EFFECT OF FINANCIAL RISK EXPOSURE ON FINANCIAL PERFORMANCE OF MANUFACTURING FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

I declare that this project is my original work and has not been previously published or submitted elsewhere for award of degree. I also declare that this document contains no material written or published by other people except where due reference is made and author duly acknowledged.

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ABSTRACT

The economic condition has forced many firms, including those in the manufacturing sector to be put under receivership as a result of financial losses and debts, which are associated with various risk exposures in the firm. The study sought to investigate the effect of financial risk exposure on the financial performance of manufacturing firms listed at the Nairobi Securities Exchange (NSE). The specific objectives were to; determine the influence of credit risk exposure, to establish the influence of liquidity risk exposure and to determine the influence of market risk exposure on the financial performance of manufacturing firms listed at the NSE. A census of Nine (9) listed companies as the target population was taken but only seven (7) companies participated in the study since they have all data for the period of study. The sample size of the study therefore was all the listed companies. Secondary data from the financial statements and other media printed information for a period of 2009 – 2018 was used and data was collected using data collection sheets. Multiple regression model together with the use of STATA software was applied for data analysis. To choose the true model, various diagnostic tests such as normality test, multicollinearity test, heteroscedasticity test and Hausman test was performed to choose the appropriate model of the study. The study findings established that data for the study met all the requirements of diagnostic tests. In Hausman test, the study chose random effect model (REM) as the most appropriate model for use in the study. A trend plot analysis was performed on each variables of the study and performance explained. From the correlation and regression analysis results of the study, the findings revealed that credit risk exposure (RT) had a significant positive relationship with financial performance. Second, the study established that liquidity risk exposure have insignificant positive relationship with financial performance (ROA) of the listed manufacturing companies at the NSE. Lastly, the results also revealed that there was insignificant positive relationship between market risk exposure and financial performance (ROA). The study recommends that the management, policy makers and investors need to develop effective financial risk policies that should help in curbing risks that companies are exposed to in the market so as to improve financial performance. The study further recommend that future study be undertaken on the financial risk exposures using other measures of various financial risks adopted in the study variables. The study recommended that a future study may consider using other financial performance measures like return on equity (ROE) or return on investment (ROI) so as to determine whether the level of consistency in research findings hold. There is also need for the studies to consider other companies listed at the NSE as potential area for research.

Key Words: Financial performance, credit risk exposure, liquidity risk exposure, market risk exposure, manufacturing companies.

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DEDICATION

This research project is dedicated to my mother Alice, my lovely wife Janet and my daughters Tashivyne and Alycia.

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ACRONYMS AND ABBREVIATIONS

ATR:	Return on Equity
BAT:	British American Tobacco
CA:	Current Asset
CBK:	Central Bank of Kenya
CDR:	Cash and cash equivalents to Deposit Ratio
CL:	Current Liability
DAR:	Deposit to Asset Ratio
D-E:	Debt to Equity
EA:	East African
EABL:	East Africa Breweries Limited
ER:	Efficiency Ratio
FEM:	Fixed Effect Model
GDP:	Gross Domestic Product
GLS:	Generalised Least Square
KAM:	Kenya Association of Manufacturers
KNBS:	Kenya National Bureau of Statistics
LDR:	Loan to Deposit Ratio
Ltd:	Limited
MM:	Modigliani and Miller
NSE:	Nairobi Security Exchanges
OLS:	Ordinary Least Square
REM:	Random Effect Model
ROA:	Return on Asset
ROE:	Return on Equity
ROI:	Return on Investment
UK:	United Kingdom
U.S:	United States

OPERATIONAL DEFINITION OF TERMS

Credit risk exposure: This is the risk associated with the possibility that a firm may incur losses when debtors fail to repay their debt mostly when their fall due leading to credit defaults (Douglas, 2014).

Financial performance: This is the subjective measure of how well a firm uses its assets to generate sales and enhance profitability (Ferreti, 2017)

Liquidity risk exposure: This is the risk associated with ability of the firm to pay its debt obligations when they fall due (Douglas, 2014).

Market risk exposure: This risk addresses the extent of losses that a firm can derive from the changes in interest rates, foreign exchanges in the market and are systematic in nature (Epure & Lafuente, 2012).

Financial Risk Exposure: This is any financial loss or challenge that a firm could incur due to uncertainty, instability and losses in the financial market caused by market anomalies as well as changes in currency and interest rates (Gietzen, 2017).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The ever increasing competition among companies, and increased interest rate changes in the business environment has brought challenges for various companies (Ahmed, 2015). One such challenge that has affected firms across the global business environment is the financial risk exposure (Chen & Pan, 2012