobiles and accessories and manufacturing segments of the NSE downsized their operations to the extent of being registered under the CAS segment. At least four of the fourteen companies listed under CAS sector have previously been suspended from Nairobi Securities Exchange (Agustina & Baroroh, 2016; NSE, 2017). Liquidity problems, lack of relevant records, loss of trade creditors and investors' confidence and lack of proper management in place are indicators of risk stated by these firms (Kihooto, Omagwa, Wachira & Emojong, 2016).

Several studies on this study jurisdiction have focused on insurance firms and the other majority on the financial institutions whose finding may not be generalized to the commercial and service industry (Mathuva, 2009; Wani and Ahmad, 2013; Kamau & Njeru, 2016; Mutua, 2016; Isiaka, 2018). There are few existing studies that have been

conducted on the Commercial and Services sector (Kihooto, Omagwa, Wachira & Emojong, 2016; Sheng, 2018; Wangalwa & Muturi, 2018). In addition, past studies (Okech, 2013; Ochieng, 2014; Odoyo, 2014; Omasete, 2014) have focussed on risk management and not on the indicators of risks.

Prevailing studies such Mathuva (2009), Omondi and Muturi (2013), Wani and Ahmad (2013), Kamau and Njeru (2016), Mutua (2016), Olawale, Luqman, Bamidele, Lawal and Fatai (2017), Isiaka (2018),Wangalwa and Muturi (2018), have neither incorporated credit, liquidity nor operational risks in one research study. Neither have they integrated and evaluated the interaction between firm size, financial risk, and firm performance of these commercial and services companies. Based on these knowledge gaps the researcher sought after investigating the effect of financial risk specifically on the firm performance. The question arises as whether the performance of these Commercial and Services companies varies due to the varied risk exposures they face or due to the varied businesses in which they participate, and this is what the researcher sought to determine.

1.3 Study objectives

1.3.1 General objective

To investigate the effect of financial risk on the performance of commercial and services listed companies on Nairobi Securities Exchange, Kenya.

1.3.2 The specific objectives

The study was guided by the following specific objectives

i. To determine the effect of credit risks on the performance of commercial and services companies on NSE, Kenya.

ii. To establish the effect of liquidity risks on the performance of commercial and services companies on NSE, Kenya.

iii. To examine the effect of operational risks on the performance of commercial and services companies on NSE, Kenya.

iv. To determine the moderating effect of firm size on the relationship between financial risk and firm performance of commercial and services companies on NSE, Kenya.

1.4 Research hypotheses

H_{01}: Credit risks have no significant effect on the performance of commercial and services companies on NSE, Kenya

H_{02}: Liquidity risks have no significant effect on the performance of commercial and services companies on NSE, Kenya.

H_{03}: Operational risks have no significant effect on the performance of commercial and services companies on NSE, Kenya.

H_{04}: Firm size has no significant moderating effect on the relationship between Financial risk and performance of commercial and services companies on NSE.

1.5 Significance of the study

The research findings provide shareholders of commercial and services companies with insights on how to minimize operational risks arising from principal – agent problems through adherence to organizational standard operating procedures policies to avoid moral hazard opportunities. Secondly, the research findings provide investors and funding agents like banks and trade creditors with information on edifying credit related risks of Commercial and Services companies in Kenya. Trade creditors are interested in the

liquidity of these organisations. They can therefore refer to the study recommendations regarding the consistency of revenues generated and associated with these companies in this segment of NSE.

The study conclusions and recommendations are of instrumental benefit to Institutes of certified public accountants, relevant Government of Kenya institutions like the Capital Markets Authority, and the Ministry of Finance. Study findings provide information that help in formulating effective policies on risks among publicly listed organisations. This enables safeguarding the public shareholders who are also owners of the listed firms. The conclusions and recommendations of the study provide a basis of reference to policy makers and regulators on financial risks.

The study recommendations offer managers of both listed and non-listed commercial and services company's recommendations that are beneficial to their decision making. Based on the research findings the study provides an understanding on influence of credit, liquidity and operational risks on the performance of the selected companies financially. This enables them to address the risks and improve organisational performance and growing shareholder's value.

Finally, the literature also bridges the existing gap in the works on the effects of financial risk and performance. Future researchers and academicians are therefore able to find the conclusions from this research valuable. This extends existing knowledge besides acting as a source of reference.

1.6 Scope of the study

The research covered companies listed under the Commercial and Services segment of the NSE. These firms are geographically based in the capital city Nairobi, Kenya. The scope of study covered the performance of these companies from years 2013 - 2019. The researcher focussed on studying only listed Commercial and Services companies because amongst the companies that issued profit warnings in the study period at least 25 per cent were from this sector (NSE, 2017). Hence the researcher sought to investigate whether performance of companies listed in this sector was affected by financial risks. A longitudinal model was applied because of the time factor and cross-sectional dimensions of the study variables (Aiken & West, 1991; Wooldridge, 2010; Park, 2011).

1.7 Limitations of the Study

The following key challenges were faced by the researcher when conducting the research. The study used secondary data. However, not all the companies had published statements for the study period available on their company website. Four out of fourteen companies had missing published statements in the firms' websites. Since secondary data from NSE Handbooks was readily available from the companies' websites, this inferred that the researcher could utilize the information for further research and analysis (Tripathy, 2013). The second study challenge was that some of the firms were suspended and later delisted during the study period, while others had not been registered on the securities exchange for the entire period 2013 to 2019. This meant that not all firms had consistently traded during the study period. This presented unbalanced panel data. By using STATA version 13.0, the researcher was able to handle the unbalanced dataset.

1.8 Organization of the study

The researcher had this study planned in chapters beginning with the first chapter that provides background information from a global and contextual aspect leading to the problem statement. This is followed by the research objectives, hypotheses, scope of the study, justification for conducting the research and the associated limitations. The second chapter begins with an introduction of the key theories that underpinned the study, along with the concepts. This is followed by an analysis of previous empirical literatures on financial risks, firm size and firm performance; this chapter also has the conceptual framework that illustrates the connection between the study variables.

Chapter three provides research methodology, the population that was targeted, the sampling size, how data was collected, analysis methodologies, diagnostic tests and finally the ethical considerations. Chapter four is where the collected data is presented, analysed, and interpreted to deduce the key findings. Finally, the fifth chapter provides the summary, conclusions, recommendations, and areas of further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section focused on previous literature conducted on financial risks and their effect on performance of companies. It also reviews previous studies on firm size and the effect on firm performance. The outline is as follows: it begins with a review of the theories underpinning the study and then demonstrate the connection to the empirical studies previously done with the research gaps and how this study addressed them. It then concludes the literature review with a conceptual framework of the study.

2.2 Theoretical Review

A theory is a chain of thoughts expected to clarify an insight, particularly if dependent on general standards autonomous of the idea to be clarified (Tudose, 2012; Grant & Osanloo, 2014). The study was supported by three theories. These were the agency theory, information asymmetry theory and signalling theory. Agency theory is linked to firm performance and firm size while information asymmetry and signalling theories are linked to the risks taken by the managers of these firms and the expected impact on firms' performances.

2.2.1 Agency Theory

This theory emerged in the 1970s (Mitnick, 1973; Bendickson, Muldoon, Liguori & Davis, 2016). The genesis of the agency problem began when and where the directors of public companies did not have the same business interests as those of partners in a private company would (Jensen & Meckling, 1976; Fama, 1980). The first agency problem

begins when agents take actions that are contrary to the agreement, which are assumed riskier by the Principal.

According to Omasete (2014), shareholders task the firms' managers and the executive board with the role of managing risks that affect the organizational wellbeing. These risks if managed well can help achieve the goal of maximising investment returns and earnings of firms (Collier & Agyei-Ampomah, 2006). The management plays the agency role in risk management by taking measures in risk taking and avoidance (Omasete, 2014). The agency theory brings out possible mismatch between factors that motivate the management team versus the shareholders' best interests. Normally, the managers and shareholders have diverse interests. Consequently, their risk appetites will vary. While shareholders may require high-risk projects with higher investment returns, management on the other hand might prefer low risk projects with lower returns on investments.

The objective of the agency theory is mainly to bring out the need for alignment of these two parties' varying interests in the organization and to have a unified objective of wealth maximisation and firms' success. The theory has come to extend well beyond economics or institutional studies to all contexts of information asymmetry, uncertainty and risk (Fama & Jensen, 1983; Bendickson, Muldoon, Liguori & Davis, 2016). When company report profit warnings and that the firm is in the verge of collapsing then it will bring about conflicts between the managers and the shareholders. This makes agency theory significant for this study and on which the research was anchored on.

2.2.2 Signalling Theory

The origin of the signalling theory was pioneered by Michael Spence in the year 1973 (Spence, 1973). In his theory, Spence (1973) looked at the recruitment process in the job market as an investment that is done under uncertainty. The employee is compared to the investment in which the employer who in this case is the investor intends to capitalize on. The fact that the potential abilities of the employee are not known until after the contract of employment is signed, makes the hiring decision a risky one. But once hired, the employee will demonstrate certain qualities that will signal the employer on the capabilities of this worker.

Similarly, in the business environment, firms are attracted to various investment options and will only get to understand the risks that come with the decisions after they have signed contracts. According to Brian, Trevis, Duane & Christopher (2011), this theory is popularly used when analysing concerns around business activities. It is especially used when describing the behaviour of two parties who have access to varied information. Spence (2002) added that signalling theory helps to reduce information asymmetry between the parties.

The researcher used signalling theory to demonstrate the link between the financial risks that a firm faces due to the decisions informed by the firm's executives. According to Zhang and Wiersema (2009), the chief executive officers may decide to invest on the highest quality of printed financial statements to signal shareholders and potential investors of the status of the unobservable quality of their firms. Equally in this study, signalling theory uses these financial statements and the data contained to signal the well-being of the firms in terms of financial performance.

2.2.3 Theory of Information Asymmetry

The choices selected by people, organizations and industries is determined by the information available to them. This possession of varied information is called information asymmetry and the concept was pioneered by George Akerlof in the year 1970 (Akerlof, 1970; Auronen, 2003). The cause of information asymmetry is when there is disproportion level of knowledge of relevant factors and details between two negotiating parties (Chandra & Nayar, 2008). When this disparity in knowledge happens, it leads to adverse selection, moral hazards, and market failure (Rowell & Connelly, 2012).

Adverse selection happens when information available disadvantages one party (Akerlof, 1970). Moral hazard on the other hand happens when one party intentionally takes a risky venture knowing that any losses or costs associated with the undertaking will be borne by another party (Pauly, 1968). Since availability of information facilitates performance forecasts to a decision maker, companies can use available risk information to proactively gauge risk in financial operations on firm performance (Auronen, 2003).

In practice, shareholders of the company cannot dictate and spell out what is to be done in every risky venture taken by the managers of the firm (Wruck, 1990; Kaplan and Stein, 1993; Andrade and Kaplan, 1997; Whitaker, 1999; Pearson, 2002). According to Baldwin and Scott (1983), moral Hazard is a problem that is immanent in any business operating environment. At the macro level, effects of moral hazard narrow the margin in the cash generated and the liabilities to be repaid. A negative shock to any industry will cause the weakest firm into acquisition or liquidation or being put into administration or creditors voluntary liquidation (Whitaker, 1999).

This theory is significant to this study because companies go through firm specific risks that arise from differential information available to the managers versus the stakeholders. As a result, the effects on ownership and governance, and the indirect costs to a firm's performance which include administrative, operational and even reputation costs emerge much later when dismal performances are reported at the end of a financial year (Kihooto, Omagwa, Wachira & Emojong, 2016). Thus, information asymmetry comes into play when investigating the risks taken by the managers and the effects on the firm performance.

2.3 Empirical Literature Review

Previous studies on financial risk, firm performance and firm performance have been reviewed and how the current study builds on the existing research gaps. These have been detailed in the next subsections.

2.3.1 Credit risk and Performance

Dey, Hossain, Rezaee (2018) investigated how financial risk disclosure affected performance of manufacturing companies in Bangladesh. They developed financial risk disclosure indices through content analysis of the firms' annual reports. The study employed regression analysis to examine the association between financial risk disclosure and the firm's attributes.

Their study had five categories of risks focussing on credit risk, liquidity risk, interest rate risk, capital structure risk and exchange risk. The study found no common practise in companies disclosing their financial risks into their reporting process. However, they also found that the level of financial risk disclosure was significantly influenced by the

firm size as well as the calibre of the auditors. Similar to the Dey, Hossain, Rezaee (2018) study, the current study was anchored on agency and signalling theories and reviewed two risk categories namely credit and liquidity. Operational risk was added as a risk indicator and firm size as moderator which were not captured in the above study.

Nyasaka (2017) reviewed management of credit risk and non-performing loans in the banks. In his study, credit risk was measured by the characteristic of the borrower which was used to determine the credit score. The study established that non-performing loans negatively affects a bank's lending ability. This creates a negative signalling effect on credit risk. This study will therefore add value by shifting focus from banks and instead focussing on a non-financial sector. It will also add firm size as a moderator factor.

Mutua (2016) explored how management of credit risk influences financial performance of on Savings and Credit Co-operatives (SACCOs). Credit risk was proxied by management of loan defaulters and the loan policy while financial performance was proxied by the surplus or deficit made by the cooperative. The study found a strong positive connection between loan policy in mitigation of risk and financial performance of these organisations. The current study used debt to income ratio as the measures of credit risk, which was not used by Mutua (2016). It also added liquidity and operational risks to assess the effect of financial risk on firm performance, which were also missing in Mutua's study.

2.3.2 Liquidity Risk and Performance

Isiaka (2018) assessed how liquidity risk affected insurance companies' performance listed in Nigeria. Liquidity risk was independent variable with the measure being claim

loss ratio, premium growth, and leverage. For firm performance, Return on Assets was used as the proxy. The study adopted panel multiple regression techniques. The findings revealed that leverage had a significant negative effect on Return on Assets. This study will include a Return on Equity as a measure of performance and use current ratio as the measure of liquidity risk.

Kamau and Njeru (2016) investigated how liquidity risk affected performance of insurance companies listed on the NSE, Kenya. They looked at credit risk, operational risk and liquidity risk as the explanatory variable of the study while ROE was used to gauge performance. They used descriptive research design. For the methodology, multiple regression model was employed. The extreme value theory, credit risk theory and capital Structure theory supported their research. Market risk and operational risks had significant negative effects on ROE of the insurance companies listed NSE. This research sought to add value by reviewing liquidity risk on a non-insurance sector of the NSE thus filling the contextual gap.

Wani and Ahmad (2013) conducted a research on liquidity risk and performance of Indian insurance industry. Current ratio was utilized as a measure to liquidity risk while ROA was employed as representation of financial performance. Secondary data extracted from the financial statements and multiple regression were used in the study. From the findings liquidity risk had a positive statistically significant relationship on return on asset of insurance industry in India. The study was conducted in Asia and on the insurance industry whose findings may not be relevant to Kenyan contexts. The current study therefore contextualised the gap.

2.3.3 Operational Risk and Performance

Wangalwa and Muturi (2018) sought to investigate operational risk and performance of Supermarkets in Nairobi County. Cost to income ratio was utilized as an indicator to operational risk while ROA as representation of financial performance. Descriptive research design was employed with quantitative data. The study was supported by extreme value theory, financial distress theory and firm value maximization theory. Multiple regression to ascertain the effect between operational risk on return on asset of supermarkets in Nairobi County was used.

From their findings, operational risk negatively affected ROA. The study recommended for investment in latest technology that will reduce on the risk. This study will therefore add value by shifting focus from supermarkets in Nairobi County and instead broaden the scope by adding two more financial risk indicators and using firm size as a moderator factor that influence performance of listed supermarkets in the CAS segment of NSE, Kenya.

Mathuva (2009) sought to conduct a study on the effect of operational risk on performance of commercial banks in Kenya. The researcher used cost to income to gauge operational risk. ROA and ROE were used as proxies to performance. Panel regression was employed as the model for the study Minitab software was used to ascertain the significance levels of the research constructs. The research findings showed that operational risk is inversely related with both performance indicators as per the sample investigated. Whereas Mathuva (2009) study was conducted in a financial sector, the findings cannot be extrapolated to the CAS sector which is non-financial. This study will add value by

increasing two additional risk categories to the independent variable and reviewing the interaction effect of firm size between financial risk and firm performance.

2.3.4 Financial Risk, Firm size and Performance

Olawale, Luqman, Bamidele, Lawal and Fatai (2017) sought to investigate performance and firm size of firms listed in Nigeria Stock Exchange. Total assets and total sales were used to measure firm size while ROE measured financial performance. They employed pooled regression model. From the findings, firm size when measured using the two measures gave varying effects on performance. Total sales had a significantly positive relationship on ROE while total assets produced a significantly negative effect on ROE. The current study added value by interacting firm size proxied by total assets between financial risk and firm performance by focusing on only one sector of the listed firms in Kenya.

Sisay (2017) reviewed how financial risk affected financial performance of insurance firms in Ethiopia. The thesis used panel survey methods and unstructured in-depth interviews. The study used six independent variables which included credit risk, liquidity risk and solvency risk. The dependent variable for performance was return on assets (ROA). The outcome of regression indicated that credit risk, liquidity risk, solvency risk had a negative and important impact on the profitability of insurance firms in Ethiopia. This study bridged the contextual gap by assessing noninsurance firms in Kenya and sought to assess the how firm size moderated the relationship between financial risk and firm performance.

Muriithi (2016) had a research on financial risk and financial performance of commercials banks in Kenya. A sample of 43 commercial banks licensed by the Central Bank of Kenya for the years from 2005 to 2014 were studied. Secondary data was extracted from the audited financial accounts of these commercial banks. Panel regression techniques and financial ratios analyses were applied. The findings of the study indicated that credit and liquidity risks have significant negative effect on return on equity. The study deduced that there was an inverse effect between financial risk and financial performance of banks in Kenya. The study focused on all listed banks, but the current study is on listed Commercial and Service firms and has added the firm size as a moderator variable to the relationship between firm performance and risk.

Omondi and Muturi (2013) sought to investigate firm size as an independent variable and its effect on performance of listed companies at Nairobi Securities Exchange in Kenya. Total asset was employed as proxy to firm size while return on asset as proxy to performance of the companies. Secondary data extracted from the listed companies at NSE excluded insurance firms and banks which were excluded from the sample data. Multiple regression model ascertained the effect of firm size on ROA. Firm size had a significantly positive effect on return on asset among companies in NSE. This study added value to research literature in assessing the interacting effect of firm size between financial risk and firm performance. Secondly, the researcher focused specifically on companies listed under the commercial and services segment of the NSE.

2.4 Summary of Literature and Research Gaps

The research gaps from the literature review has been summarised in Table 2.1

Table 2.1 Empirical Literature and Research Gaps Summary

Author(s)/ Years	Focus	Findings	Research Gap	How current study addressed the gaps
Dey, Hossain, Rezaee (2018)	Effect of financial risk disclosure on performance of manufacturing companies in Bangladesh	The level of financial risk disclosure was significantly influenced by the financial performance of the company	This study mentioned firm size as an external factor that influenced performance, but it was not a key study variable. It also studied manufacturing companies that are affected by different business risk factors as compared to the commercial and services segment.	This study investigated similar risks but added firm size as a moderator between risk and performance and focussed on companies listed under commercial and services sector.
Muriithi (2016)	Effect of financial risk on Commercial banks of Kenya performance.	There was an inverse effect between financial risk and financial performance of banks in Kenya	The study focused on all listed commercial banks, but the current study is on listed commercial and service firms	firm size was added as a moderator variable to the relationship between firm performance and risk
Mutua (2016)	Management of credit risk influences on financial performance	The findings support earlier studies that indicated positive	Mutua (2016) research was only focussed on ne type of risk	This study reviewed a broader spectrum of risks to include credit,

	of SACCOs in Kenya	correlation between financial performance measured by ROE and credit risk	yet there are other risks.	liquidity and operational risks and instead of saccos's it focussed on Commercial and Services listed companies
Wani and Ahmad (2013)	liquidity risk and financial performance of Indian Insurance Industry	From the findings liquidity risk had a positive statistically significant relationship on return on asset of insurance industry in India.	Wani and Ahmad (2013) study -Could these findings apply to other non-insurance firms in other countries	This study investigated whether liquidity risk effect on performance was similar in non-insurance firms operating in Kenya
Isiaka (2018)	Liquidity risk on firm performance of listed insurance companies in Nigeria	The findings of random effect revealed that leverage had a significant negative effect on Return on Assets.	Used leverage as proxy to liquidity risk yet this ratio does not distinguish different types of assets by their riskiness	This study used current ratio as proxy to liquidity risk and contextualised similar risks to the Kenyan market and non-insurance industry.
Wangalwa and Muturi (2018)	Operational risk and performance of Supermarkets in Nairobi County.	Operational risk had a negative significant effect on return on asset in the study.	Wangalwa and Muturi (2018) carried study in supermarkets in Nairobi County	This study was carried out in commercial and services companies on NSE in Kenya.

Mathuva (2009)	Operational risk and performance of commercial banks in Kenya	Operational risk is inversely related with both ROA and ROE as per the sample in the study.	Mathuva (2009) Carried out study in Commercial banks in Kenya which are financial institutions	This study was carried out in non-financial institutions i.e. the commercial and service companies listed at the NSE in Kenya
Olawale, Luqman, Bamidele, Lawal and Fatai (2017)	Firm size and financial performance of firms listed in Nigeria Stock Exchange	Firm size in terms of total sales had a positive significant relationship on ROE while total assets had a negative significant relationship on ROE	Their study was on firms listed in Nigeria Stock Exchange	This study was carried out on a different geographical context
Omondi and Muturi (2013)	Firm size and performance of listed companies at Nairobi Securities Exchange in Kenya	Firm size positively and significantly affected ROA among companies under study in NSE	Omondi and Muturi (2013) study was carried on all the companies under NSE	Firm size was used as a moderating variable as opposed to being an independent variable as used per Omondi and Mutua (2013) study

Source: Study Data (2018)

2.5 Conceptual Framework

Smith (2004) defines it as a graphic depiction of the existing relationship between the study variables. Using the diagram below, the researcher conceptualizes the ideological

framework on the interactions of the variables. Performance was used as the dependent variable proxied by ROE and ROA. The study explored various variables to measure financial risk that comprised of credit risk, liquidity risk and operational risk as the independent variable. The interaction between firm size and the independent and dependent variables was ascertained by introducing firm size a s a moderator financial risk and performance of commercial and service companies in NS, Kenya.

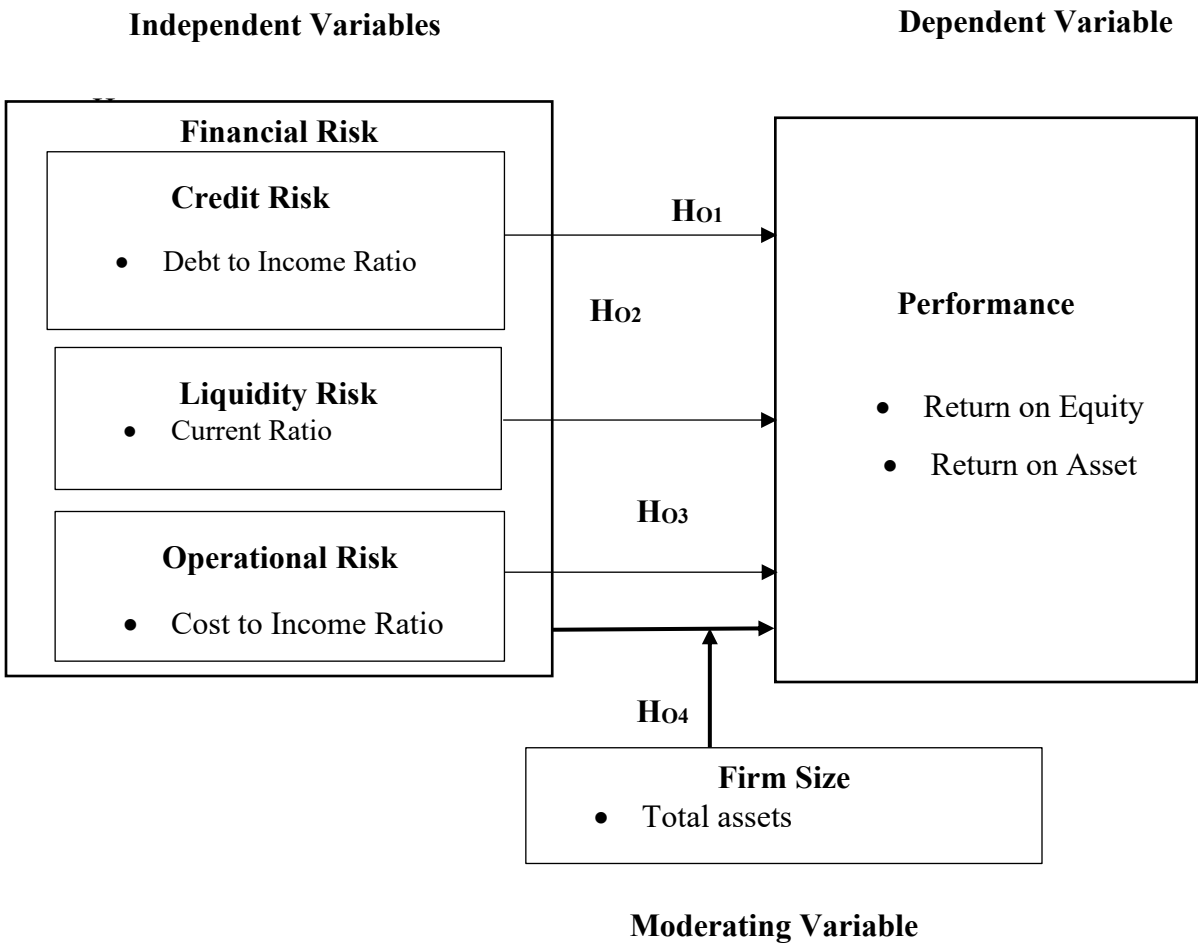


Figure 2.1: Conceptual Framework

Source: (Researcher, 2018)

Figure 2.1 represents the study's independent and predicted variables. The three types of risks are the study's independent variables that are considered determinants of firms' performance. ROA and ROE represent firm performance (Mathuva, 2009; Kamau & Njeru, 2016). The size of the firm which was considered a moderating variable was proxied by the firms' assets (Omondi & Muturi, 2013; Olawale et al., 2017).

The researcher explored the following factors relevant to financial risk as they affect performance. Credit risk was proxied by debt to income ratio (Elder, 2016); liquidity risk was proxied by current ratio (Kamau & Njeru, 2016); while operational risk was proxied by cost to income ratio (Mathuva, 2009; Muriithi, 2016; Wangalwa & Muturi, 2018).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Chapter three provides explanation on the research philosophy and design; empirical model applied; target population, the sampling design, the data collection procedures, the statistics evaluation, and ethical considerations.

3.2 Research Philosophy

According to Enc (1999) a research philosophy provides a set of hypothetical views or assumptions on how the researcher perceives the research problem. There are two main research philosophies namely the positivist (sometimes called scientific) and interpretivist (Galliers, 1991; Enc 1999).

According to Pranas, Jolita and Regina (2017), the difference between these two philosophies depends on the research analyst's perspective on the research problem. In the interpretivist paradigm, the researcher claims that reality can be interpreted in a subjective manner. Whereas in the positivist paradigm, reality can be understood in an objective way and the researcher detaches himself from his own values and works independently.

The researcher adopted a positivism paradigm for this research. This was guided by the underlying assumptions that reality is steady, observable, and described from an objective and independent viewpoint of the researcher (Levin, 1988; Enc 1999). The study

therefore derived hypotheses from theory, after which data was collected and a representative sample was tested empirically to accept or reject the hypotheses.

3.2.1 Research design

The researcher adopted an explanatory research design. According to Maigua and Mouni (2016), the main advantage of explanatory designs is, it allows connection of thoughts to apprehend reason and effect. The researcher was able to explain what was going on as it exists, and the researcher had no control over the variables. The researcher explored and explained the effects of financial risks, firm size on the performance of listed CAS firms in Kenya.

3.3 Empirical model

The research employed a multiple linear panel regression model to analyse the effect of financial risks on the performance of listed CAS companies on Nairobi Securities Exchange, Kenya. A multiple panel regression model was favourable because the independent variables had time factor and cross-sectional dimensions (Aiken & West,1991; Wooldridge, 2010).

The general model of the study was defined as follows:

$$ROE_{it} = \alpha + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 OR_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots (3.1)$$

$$ROA_{it} = \alpha + \beta 1\, CR_{it} + \beta_2 LR_{it} + \beta_3 OR_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots (3.2)$$

Where:

ROE_{it} is Return on Equity of business i at time t

ROA_{it} is Return on Asset of business i at time t

i is the company being studied with i = 1... 14

t is the financial year with t =2013... 2019

CR_{it} is Credit risk of business i at time t

LR_{it} is Liquidity risk of company i at time t.

OR_{it} is Operational risk of company i at time t.

α is the Constant term

β *is* the Coefficients of the independent variables

ε_{it} is the error term

3.3.1 Moderating effect Model

Whisman and McClelland (2005) two-step procedure was utilized to explore how firm size moderated the relationship between financial risk and firm performance. Besides firm size not being a key independent variable, its effect on the performance of the firms under study could not be overlooked (Dey, Hossain, Rezaee, 2018). Hence the study applied the Whisman and McClelland two step procedure that is illustrated as follows:

Step One

In the first step, firm size was used as an explanatory variable alongside the main independent variables of financial risk.

$$ROE_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 OR_{it} + \beta_4 FS_{it} + \varepsilon_{it} \quad \text{.....3.3}$$

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 OR_{it} + \beta_4 FS_{it} + \varepsilon_{it} \quad \text{.....3.4}$$

Step two

In step two, firm size was introduced as a moderator and the researcher developed a financial risk composite index that averaged credit risk, operation risk and liquidity risk to have one parameter that represented financial risk. It was used to determine the interaction effect of the three risk categories under financial risk and firm performance. The composite index therefore measured the overall financial risk effect on firm performance over time.

$$ROE_{it} = \beta_0 + \beta_1 FRI_{it} + \beta_2 FS_{it} + \beta_3 [FRI^* FS] + \varepsilon_{it} \quad \ldots\ldots 3.5$$

$$ROA_{it} = \beta_0 + \beta_1 FRI_{it} + \beta_2 FS_{it} + \beta_3 [FRI^* FS] + \varepsilon_{it} \quad \ldots\ldots 3.6$$

Where:

FS is the Firm Size (Moderating Variable)

FRI= Financial Risk Index

FRI*FS= Interaction between Financial Risk Index and Firm Size

3.3.2 Operationalization and measurement of variables

The researcher defined the key concepts as inferred in the study and provided the measures of the variables in table 3.1.

Table 3.1: Operationalization and measurement of variable

Variable	Category	Operationalization	Measurement	Hypothesised direction
Credit risk	Independent	This is an indicator of the risk level faced by a Commercial and	Debt to Income Ratio (DTI)	None

		Services firm by the money it owes its lenders versus the income it generates		
Liquidity risk	Independent	This is an indicator to whether a Commercial and Services firm can pay off its immediate short-term liabilities using its current assets	Current asset to current liabilities	None
Operational risk	Independent	This is an indicator on the risk level a Commercial and Services firm bears for the negligence and errors arising from its own internal operations processes.	Cost to income ratio	None
Firm Size	Moderator	This is proxied by the volume of assets a commercial and services company owns.	Natural logarithm of firms' assets	None
Performance$_1$	Dependent	Return on Equity is the ability of a firm to generate returns to shareholders investment	=Net profit / Total Equity capital	None
Performance$_2$	Dependent	Return on Asset is how effective the firm is in generating the profit attained from every single shilling utilized.	= Net Profit / Total Assets	None

Source: Researcher (2019)

3.4 Target population

According to Gachingiri (2015), a population is the universe of entities, actions or items with similar distinctive traits. The study target population was fourteen companies (14) in the CAS market segment of the NSE for the period covering 2013 to 2019. The

researcher encountered challenges retrieving four out of the fourteen firms' independent audit financial statements. Hence ten companies became the target population. (NSE, 2019).

Table 3.2 Distribution of Target Population

	Company	Business
1	Atlas Development and Support Services	Logistics
2	Deacons (East Africa) Plc	Consumer goods
3	Eveready East Africa Limited	Power solutions.
4	Express Limited	Logistics
5	Hutchings Biemer Limited	Furniture
6	Kenya Airways Limited	Transport
7	Longhorn Publishers Limited	Publishing
8	Nairobi Business Ventures Limited	Consumer goods.
9	Nation Media Group	Media.
10	Sameer Africa Limited	Tyres
11	Standard Group Limited	Media
12	TPS Eastern Africa (Serena) Limited	Hospitality
13	Uchumi Supermarket Limited	Consumer goods
14	WPP Scangroup Limited	Marketing.

Source: Nairobi Securities Exchange (2016)

3.5 Sampling design

The commercial and services market segment has only 14 companies under it. Since the population size was small and manageable, the researcher did not sample the companies.

3.6 Data Collection Instruments

The researcher extracted data from published companies' annual financial reports and NSE handbooks for the years 2013 to 2019. This was secondary data that was readily available from the firms' website as well as from the Nairobi Securities Exchange handbooks. The key advantage of using secondary data was that it may already have been used in previous research, making it easier to use to carry out further research (Mugenda & Mugenda, 2003; Grant & Osanloo, 2014). The researcher developed a document review guide (refer to appendix V). The study used this tool to collect the secondary data.

3.6.1. Validity of the Instrument

The use of the document review guide as a research instrument to collect secondary data has been used and validated by other researchers (Saunders, Lewis & Thornhill, 2009; Deborah, 2018). According to Mwangi (2014) when a census approach of study is taken, the validity of the collected data is improved because the collected information is specific rich to the population and thus legitimate. The benefit of this instrument was that it provided the researcher with a systematic approach of categorising the data, examining and assessing it, and finally developing valuable data. Furthermore, this instrument of research has been applied in previous studies (Witkin & Altschuld, 1995; Mugenda & Mugenda, 2003; Muathe, 2010; Mwangi 2014; Musau 2018).

3.7 Data Collection Procedure

The researcher applied the following systematic procedure in collecting this study's data. To kick-start, approval to proceed to data collection was given by Kenyatta University graduate school (see appendix II). An application for a research permit from National commission for science, technology, and innovation (NACOSTI) was then obtained (see

appendix III and IV). Panel data from NSE handbooks and the firms' official websites was collected. A document review guide (see appendix V) was used. Data extracted for the period 2013 to 2019 was used with the financial years of the companies ending in different months. To increase the scope of data collected, the researcher focussed on longitudinal data of same sample over the study period (Gujarati, 2003).

3.8 Data analysis method

The researcher used multiple panel regression analysis and descriptive statistics. Under descriptive statistics, the mean, standard deviation, minimum and maximum descriptions were analysed (Mugenda & Mugenda, 2003; Saunders, Lewis & Thornhill, 2009). Multiple panel regression was employed to assess how financial risk affected firm performance over the study period. As per the study objectives, the moderating effect of firm size on the relationship between the dependent and independent parameters was analysed (Musau, 2018).

The researcher developed a composite index (Mwangi, Makau & Kosimbei, 2014). The financial risk index composed of the three risk indicators – credit risk, operational risk, and liquidity risk (Dey, Hossain & Rezaee, 2018). The index tested the interaction between financial risk and firm performance, Finally, prior to testing and ascertaining the hypotheses, the researcher conducted diagnostic tests to detect any potential problems with the specifications of the regression model (Aiken & West, 1991). According to Park (2011), for longitudinal data to be well interpreted, it needs to be well arranged and analysed for both times series and cross-sectional variables hence the need for diagnostic tests.

3.8.1 Diagnostic Tests

The following diagnostic tests were conducted; Normality test, Multicollinearity test, Autocorrelation test, Heteroscedasticity test, Panel unit root test and Hausman test. Correlation analysis detected presence of multicollinearity between the dependent and independent variables. According to Muriithi (2016), the Jarque-Bera test is necessary prior to estimating the model because it tests the skewness of the data. If the level of skewness of the sampled data was zero, then the dataset was assumed to have a normal distribution. These tests assessed and ensured that the collected data did not violate key assumptions of linear regression model (Wang, 2013). Any violation of the linear regression assumptions could lead to findings that are misconstrued.

3.8.1.1 Normality Test

To study the distribution of the variables if distributed normally or not, Jarque-Bera test was utilized. Non-normality makes statistical tests inaccurate. It is therefore imperative to know if your data are normal or non-normal. The null hypothesis was that the data was not normally distributed. In the instance the P-values for all the variables are less than 0.05 then the null hypothesis is to be rejected. From the findings the null hypothesis was not rejected implying that the data was not normally distributed however since the sample size was above 30 the central limit theorem applied.

3.8.1.2 Multicollinearity Test

Multicollinearity assumes that there is a perfect linear relationship among the autonomous variables. When Multicollinearity exists often due to redundant information, a change in one of the autonomous variables leads to huge variances in the coefficients (Greene, 2008; Wooldridge, 2013). It therefore becomes a challenge estimating the individual coefficients

of the variables. This often leads to false conclusions about the relationship between dependent variables and autonomous variables. The researcher used correlation matrix, to detect for presence of multicollinearity between variables. Correlation coefficients of more than 0.8 show presences of multicollinearity (Gujarati, 2003). From the findings there was no severe multicollinearity.

3.8.1.3 Autocorrelation test

This test checks if a random factor is fabricating autonomous unsystematic figures in a structured order. Serial correlation in an error term would result in biased estimation. The ordinary least square assumes the error terms in the regression model to be uncorrelated (Gujarati, 2003). According to Wooldridge (2013), the presence of serial correlation invalidates standard hypothesis tests and interval estimates. Testing for first-order serial correlation is therefore important (Greene, 2008). Using Wooldridge test, the researcher tested for nil first-order autocorrelation in the data. From the findings there was no autocorrelation in the data.

3.8.1.4 Heteroscedasticity Test

According to White (1980), data collected may produce huge variations amongst them, and when his happens, the data is said to be heteroscedastic. When the error term in a regression model has a constant variance across predicted values, then it is assumed homoscedastic or part of the dependent variable. The researcher used Breusch Pagan test the to take care of consistent standard errors of heteroscedasticity. According to Breuch Pagan this test establishes whether the variance of the error term is a constant. In case heteroscedasticity was present in regression model, then the researcher would run general least square (GLS) to remedy the situation. From the study findings heteroscedasticity was present in model 3.3 hence the study had to run GLS.

3.8.1.5 Panel unit root test

The researcher ascertained whether the time series data were stationary at level or otherwise. Since the study had both cross sectional as well as time series data, it was necessary for this test to be run. Levin Lin Chu test was applied (Levin, Lin & Chu, 2002). According to Gujarati (2003), a Levin Lin Chu test evaluates unauthentic regression effects. If there were unauthentic effects, the researcher would differentiate further the equations 3.2 and 3.3. From the study finding all the variables were stationary at level.

3.8.1.6 Hausman test

To detect the presence of endogenous regressors in the regression model, the researcher employed the Hausman Test (Hausman, 1978; Chmelarova, 2007). In the instance where group effect is not correlated with the error term, the random effects estimators applies (Greene, 2008). If a correlation exists, then the researcher will apply a fixed effects model (Park, 2011). Based on the Hausman test, if the researcher settles on the fixed effect model then the study must also assess for time effects in the model using the F-test in accordance with Greene (2008). Otherwise a random effects model is applicable. The random effect was suitable hence the study employed random effect model.

3.9 Ethical Considerations

Before commencing data collection, clearance from the Director, Ethics office, Kenyatta University was sought by the researcher as per the University research guidelines (see appendix II). The researcher also got clearance from NACOSTI (Appendix II & III). Furthermore, since secondary data from NSE Handbooks used was freely available on the internet, this inferred that permission to use the data further was implied (Tripathy, 2013).

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The fourth chapter provides study findings. The chapter begins with the summary of the statistics, followed by the results on the diagnostic tests and concludes with the discussion of study results.

4.2 Summary of Statistics

The descriptive statistics on the financial risk indicators, firm size, and firm performance of the fourteen companies under CAS sector through years 2013 to 2019 were collected and analysed. Table 4.1 presents the descriptive statistics.

Table 4.1 Descriptive statistics

able 4.1:

Variable	**Mean**	**Std. Deviation.**	**Min**	**Max**
ROE	0.0254313	0.251435	-0.567095	1.156945
ROA	0.2573595	1.97227	-4.789889	10.80164
Credit risk	0.0434844	0.330613	-0.782172	0.782659
Liquidity risk	-1.827569	16.39814	-109.1733	15.31719
Operational risk	0.5475728	0.247773	0.0683761	1.48148
Firm size	15.45955	2.036432	11.71747	19.99039

Source: Study Data (2019)

Table 4.1 shows the mean value for ROE was 0.0254313 with a standard deviation of 0.2514351 and minimum and maximum values of -0.5670951 and 1.156945, respectively. The negative minimum value observation for ROE reflects that part of the companies under study reported losses. The mean value of ROA was 0.2573595 with a standard deviation of 1.97227 and minimum and maximum values of -4.789889 and 10.80164 respectively. The positive ROA shows that the companies were profitable despite others reporting losses as indicated by the negative minimum observed value of ROA.

From outcome in table 4.1 the mean value of credit risks 0.0435 with a standard deviation of 0.3306 which shows a small variability of credit risk overtime. The results on liquidity risk show a negative mean value of -1.827569 and a standard deviation of 16.39814. The mean negative value under liquidity risk indicates that some companies were experiencing liquidity problems which were also explained by the profit warnings issued by the companies. Further results show operational risk had larger variability overtime with a mean value of 0.5476 and a standard deviation of 0.2478, which is explained from the difference between the min of 0.0683761 and max value of 1.48148. The results on firm size show a mean value of 15.45955 and a standard deviation of 2.036432. The results suggest that the presence of firm size strengthens the association between risk and performance of commercial and services companies on NSE in Kenya.

4.3 Diagnostic Tests

The following tests results are presented in the next subsection. normality test, multicollinearity test, panel unit root, heteroscedasticity test, autocorrelation test and Hausman test which comprises of fixed and random effect models.

4.3.1 Normality Test Results

The study utilized Jarque-Bera test to test the normality distribution of the variables. The test results are in table 4.2.

Table 4.2: Normality Test Results

Skewness/ Kurtosis tests for Normality					
Variable	Observations	Pr(Skewness)	Pr(Kurosis)	Adj chi^2	Prob> chi^2
my Residuals	50	0.0000	0.0000	35.57	0.000

Source: Study Data (2019)

The study employed Jarque-Bera test of normality. The null hypothesis assumed a normal distribution. As per the results in table 4.2, the p-value is less than 0.05 significant level for the residual. The null hypothesis was rejected and thus the conclusion that the residuals were not normally distributed. By the rule of the thumb, a sample size of 30 or more will usually result in a sampling distribution for mean that is very close to a normal distribution (Saunders, Lewis & Thornhill, 2009).

4.3.2 Multicollinearity Test Results

The researcher used correlation matrix, to detect for presence of multicollinearity between variables.

Table 4.3: Correlation Results

Variable	Credit risk	Liquidity risk	Operational risk	Firm size
Credit risk	1.0000			
Liquidity risk	0.2568	1.0000		
Operational risk	0.0954	0.0028	1.0000	
Firm size	0.1659	-0.1663	-0.1039	1.0000

Sour Source: Study Data (2019)

Table 4.3 shows the results which indicated that there was no severe multicollinearity since all the correlation coefficients between the independent variables were less than 0.8 as supported by (Gujarati, 2003). To test for multicollinearity, a correlation matrix was utilized. The explanatory variables employed in this study were credit risk, liquidity risk, operational risk and firm size.

4.3.3 Autocorrelation Test Results

The researcher used Wooldridge test to test for nil first-order autocorrelation in the data.

Table 4.4: Autocorrelation test for ROE

Wooldridge test
H0: no first order autocorrelation
F (1, 9) = 0.209
Prob > F =0.6736

Source: Study Data (2019)

As per the results in table 4.4, the study employed Wooldridge test for autocorrelation for equation 3.1. The null hypothesis was that no auto correlation exists. The findings implied that since the p values was above the critical value of 0.05 (P=0.6736>0.05), the

null hypothesis of no autocorrelation was not rejected. According to Wooldridge (2013), there was no autocorrelation.

Table 4.5: Autocorrelation test for ROA

Wooldridge test
H0: no first order autocorrelation
F (1, 9) = 1.201
Prob > F =0.3425

Source: Study Data (2019)

From the results output displayed in table 4.5, the study employed Wooldridge test for autocorrelation for equation 3.2. The null hypothesis was that no auto correlation exists. The findings indicated that the null hypothesis of no autocorrelation was not rejected since the p value was above the critical value of 0.05 (P=0.3425>0.05) hence no auto-correlation in the data as supported by (Wooldridge, 2013).

4.3.4 Heteroskedasticity Test Results

The researcher used Breuch Pagan to test heteroscedasticity. The test results are presented on Table 4.6.

Table 4.6: Heteroskedasticity Test Results for ROE

Breusch – Pagan / Cook-Weisberg test for heteroscedasticity
H0: Constant variance
Variables: Fitted values of ROE
$Chi^2(1) = 3.94$
$Prob>chi^2 =0.0353$

Source: Study Data (2019)

As shown in Table 4.6, the study tested for panel heteroskedasticity employing Breusch-Pagan test. The null hypothesis was that the error term is homoscedastic. Since the calculated p value for variables fitted values of ROE (0.0353) which is less than the critical value 0.05 which implies presence of heteroskedasticity in equation 3.1. The heteroscedastic was corrected by running a GLS variance model as supported by Breuch Pagan.

Table 4.7: Heteroskedasticity Test Results for ROA

Breusch – Pagan / Cook-Weisberg test for heteroscedasticity
H0: Constant variance
Variables: Fitted values of ROA
$Chi^2(1) = 1.25$
$Prob>chi^2 = 0.2524$

Source: Study Data (2019)

From the results output displayed in table 4.7, the study tested for panel heteroskedasticity employing Breusch-Pagan test. The null hypothesis was that the error term is homoscedastic. Since the calculated p value for variables fitted values of ROA (0.2524) is more than the critical p value (0.05), the null hypothesis was not rejected, signifying the error term of equation 3.2 was homoscedastic as supported by Breusch Pagan.

4.3.5 Panel Unit Root Tests Results

The researcher employed the Hausman Test to detect the presence of endogenous regressors in the regression model.

Table 4.8: Panel Unit Root Test

Variable	Test	Statistics	Significance
ROE	Levin, Lin and Chu	-7.5784	0.0000
ROA	Levin, Lin and Chu	-3.2935	0.0005
Credit risk	Levin, Lin and Chu	-3.0927	0.0010
Liquidity risk	Levin, Lin and Chu	-5.4359	0.0000
Operational risk	Levin, Lin and Chu	-1.5779	0.0294
Firm size	Levin, Lin and Chu	-1.9446	0.0259

Source: Study Data (2019)

As reported in table 4.8 the Levin, Lin and chu test presented p-values that are less than 0.05. These led to rejection of the null hypotheses for Return on Equity, Return on Assets, credit risk, liquidity risk, operational risk and firm size. The study's conclusion was that the variables did not have unit root and were at level. The outcome extracted were therefore not misleading (Gujarati, 2003).

4.3.6 Hausman Test Results

The researcher employed the Hausman Test to detect the presence of endogenous regressors in the regression model.

Table 4.9 Hausman test for ROE

Hausman fe re				
	coefficients			
	(b) fe	(B) re	(b-B) Differences	Sqrt(diag(v_b-v_B)
Credit risk	.317802	.789763	-.471961	.504885

Liquidity risk	-.116687	-.116749	.000062	.003417
Operational risk	-000044	.000246	-.000239	.000577
Firm size	-.092198	-.164998	.072799	.677362

b = consistent under H_0 and H_a; obtained from xtreg

B= inconsistent under H_a, efficient under H_0; obtained from xtreg

Test: H_0 : difference in coefficients not systematic

$Chi^2(4)$ =(b-B)'[(v_b - v_B)^(-1)] (b-B)

Source: Study Data (2019)

Table 4.9 presented the Hausman test for ROE the application of the random and fixed effect models in the analysis. From the results output displayed in table 4.9, the null hypothesis was that random effects model was appropriate while alternative hypothesis was that fixed effects model would be appropriate under Hausman test. If P value was greater than the critical value 0.05, the null hypothesis was not to be rejected. From the results, the P value was greater than the critical value (P = 0.7904>0.05). The random effects model was therefore appropriate for the model as suggested by (Green, 2008).

Table 4.10 Hausman test for ROA

Hausman fe re				
	coefficients			
	(b) fe	(B) re	(b-B) Differ- ences	Sqrt(diag(v _b-v_B) S.E
Credit	.606293	.472516	.133777	.135286
Liquidity	-.001628	-.001827	.000199	.000868

Opera- tional	-.000055	.0000276	-00073	.000121
Firm size	-.04548	-.01236	-.03311	.182811

b= consistent under H_0 and H_a; obtained from xtreg

B= inconsistent under H_a, efficient under H_0; obtained from xtreg

Test: $H_{0:}$ difference in coefficients not systematic

$Chi^2(4)$ =(b-B)'[(v_b - v_B)^(-1)] (b-B)

Source: Study Data (2019)

From the results output displayed in table 4.10, the null hypothesis was that random effects model was appropriate while alternative hypothesis was that fixed effects model was appropriate under Hausman test. If the p value was greater than the critical value 0.05, then the null hypothesis was not to be rejected. From the results, the P value was greater than the critical value (P=0.6842>0.05). Therefore, the random effects model for the model was adopted as suggested by (Green, 2008).

4.4 Hypotheses Testing

This section presented outcomes of hypotheses testing. The following hypotheses were analysed using panel multiple regression to establish the statistical significance at 95 percent confidence level (α=0.05).

H_{01}: Credit risks have no significant effect on the performance of commercial and services companies on NSE, Kenya

H_{02}: Liquidity risks have no significant effect on the performance of commercial and services companies on NSE, Kenya.

H_{03}: Operational risks have no significant effect on the performance of commercial and services companies on NSE, Kenya.

H_{04}: Firm size has no significant moderating effect on the relationship between Financial risk and performance of CAS firms on NSE.

The results were presented in Table 4.11, 4.12 and 4.13.

4.4.1 Effect of Financial Risk on Return on Equity

Table 4.11 presents the results of regression Model 3.3 on the direct effect of financial risk indicators and Return on Equity (ROE).

Table 4.11: Regression Results with Return on Equity (ROE)

ROE	Coeffi-	Stand-	z	P>|z|
Credit risk	.5807289	.3695323	1.57	0.12
Liquidity risk	-.112057	.0074164	-15.11	0.00
Operational	.5542459	.4765494	1.16	0.25
_cons	-.503449	.3168256	-1.59	0.11
F statistics = 78.57 Prob > chi^2 = 0.0000				

Source: Study Data (2019)

The outcome in Table 4.11 showed that F statistics value was 78.57 with a p value of 0.0000 that is less than 0.05. This indicated that the risks indicators had significant effects on Return on Equity of commercial and services listed companies in Nairobi Securities Exchange in Kenya.

4.4.1.1 Credit risk and performance of commercial and services companies on NSE, Kenya.

The first objective sought to establish how credit risk affected the performance of commercial and services companies on NSE, Kenya**.** The outcomes are as shown in Table 4.11 with the coefficient of debt to income ratio (credit risk) is 0.5807289 and is statistically insignificant with p value of 0.123 which is greater than 0.05. This shows a positive statistically insignificant effect between credit risk and Return on Equity.

The null hypothesis that credit risk had no significant effect on Return on Equity of commercial and services companies on NSE was not rejected at 5% level of significance. The results were consistent with Mutua (2016) who investigated effect of credit risk management on Savings and credit cooperatives in Kenya and found that credit risk had a positive correlation between financial performance as measured by ROE and credit risk.

4.4.1.2 Liquidity risk and performance of commercial and services companies on NSE, Kenya.

The second objective of the study sought to establish the effect of liquidity risk on performance of commercial and services companies on NSE, Kenya**.** Table 4.11 indicates that coefficient of current asset to current liabilities ratio (liquidity risk) is - 0.112057 and is statistically significant with p value ($0.000 < 0.05$). The findings showed a negative effect of current asset to current liabilities ratio on Return on Equity of CAS companies listed on NSE in Kenya.

The negative coefficient shows that liquidity risk had an inverse relationship to firm performance. This may have resulted in the reduction in Return on Equity of the companies. Therefore, sub null hypothesis that liquidity risk did not significantly affect return on asset of commercial and services firms on NSE in Kenya was rejected at 5% level of significance. The results are in line with (Wani & Ahmad, 2013; Kamau & Njeru, 2016) who found that liquidity risk had significantly negative effects on Return on Asset and Return on Equity.

4.4.1.3 Operational risk performance of commercial and services companies on NSE, Kenya.

The third objective sought to establish how operational risk affected performance of commercial and services companies on NSE, Kenya. The findings summarizing this investigation are in Table 4.11 with the coefficient of costs to income ratio (operational risk) was (β= 0.5542459, p= 0.251>0.05). The results showed that there is a positive statistically insignificant effect of operational risk on Return on Equity of commercial and services companies on NSE in Kenya.

The null hypothesis assumed operational risk did not significantly affect Return on Equity of commercial and services companies on NSE in Kenya. The results concluded that at five per cent level of significance, the null hypothesis was not rejected. This further implied that an increase in operational risk lead to an increase in the performance of the firms' as per ROE measure. However, the findings are inconsistent with Mathuva (2009) whose study found out that operational risk is inversely related with Return on Equity.

4.4.2 Effect of Financial Risk on Return on Asset

Table 4.12 presents the outcomes of regression Model 3.2 on the direct effect of financial risk indicators and return on asset (ROA).

Table 4.12: Regression results with ROA

ROA	Coefficient	Standard Error	z	P>|z|
Credit risk	.4582179	.0942447	4.86	0.000
Liquidity risk	-.0014809	.0018915	-0.78	0.438
Operational risk	.0286846	.121538	0.24	0.814
_cons	-.1922351	.0808025	-2.38	0.022
F statistics = 8.13 Prob > chi^2 = 0.0002				

Source: Study Data (2019)

Outcome showed the F statistics value was 8.13 with a p value of 0.0002 which is less than 0.05 as per Table 4.12. This denotes financial risks significantly affected ROA of commercial and services listed companies in NSE, Kenya.

4.4.2.1 Credit risk and performance of commercial and services companies on NSE, Kenya.

The first objective sought to establish how credit risk affected performance of commercial and services companies on NSE, Kenya**.** Findings are as shown in Table 4.12. To attain this objective a null sub hypothesis, H_{01} assumed credit risk did not significantly affect return on asset of commercial and services firms on NSE, Kenya was formulated.

In Table 4.12 the coefficient of credit risk (β= 0.4582179, p=0.000<0.05) shows a positive statistically significant relationship between credit risk and return on asset.

Therefore, the null hypothesis that credit risk has no significant effect on return on asset of commercial and services companies on NSE; Kenya was rejected at 5% level of significance as per the sample. The finding show that credit risk increases performance of the listed firms geared towards return on asset. Risk takers firms contribute to positive returns from the investments. The findings are inconsistent with (Sheng, 2018) who found credit risk significantly affected Return on Equity of Malaysian logistics and transportation companies.

4.4.2.2 Liquidity risk and performance of commercial and services companies on NSE, Kenya.

The second objective of the study sought to establish the effect of liquidity risk on performance commercial and services companies on NSE, Kenya. The findings summarizing this analysis are in Table 4.12. A null sub hypothesis was formulated to achieve this objective, H_{02b}, on effect on commercial and services companies on NSE in Kenya was formulated. In Table 4.12 the coefficient of liquidity risk (β= -0.0014809, p= 0.438>0.05) shows that there is a negative statistically insignificant association between liquidity risk and performance of commercial and services companies on NSE in Kenya.

Therefore, the null hypothesis that liquidity risk has no significant effect on performance of commercial and services companies on NSE was not rejected at five per cent significance level. The finding implies an increase in liquidity risk leads to a decrease in performance of listed firms geared towards return on asset. When a firm faces liquidity

problems then an increase in liquidity risk will impact on its performance. The finding agrees with financial distress theory which states when a firm cannot meet it obligations when they fall due then they risk that chance of collapsing and even issuing profit warnings which is the case in the study some issued profit warnings which is not appealing to the shareholders. The findings are inconsistent with Wani and Ahmad (2013) but consistent with Isiaka (2018) whose study findings revealed that leverage had a significant negative effect on Return on Assets.

4.4.2.3 Operational risk and performance of commercial and services companies on NSE, Kenya.

The third objective sought to establish the effect operational risk on performance commercial and services companies on NSE, Kenya. The findings summarizing this analysis are in Table 4.12. A null sub hypothesis was formulated to achieve this objective, H_{03c}, on performance of commercial and services companies on NSE, Kenya was formulated in Table 4.12 the coefficient of operational risk (β= 0.0286846, p= 0.814>0.05) shows that there is a positive statistically insignificant association between operational risk and performance of commercial and services companies on NSE, Kenya.

The null hypothesis was not rejected at five per cent level of significance as per the sample. The outcome implies an increase in operational risk leads to an increase in performance of listed firms with reference to return on asset. The finding is relevant as per the study which signifies that companies invest in risky projects which in return yields positive NPV that contributes to improvement of the company performance, the higher the risk the higher the returns. The findings are inconsistent with (Mathuva, 2009) whose study found out that operational risk is inversely related with Return on Assets.

4.4.3 Moderating effect of firm size on the relationship between financial risk and performance of commercial and services companies listed on NSE in Kenya

The next sections present the first steps when firm size an explanatory variable followed by step two when firm size was introduced as a moderator and the interaction between financial risk and performance analysed.

4.4.3.1 Effects of Firm Size

Table 4.13 presents the results of regression Model 3.3 on the Effects of Firm Size as an explanatory variable on ROE.

Table 4.13: Effects of Firm Size as an explanatory variable on ROE

ROE	Coefficient	Standard Er-	z	P>|z|
Credit	.8129233	.3537767	2.30	0.026
Liquidity	-.1165501	.0070868	-16.45	0.000
Opera-	.3891273	.4476364	0.87	0.389
Firm size	-.15966	.0563339	-2.83	0.007
_co	1.9460	.91325	2.	0.0
R-sq: Within = 0.8614 F statistics = 69.94 Prob > chi2 = 0.0000				

Source: Study Data (2019)

The result in Table 4.13 indicates that credit risk, liquidity risks, operational risks and firm size had an 86 % high explanatory power on Return on Equity of commercial and services companies of NSE in Kenya. This shows that credit risk, liquidity risks,

operational risks, and moderator variable firm size, were significant in contributing to the disparities in Return on Equity of commercial and services companies on NSE in Kenya.

4.4.3.2 Effects of Firm Size as an explanatory variable on ROA

Table 4.14 presents the results of regression Model 3.4 on the Effects of Firm Size as an explanatory variable on ROA.

Table 4.14: Effects of Firm Size as an explanatory variable on ROA

ROA	Coef.	Std. Err	z	P>|z|
Credit risk	0.4759387	.0972821	4.89	0.000
Liquidity risk	-0.001824	.0019487	-0.94	0.354
Operational risk	.0160829	.1230918	0.13	0.897
Firm size	-.012185	.0154908	-0.79	0.436
_cons	-0.005292	.2511293	-0.02	0.983
R-sq: Within = 0.3554 F statistics = 6.20 Prob > chi2 = 0.0005				

Source: Study Data (2019)

The result in Table 4.14 indicates an R squared of 0.3554. This implies that credit risk, liquidity risk, operational risk and firm size had a 36% explanatory power on return on asset of commercial and services companies of NSE in Kenya. This indicates that a combination of these variables can explain variation in return on asset. The F statistics value was 6.20

with a p value of 0.0005 which is less than 0.05. This indicates that financial risk and moderator variable firm size were jointly significant in explaining variations in return on asset and that financial risk and firm size jointly contributes significantly to changes in the return on asset of commercial and services companies on NSE in Kenya.

The coefficient of credit risk (β= 0.4759387 p=0.000< 0.05) shows a positive statistically significant relationship between credit risk and return on asset of commercial and services companies on NSE in Kenya. The regression coefficient of 0.4759387 obtained in this case implies that a unit increase in credit risk would lead to 0.4759387 increases in return on asset. The coefficient of liquidity risk (β= -0.0018238 p= 0.354> 0.05) indicates a negative statistically insignificant association between liquidity risk and return on asset. The coefficient of operational risk (β= 0.0160829 p= 0.897> 0.05) shows a positive statistically insignificant association between operational risk and return on asset of commercial and services companies on NSE in Kenya

The coefficient of firm size (β= -0.012185 p= 0.436> 0.05) shows a negative statistically insignificant association between firm size and return on asset of commercial and services companies of NSE in Kenya. This indicates that firm size does not directly affect return on asset and thus can moderate the association between financial risk and return on asset as per the sample. This was inconsistent with the study by (Omondi & Muturi, 2013).

4.4.3.2 Effects of Firm Size as a moderating variable on the relationship between financial risk and performance

The study computed FRI which was the composite index of financial risk variables. FRI*FS was the composite index of financial risk multiplied by the moderating variable firm size.

4.4.3.2.1 Step Two of Moderating Variable on ROE

The null hypothesis that firm size does not have a significant moderating effect on the relationship between financial risk and Return on Equity of Commercial and Services listed companies on Nairobi Stock Exchange, Kenya was tested. The findings are presented in table 4.15

Table 4.15 Step Two of Moderating Variable on ROE

ROE	Coefficient	Standard Error	z	P>|z|
Financial Risk Index	0.0368362	.0482326	0.76	0.449
Firm Size	0.0343621	.2873174	0.12	0.905
Financial Risk Index * Firm Size	-0.0024146	.0031856	-0.76	0.452
_cons	-0.2513786	4.207326	-0.06	0.953
F statistics = 0.50 Prob > chi^2 = 0.6848				

Source: Study Data (2019)

From the results in Table 4.15 the equation 3.5 was solved to become.

ROE it = -0.2513786 + 0.0368362 FRI it + 0.0343621 FS it + -0.0024146 (FRI*FS) it + ε it.

The composite variable for financial risk (FRI*FS) had coefficient of -0.0024146 and p-value of 0.452 implying it was statistically insignificant. The finding implied that firm size does not significantly moderate the relationship between financial risk and Return on Equity. Hence the null hypothesis that firm size does not have a significant moderating effect on the relationship between financial risk and Return on Equity of Commercial and Services listed

companies on Nairobi Stock Exchange, Kenya was not rejected.

4.4.3.2.2 Step Two of Moderating Variable on ROA

The null hypothesis that firm size does not have a significant moderating effect on the relationship between financial risk and return on asset of Commercial and Services listed companies on Nairobi Stock Exchange, Kenya was tested. The findings are in table 4.16

Table 4.16 Step Two of Moderating Variable on ROA

ROA	Coeffi-	Standard Er-	z	P>|z|
Financial Risk Index	8.80e-07	0.0012494	0.00	0.999
Firm Size	0.0024379	0.0102981	0.24	0.814
Financial Risk Index	0.0000355	0.0000782	0.45	0.652
_cons	-0.034813	0.167554	-0.21	0.836
F statistics = 3.66 Prob > chi^2 = 0.0190				

Source: Study Data (2019)

The composite variable for financial risk (FRI*FS) had coefficient of 0.0000355 and p-value of 0.652 implying it was statistically insignificant. The coefficients in table 4.16 were placed into equation 3.6 to become.

$ROA_{it} = -0.034813 + 8.80e\text{-}07\ FRI_{it} + 0.0024379\ FS_{it} + 0.0000355\ (FRI*FS)_{it} + \varepsilon_{it}$

The finding implied that firm size did not significantly moderate the relationship between financial risk and return on asset. The null hypothesis interacting firm size, financial risk and return on asset of Commercial and Services listed companies on Nairobi Stock Exchange, Kenya was not rejected.

4.4.4 Differences in results obtained from using ROE and ROA as dependent variables

Table 4.11 showed that when ROE was the indicator of performance, credit risk had no significant effect on performance of commercial and services companies. The findings showed liquidity risk had a significant negative effect on Return on Equity of commercial and service companies listed on NSE in Kenya. Operational risk had a positive statistically insignificant effect on Return on Equity of commercial and services companies on NSE in Kenya.

On the other hand, when ROA was the indicator of performance, findings under Table 4.12 showed a positive statistically significant relationship between credit risk and return on asset. and that liquidity risk has no significant effect on performance of commercial and services companies on NSE. Operational risk did not have any significant effect on performance of commercial and services companies under ROA.

There are key differences in the effects of credit and liquidity risks when ROE and ROA are used as performance indicators. When credit risk and ROE are interacted, there no significant effect. When credit risk and ROA are interacted, there is a positive significant effect. When liquidity risk and ROE are interacted, there is a negative and significant effect but when liquidity risk and ROA are interacted, there is negative but insignificant

effect. Operational risk had similar effect on performance regardless of the indicator used, whether ROE or ROA. The varying results imply that ROE and ROA have varying implications hence the varying results.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this study, the researcher examined the effect of financial risk on firm performance. The outline of this chapter is as follows: first the summary and conclusions of the study are provided informed by the research objectives. Finally, the recommendations, contributions of the study to knowledge and areas for further research are detailed.

5.2 Summary

The main objective of the study was to investigate how financial risks specifically operational; liquidity and credit risks affect the performance of listed CAS companies in Kenya. The study also examined whether the size of the firm in terms of asset capitalisation had any moderation effect on the relationship between the risks takes by the firm and the performance of these companies.

The study's first objective was to investigate how performance of the Commercial and Services firms was influenced by credit risk. The study findings showed that the effect of credit risk on ROE was positive and insignificant. The findings under the effect of financial risk indicators on return on asset (ROA) showed the effect of credit risk was positive and significant

The study's second objective sought to establish the of liquidity risks on the performance of commercial and services companies on NSE, Kenya. As per the findings, the effect of liquidity risk on ROE was negative and significant. One the other hand liquidity risk had a negative and insignificant effect on ROA.

Thirdly, the study determined the how operational risks affected the performance of commercial and services firms. The study found that performance indicators namely Return on Equity and Return on Assets were positively affected by operational risk though the effect was insignificant. Meaning any changes to the cost-to-income ratios affecting the generated revenues of the companies.

Finally, the size of the firm in terms of asset capitalisation was examined to determine if it had any moderation effect on the relationship between the risks takes by the firm and the performance of these companies. Firm size measured by the log of total asset of the companies was found not to have any moderation effect between risk indicators and performance of commercial and services companies on NSE in Kenya but rather was found to be an explanatory variable.

5.3 Conclusions

The study concluded that, for companies to generate more revenues, they needed to manage their financial risks as proxied by ratios i.e. Credit risk which had a positive statistically significant effect on return on asset. Higher debt-to-income ratios should be an immediate indicator to firms of emerging problems in the cash flow.

The study found that liquidity proxied by current ratio significantly affected ROE of the firms listed under CAS sector in Kenya. As a result of the negative coefficients of liquidity risk, the study concluded that these companies were unable to pay all their immediate obligation when they were due. This would adversely affect the company's performance.

The study concluded that firm size was an explanatory variable under ROE rather than a moderator between the study variables. Furthermore, the study found that there could be other external factors that do affect performance apart from the firm size.

The study also concluded that not all risks led to losses. For example, instances where companies listed in this segment had successfully credit risks included securing new capital when required improved firms' performance by boosting business operations. For example, Longhorn Publishers were able to expand into new territories within Southern Africa and Francophone territories and embrace digital transformation strategy with led to the availing their products in mobile platforms within the expanded markets.

The study furthermore indicated that firm size did not moderate the relationship between the study variable and rather an explanatory variable. The study concluded that companies with higher total assets were better placed to absorb business shocks as compared to their counterparts. There could be other external factors that do affect performance apart from the firm size.

5.4 Recommendations

Based on the findings, the study made the following recommendations. First, the study sought to evaluate the influence of credit risk on the performance of commercial and services companies on NSE, Kenya. The study findings showed that credit risk had a positive effect on performance. The study therefore recommends that shareholders and management of companies listed in the Commercial and Services segment could take calculated credit risks by securing new capital when required to improved firms' performance thus boosting business operations and growth. The idea is to use the cost-to-

income ratio as an insight for creating additional revenue streams that have a relatively low cost associated with them, so income rises faster than expenses.

From the study findings, liquidity risk had an inverse relationship to firm performance. The researcher recommends that short-term cash management is very important to the liquidity status of the company and if not well managed it would adversely affect the company's performance despite companies registering high revenue margins.

Thirdly. the study recommends that the top management of firms should use the cost-to income ratio frequently to track how costs are changing as compared to income to inform firm growth goals. For example, investing in customer service might not cost much but the benefits may immediately change the cost-to-income ratios affecting the generated revenues of the companies positively.

To improve of performance, firms need to either make more money or reduce the monthly payments. In the wake of plunging income for the fashion retailers like Deacons East Africa as well as supermarket stores like Uchumi, reduction of operational costs can boost performance. This will help counter the reduction of footfall into malls due to the non-performance of major supermarket anchor tenants and help the company remain competitive by reaching a wider market and as a result increase its revenue through sales from the platform and set off costs.

Based on the research results, credit risk, liquidity, and operational risks are critical and companies need to pay attention to them. Companies engaging in risk projects can either loss or gain. Informed decisions need to be adhered to in such scenarios. Consequently, managers of companies need to come up with strategies capable of managing these by

taking into consideration liquidity issues when dealing with firms' performance of the company. Firms should be cautious when diversifying their portfolios, since a reduction in companies assets base will negatively affect its performance. The study also recommends that policy makers and regulators review the external effects of systematic risk on firms' performance.

5.6 Areas for Further Research

There are key differences between effects on performance when ROE and ROA are used that make it necessary for further study considerations. Depending on the company, one may be more relevant than the other, it is important to consider ROE and ROA in context with other financial performance metrics when evaluating the effectiveness of a company's performance. For future research studies, further considerations can be made on how financial risk affects other non-financial performance metrics when evaluating the effectiveness of a company's management and operations.

REFERENCES

Agarwal, A. (2011). *Credit risk Management: Trends and Opportunities*. Accessed on 26 May 2017 from http://www.capgemini.com/risk

Agustina, L. & Baroroh, N. (2016). The Relationship Between Enterprise Risk Management (ERM) And Firm Value Mediated Through the Financial Performance. *Integrative Business and Economics Research, 5* (1), 128-138.

Aglionby, J. (2016). Kenya Airways records country's worst ever loss. *The Financial Times.* accessed on 26 May 2017 from https://www.ft.com

Aiken, L. S. & West, S. G. (1991). *Multiple Regression: Testing and interpreting Interactions*. Newbury Park, CA: Sage.

Akerlof, G. A. (1970). The Market for "lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics, 84*(3), 488–500.

Amato, L. & Wilder, R. P. (1985), The Effects of Firm Size on Profit Rates in U. S. Manufacturing. *Southern Economic Journal, 52* (1), 181-190.

Amato, L. H. & Burson, T. E. (2007). The Effects of Firm Size on Profit Rates in the Financial Services. *Journal of Economics and Economic Education Research*, *8*(1), 67 – 81.

Ammar, A. (2003). Indicator Variables Model of Firm's Size-Profitability Relationship of Electrical Contractors Using Financial and Economic Data. *Journal of Construction Engineering and Management, 12*(7), 192-197.

Andrade, G., & Kaplan, S. N. (1997). How Costly is Financial (Not Economic) Distress? Evidence from Highly Leveraged Transactions that Became Distressed. *The Journal of Finance*. *53*(5), 33-43.

Arif, A. & Showket, A. (2015). Relationship between financial risk and financial performance: An Insight of Indian Insurance Industry. *International Journal of Science and Research, 4*(11), 1424-1433.

Armstrong, J. (2017). *What is a Commercial Company? Main characteristics*. Accessed on January 20, 2018 from https://www.lifepersona.com/what-is-a-commercial-company-main-characteristics

Atlas. (2015). Public Notices. accessed on November 26, 2018 from https://www.rich.co.ke/rcdata

Auronen, L. (2003). Asymmetric Information: Theory and Applications *Seminar in Strategy and International Business. 116* (4), 45-56.

Baldwin, C. & Scott, M. (1983). The Resolution of Claims in Financial Distress the Case of Massey Ferguson. *The Journal of Finance*. *38*(2), 23-51.

Bansal, A., Kaufmann, R., Mark, R., & Peters, E. (1991). Financial Risk and Financial Risk Management Technology: Issues and Advances. *Working papers Series*.

Bendickson, J., Muldoon, J., Liguori, E. W. & Davis, P. E. (2016). Agency theory: background and epistemology. *Journal of Management History*, *22*(4), 437-449.

Brian, L. C., Trevis, C.R., Duane I.R., & Christopher, R. R., (2011). Signaling Theory: A Review and Assessment. *Journal of Management 37*(1):39-67

Bwire, E. (2015). *Why Uchumi Collapsed and What Lessons we can Learn from It*. Accessed on 29 Jan 2017 from https://www.linkedin.com/pulse/why-uchumi-collapsed-what-lessons-we-can-learn-from-egesa-bwire/

Capital Markets Authority [CMA]. (2016). Capital Markets Soundness Report (Kenya): Market Resilience in a Persistent Bear Run. Retrieved on May 12, 2017, from https://www.cma.or.ke

Capital Markets Authority [CMA]. (2020). Public Announcement of Profit Warning. Circular to All Issuers of Securities and Listed Companies. Retrieved on June 12, 2020, from https://www.cma.or.ke

Capgemini & Merrill Lynch Global Wealth Management. (2009). Firms Can Act to Rebuild Shaken Investor Confidence Through more Holistic Risk Management. *World Wealth Report*, 27-29.

Chandra, U. & Nayar, N. (2008). The Information Content of Private Debt Placements. *Journal of Business Finance & Accounting, 35*(9), 1164- 1195.

Chaplin, G., Emblow, A. & Michael, I. (2000). Banking system liquidity: developments and issues, *Financial Stability Review*, *6*(1), 93-112.

Chartered Institute of Management Accountants. (2005). CIMA Official Terminology. London: CIMA Publishing.

Chmelarova, V. (2007). The Hausman Test, and Some Alternatives, with Heteroskedastic Data. Louisiana State University and Agricultural & Mechanical College, 2007. Retrieved 08 June 2017 from http://www.lsu.edu/etd

Collier, P.M. & Agyei-Ampomah, S. (2006). Management Accounting: risk and control strategy. Oxford: Elsevier.

Deacons (2018). *Public Notices.* accessed on 26 November 2018 from https://www.rich.co.ke/rcdata/company

Deborah L. B., (2018) *Measurement Theory and Applications for the Social Sciences.* The Guilford Press.

Devraj, S. A. (2016). The effect of liquidity on the financial performance of non-financial companies listed at the Nairobi Securities exchange. MSc Finance project. The University of Nairobi.

Dey, R. K., Hossain, S. Z., & Rezaee, Z. (2018). Financial Risk Disclosure and Financial Attributes among Publicly Traded Manufacturing Companies: Evidence from Bangladesh. *Journal of Risk and Financial Management*, *11* (3):50.

Elder, J. (2016). *Emerging Credit Risks in 2016*. Viewed on 21 June 2017 at http://marketintelligence/emerging-credit-risks-in-2016

Enc, B. (1999). *Paradigm. The Cambridge Dictionary of Philosophy.* Cambridge University Press *(*p. 642).

Erasmus, P. D. (2008). Evaluating Value Based Financial Performance Measures. *Journal of Finance*. *6*(1), 93-117.

Eveready Limited (2016). *Annual Report and Financial Statements 2016*. Retrieved December 17, 2017, from company site, http://www.eveready.co.ke

Express Limited (2017). *Annual Report and Consolidated Financial Statements 2017*. Retrieved December 17, 2017, from company site, http://www.express.co.ke

Fama, E. (1980). Agency Problems and the Theory of the Firm. *Journal of Political Economy 88*, (2). 288-307.

Fama, E. & Jensen, M. (1983). Agency Problems and Residual Claims. *Journal of Law and Economics*. *26*(1), 327-49.

Frosdick, G. H. (2007). *Inherent Risk: Credit and Market Risks*. John Wiley & Son (Asia) Pte Limited. edition, The World Bank, Washington, DC.

Gachingiri, A. (2015). Effect of leadership style on organisational performance: a case study of the United Nations environment programme (UNEP), Kenya. *International Academic Journal of Innovation, Leadership and Entrepreneurship,* 1 (5),19-36.

Galliers, R. (1991). *Choosing appropriate information systems research approaches: A revised taxonomy.* Guidelines. Blackwell, Oxford, U.K., p144–162.

Gentry, J.& Pike, J. (1970). An Empirical Study of the Risk-Return Hypothesis Using Common Stock Portfolios of Life Insurance Companies. *The Journal of Financial and Quantitative Analysis, 5*(2), 179-185.

Grant, C. & Osanloo, A. (2014). Understanding, selecting, and integrating a theoretical framework in dissertation research: Creating the blueprint for your "house." *Administrative Issues Journal*, *4*(2), 12–26.

Greene, W.H. (2008). *Econometric Analysis* (6th ed.). Upper Saddle River, N.J.:Prentice Hall.

Grossman, S. & Hart, O. (1986). The costs and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy*. *94* (4): 691–719. doi:10.1086/261404. hdl:1721.1/63378.

Greuning, H.V. & Bratanovic, S. B. (2009). *Analysing Banking Risk: A Framework for Assessing Corporate Governance and Risk Management*. (3rd ed.) Washington: The World Bank.

Gujarati, D. (2003). *Basic Econometrics* (4th ed.). New York: McGraw Hill.

Hart, O. & Moore, J. (1990). Property Rights and the Nature of the Firm. *Journal of Political Economy*. *98* (6): 1119–58. doi:10.1086/261729.

Hart, O. (1995). *Firms, Contracts, and Financial Structure*. Oxford University Press.

Harvey, J. (2008). *Financial risk management.* (47th ed.). Published by United Kingdom: The Chartered Institute of Management Accountants.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica, 46*, 1251–127.

Holton, G. A. (2004). Defining risk. *Financial Analysts Journal, 60* (6),19-25.

Isiaka, L. O., (2018). Effect of Liquidity Risk, Premium Growth on the Performance of Quoted Insurance Firms in Nigeria: A Panel Data Analysis. *American Finance & Banking Review, 2*(1), 40-89.

Jenkinson, N. (2008). Strengthening regimes for controlling liquidity risk, Euro Money Conference on Liquidity and Funding Risk Management. *Bank of England Journal, 8* (9), 16-28.

Jensen, M. C. & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3 (4), 305-60.

Kamau, F. & Njeru, D. (2016). Effect of Liquidity Risk on Financial Performance of liquidity risk has no significant effect on return on asset *International Journal of Science and Research,* 6 (6), 70-89.

Kangethe, K. (2015). *Atlas Development closes its Kenyan subsidiaries*. Accessed on 26 November 2018 from https://www.capitalfm.co.ke/business

Kangethe, K. (2017). *Deacons to invest Sh10mn in e-commerce platform to boost sales*. Accessed on November 26, 2018 from https://www.capitalfm.co.ke/business/

Kaplan, S., N, & Stein., C.J (1993). The Evolution of Buyout Pricing and Financial Structure in the 1980s. *Quarterly Journal of Economics*, *108* (2), 313-357.

Kenya Airways (2016). *Annual Report & Financial Statements Kenya Airways.* accessed on 26 November 2018 from https://www.kenya-airways.com

Kihooto, E., Omagwa, J., Wachira, M. & Emojong, R. (2016). Financial Distress in Commercial and Services Companies Listed at Nairobi Securities Exchange, Kenya. *European Journal of Business and Management, 8* (7), 27-48.

Kimari, F.N., (2013). *Effect of Credit Risk Management on Financial Performance of Deposit Taking Savings and Credit Cooperative Societies in Kenya.* Unpublished MSc. thesis, University of Nairobi, Kenya.

Kinyua, J.K., Gakure, R., Gekara, M., & Orwa G., (2015) Effect of Risk Management On The Financial Performance Of Companies Quoted In The Nairobi Securities Exchange. *International Journal of Business & Law Research, 3* (4), 26-42.

KPMG (2018) *Retail Trends.* Accessed on January 03, 2019 from https://home.kpmg.com/xx/en/home/insights/2018/03/2018-retail-trends.html

Lee. J. (2009). Does Size Matter in Firm Performance? Evidence from US Public Firms, *International Journal of the Economics of Business*, *16*, (2),189 – 203.

Levin, D. M. (1988). *The opening of vision: Nihilism and the postmodern situation.* London: Routledge.

Levin, A., Lin, C. F., & Chu. C.S.J. (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics* 108: 1–24

Liargovas, P. & Skandalis, K. (2008). *Factor affecting firm's financial performance: The Case of Greece.* Athens: University of Peloponnese Press.

Longhorn Publishers. (2018). *Investors segment*. Accessed on 28 December 2018 from https://longhornpublishers.com/ke/

Majumdar, S. K. (1997). The Impact of Size and Age on Firm-Level Performance: some Evidence from India. *Review of Industrial Organization, 12*, (7), 231 – 241.

Maigua, C. & Mouni, G. (2016). Influence of Interest Rates Determinants on the Performance of Commercial Banks in Kenya. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 6* (2),121–133.

Maina, J. (2011). *The relationship between the Liquidity and Profitability of Oil Companies in Kenya*. MBA Unpublished Research Project of the University of Nairobi.

Mathuva, D. M. (2009). Capital adequacy, cost income ratio and the performance of commercial banks: The Kenyan Scenario. *The International journal of applied economics and Finance*, *3* (2), 35-47.

Mitnick, B. M., (1973). *The Theory of Agency.* Cambridge University Press.

Muathe, S. M. A., (2010). *The Determinants of Adoption of Information and Communication Technology by Small and Medium Enterprises within the Health Sector in Nairobi, Kenya*. Unpublished PhD Thesis, Kenyatta University, Kenya

Mugenda, O. M. & Mugenda, A. G. (2003). *Research Methods: Quantitative and qualitative approaches.* Nairobi: Acts press.

Munda, C. (2017). Hutchings Biemer and A. Baumann delisted from Nairobi bourse. *Business Daily* accessed on 28 November 2018 from https://www.businessdailyafrica.com

Muriithi, J.G. (2016). *The effect of financial risk on financial performance of commercial banks in Kenya.* Doctoral dissertation, Jomo Kenyatta University of Agriculture and Technology.

Musau, S. M. (2018). *Financial Inclusion and Stability of Commercial Banks in Kenya*. Unpublished PhD Thesis, Kenyatta University, Kenya

Mutegi, M. (2017). Seven NSE-listed firms issue profit warnings on politicking. *Business Daily* accessed on 28 December 2018 from https://www.businessdailyafrica.com

Mutua, R.K. (2016) *Impact of Credit risk Management on Financial Performance of Savings and Credit Co-Operative Societies in Kitui County*. MBA thesis, South Eastern Kenya University.

Mwangi, L.M. (2014). *Effect of Financing Decisions on Performance of Nonfinancial Companies Listed in The Nairobi Securities Exchange, Kenya*. Unpublished PhD Thesis, Kenyatta University, Kenya

Mwangi, L.W., Makau, S.M. & Kosimbei, G., (2014). Relationship between Capital Structure and Performance of Nonfinancial Companies Listed in the Nairobi Securities Exchange, Kenya. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*,*1* (2).

Nation Media Group. (2018). http://www.nationmedia.com/investor-relations/

Niresh, A. & Velnampy, T. (2014). Firm Size and Profitability: A Study of Listed Manufacturing Firms in Sri Lanka. *International Journal of Business and Management*; *9*(4).

Njanja, A. (2018, November 2). Deacons to be placed under administration. *Business Daily* accessed on 26 November 2018 from https://www.businessdailyafrica.com

NSE, (2013). Nairobi Securities Exchange Handbook 2012 -2013. https://www.nse.co.ke

NSE, (2014). Nairobi Securities Exchange Handbook 2013 -2014. https://www.nse.co.ke

NSE, (2015). Nairobi Securities Exchange Handbook 2014 -2015. https://www.nse.co.ke

NSE, (2016). Nairobi Securities Exchange Handbook 2015 -2016. https://www.nse.co.ke

NSE, (2017). Listed Companies. https://www.nse.co.ke/listed-companies/list.html

NSE, (2018). Nairobi Securities Exchange Handbook 2017 - 2018. https://www.nse.co.ke

NSE, (2019). Nairobi Securities Exchange Handbook 2018 – 2019. https://www.nse.co.ke

Ochieng, P. (2014). *External environmental factors influencing financial performance of Kenya airways*. Master of Science Project, University of Nairobi

Odalo, S.K., Achoki, G. & Njuguna, A. (2016). Relating Company size and financial performance in Agricultural Firms Listed in the Nairobi Securities Exchange. *International Journal of Economics and Finance, 8* (7), 9-43.

Odoyo F. S., & Omwono G. A., (2014). The Role of Internal Audit in Enhancing Corporate Governance for Companies Listed at the Nairobi Stock Exchange *Research Journal of Finance and Accounting. 5* (3), 5-31.

Okech, O. (2013). *The effect of lending interest rates on financial performance of commercial banks in Kenya.* Unpublished Master of Science Project, University of Nairobi, Kenya

Okoth P. & Achuka V. (2016, August 6). Concerns raised about overall health of Kenya's economy. *Daily Nation* p3.

Olawale, L. S., Ilo, B. M. & Lawal, F. K. (2017) The Effect of Firm Size on Performance of listed on Nigeria Securities Exchange Firms in Nigeria. *International Journal of Finance, 15*, 2-17.

Oliver, B. R., (2001). *Issues in Financial Risk Management in Australia*. Doctor of Philosophy Dissertation, Australian National University, Canberra, Australia.

Omasete, C., (2014). *The Effect of Risk Management on Financial Performance of Insurance Companies in Kenya.* Unpublished Master of Science Project, University of Nairobi

Omondi, M., & Muturi, W (2016) Factors Affecting the Financial Performance of Listed Companies at the Nairobi Securities Exchange in Kenya. *Research Journal of Finance and Accounting, 4* (15), 80-89.

Omondi, M. & Muturi, W. (2013) Firm size and Financial Performance of Listed Companies at the Nairobi Securities Exchange in Kenya, *Research journal of accounting and finance 4* (15), 99-104.

Nyasaka, F. O. (2017), *The Relationship Between Credit Risk Management Practices and Non- Performing Loans in Kenyan Commercial Banks: A case study of KCB Group Limited.* Unpublished MBA Project, United States International University - Africa.

Onsongo, S., Muathe, S., & Mwangi, L. (2019). Firm Size, Operational Risk and Performance: Evidence from Commercial and Services Companies Listed in Nairobi Securities Exchange. *International Journal of Current Aspects*, 3(VI), 372-379. https://doi.org/10.35942/ijcab.v3iVI.93

Otuki, N. (2016). Sameer shuts down Nairobi tyre plant in favour of imports. Business Daily accessed on 28 December 2018 from https://www.businessdailyafrica.com

Papadogonas, T.A. (2007). The financial performance of large and small firms: evidence from Greece. *International Journal Financial Services Management, 2*(6), 14-20.

Park, H. M. (2011). *Practical Guides to Panel Data Modeling: A Step-by-step Analysis Using Stata*. Tutorial Working Paper. Graduate School of International Relations, International University of Japan

Pauly, M.V. (1968). The Economics of Moral Hazard: Comment. *The American Economic Review. 58* (3), 531-537.

Pearson, R. (2002). Moral Hazard and the Assessment of the Insurance Risk in the Eighteenth and Early – Nineteenth-century Britain. *Business History Review,76*, 1-35.

Pervan, M. & Višić, J. (2012). Influence of firm size on its business success. *Croatian Operational Research Review*, *3*, 55-78

Pranas, Ž., Jolita, V., & Regina, A. (2017). Philosophy and Paradigm of Scientific Research. *IntechOpen, 1,* 123-139 DOI: 10.5772/intechopen.70628

Qicheng Y. & Wei, C. (2017). *Jack Ma & Alibaba: A Business and Life Biography.* Shanghai: LID Publishing.

Rashid. C. A (2020). The Impact of Online Shopping in Boosting Sales and Cost Reduction in Commercial Companies. *Eurasian Journal of Management & Social Sciences.* Doi: 10.23918/ejmss.v2i1p1

Rowell. D. & Connelly. L (2012). A History of the Term Moral Hazard. *The Journal of Risk and Insurance*. *7* (4), 1051 – 1075.

Sameer. (2017). *Company profile.* Accessed November 26, 2018 from https://www.sameerafrica.com.

Saunders, M., Lewis, P. & Thornhill, A. (2009). *Research Methods for Business Students.* New York: Pearson.

Sheng, W. C. (2018) *Financial risk on performance of logistics and transportation companies in Malaysia*. Accessed on 27 May 2018 from https://mpra.ub.uni-muenchen.de/86868/

Sisay, D. (2017). *The Effect of financial risk on performance of insurance companies*. Unpublished doctoral thesis. Addis Ababa University, Ethiopia.

Smith, K. A. (2004). Voluntarily Reporting Performance Measures to The Public, A Test of Accounting Reports from US Cities. *International Public Management Journal*. 7(1), 19-26

Spence, M. (1973). Job Market Signalling. *The Quarterly Journal of Economics*, *87(*3), 355-374

Spence, M. (2002). Signalling in retrospect and the informational structure of markets. *American Economic Review,*92: 434-459.

Stulz, R.M. (1996). Rethinking Risk Management. *Journal of Applied Corporate Finance, 9* (3), 8-24.

Tripathy, J. (2013). Secondary Data Analysis: Ethical Issues and Challenges. *Iranian journal of public health, 42* (12), 1478-1479.

Tudose, M.B. (2012). Corporate finance theories. Challenges and trajectories. *Management & Marketing Challenges for the Knowledge Society*, *7* (2), 277-294.

Uchumi Limited (2017). *Annual Report and Financial Statements 2016*. Retrieved December 17, 2017, from company site, https://www.kenya.uchumicorporate.co.ke/

Vijayakumar, A. & Tamizhselvan, P. (2010). Corporate Size and Profitability-An Empirical Analysis". *Journal for Bloomers of Research, 3* (1), 44 – 53.

Wang, B. (2013). The cash conversion cycle spread. *Journal of Financial Economics.*133 (2), 472-497.

Wangalwa, M. & Muturi, W (2018). Effect of Financial Risk on Financial Performance of Large-Scale Supermarkets in Nairobi County, Kenya *International Journal of Social Science and Technology, 4* (6), 574-591.

Wani, A. & Ahmad, H. (2013). *The Effect of Hedging on Firm Value and Performance: Evidence from the Nonfinancial UK Firms*. United Kingdom: Hull University Business School.

Were, S., (2015). *The Effect of Foreign Exchange Rate Risk Management Practices on Financial Performance of Multinational Corporations in Kenya*. Master of Science Project, University of Nairobi.

Whisman, M. A. & MeCleand, G. H. (2005). Designing, testing and interpreting interactions and mediator effects in family research. *Journal of Psychology, 19*(1), 111-120.

Whitaker. R. B. (1999). The Early Stages of Financial Distress. *Journal of Economics and Finance. 23* (2), 123-I33.

White, H. (1980). A Heteroskedasticity –Consistent Variance Matrix Estimator and a Direct Test of Heteroskedasticity. *Econometrica, 48* (4), 817-838

Witkin, B.R., & Altschuld, J.W. (1995). *Planning and Conducting Need Assessments: A Practical Guide*. New York: Sage Publications, Inc.

Woods, M. & Dowd, K. (2008). *Financial Risk Management for Management Account-ants* Oxford: Elsevier.

Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data*. Cambridge, MA: MIT Press.

Wooldridge, J. M. (2013). *Introductory Econometrics: A Modern Approach,* 5th ed. South-Western. 269–270.

Woolworths (2018). *Five Trends for the Retail Industry*. Retrieved December 17, 2018, from company site https://www.woolworths.co.za/

Wruck, K. H. (1990). Financial distress, reorganization, and organizational efficiency. *Journal of Financial Economics*, *27* (2), 419-444.

Zhang, Y., & Wiersema, M. F. (2009). Stock market reaction to CEO certification: The signalling role of CEO background. *Strategic Management Journal, 30*: 693-710.

APPENDICES

Appendix I: Profit Warnings by NSE firms per sector between Years 2013 to 2019

Sector / Year	2013	2014	2015	2016	2017	2018	2019
Agricultural	0	2		3	0	2	3
Automobiles & Accessories		1	1				
Banking	1		1	1	3	2	1
Commercial & Services	3	6	7	2	3	2	2
Construction & Allied	0	1	3		1	3	2
Energy & Petroleum	1					1	1
Insurance	0		3	2	1	4	4
Investment	0		1	1			1
Investment Services				1			1
Manufacturing & Allied	2	1	2	1	4	1	2
Telecommunication & Technology							
Real Estate Investment Trust							
Exchange Traded Fund							
Total Firms per Year	**7**	**11**	**18**	**11**	**12**	**15**	**17**

Source : NSE (2013-2019)

Appendix II: Graduate School Research Proposal Approval

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke
P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Internal Memo

FROM: Dean, Graduate School

DATE: 5th June, 2018

TO: Onsongo Kerubo Susan
C/o Accounting and Finance
Department.

REF: D58/CTY/PT/24775/2013

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board, at its meeting of 9th May, 2018, approved your Research Proposal for the M.Sc. Degree entitled **"Effect of Financial Risk on Performance of Commercial and Services Companies Listed in Nairobi Securities Exchange, Kenya".**

You may now proceed with your Data collection, subject to clearance with the Director, Ethics Office, Kenyatta University and the Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

JACKSON LUVUSI
FOR: DEAN, GRADUATE SCHOOL

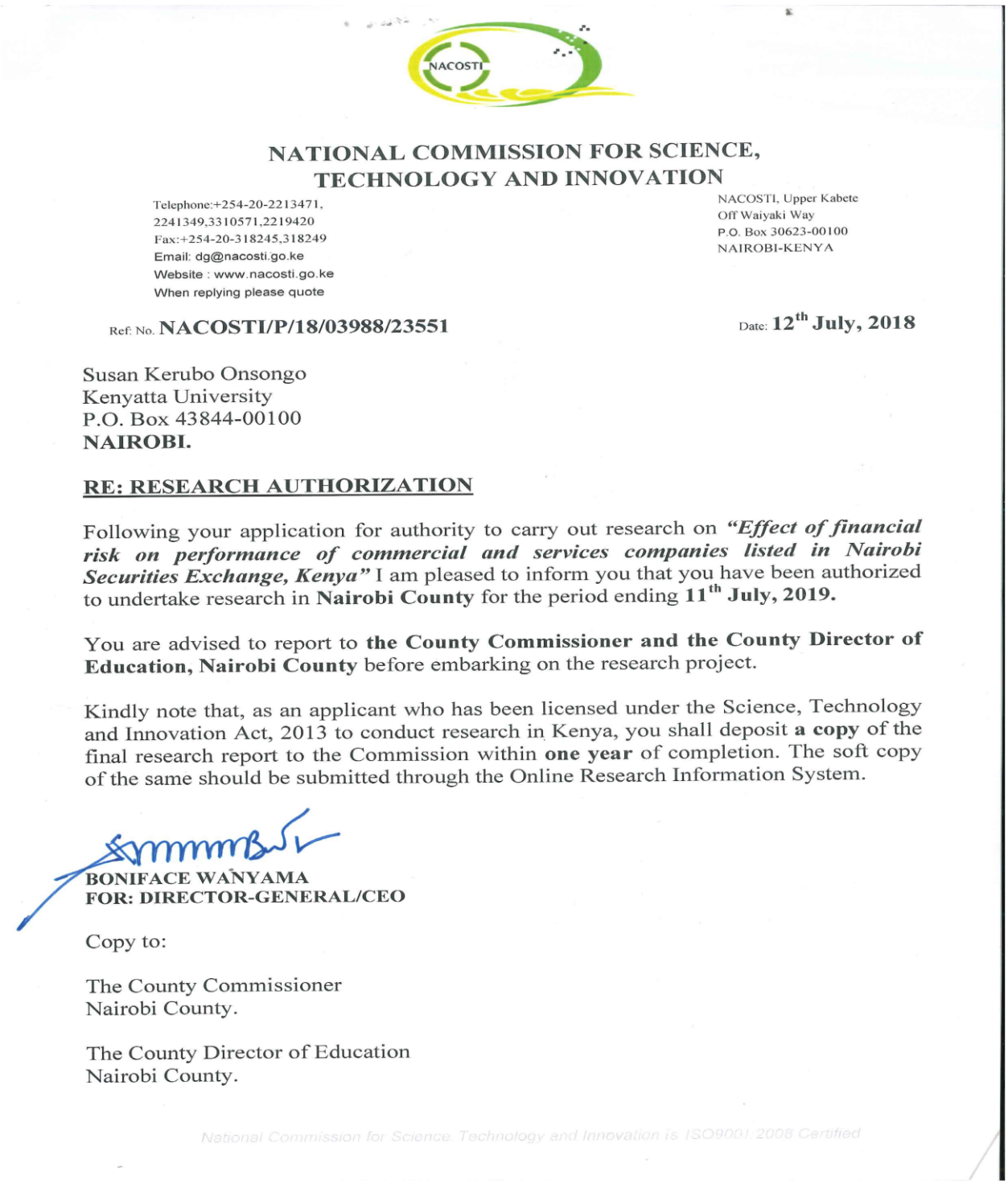
CC. Chairman, Accounting and Finance Department

Supervisors:

1. Dr. Lucy Wamugo
   Department of Accounting and Finance
   Kenyatta University
2. Dr. Stephen Muathe
   C/o Department of Business Administration
   Kenyatta University

JL/rwm

Appendix III: Letter of Authorization from NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/18/03988/23551**

Date: **12th July, 2018**

Susan Kerubo Onsongo
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Effect of financial risk on performance of commercial and services companies listed in Nairobi Securities Exchange, Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **11th July, 2019.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.

Appendix IV: Certified copy of NACOSTI Permit

THIS IS TO CERTIFY THAT:
MISS. SUSAN KERUBO ONSONGO
of KENYATTA UNIVERSITY, 0-506
Nairobi,has been permitted to conduct
research in *Nairobi County*

on the topic: *EFFECT OF FINANCIAL RISK ON PERFORMANCE OF COMMERCIAL AND SERVICES COMPANIES LISTED IN NAIROBI SECURITIES EXCHANGE, KENYA*

for the period ending:
11th July,2019

Permit No : NACOSTI/P/18/03988/23551
Date Of Issue : 12th July,2018
Fee Recieved :Ksh 1000

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

Appendix V: Data Collection Tool

Secondary data was collected using this Document review guide:

NAME OF THE COMPANY……

Financial Year	Credit Risk Debt/income ratio	Liquidity risk Current As-set/ current liabilities	Operational risk Cost/ Income	Firm Size Log of firm size	Return on Assets Net Profit/Equit Capital	Return on Equity Net Profit/Total Asset
2012 – 2013						
2013 – 2014						
2014 – 2015						
2015 – 2016						
2016 – 2017						
2017-2018						
2018 - 2019						

Source: Researcher (2018)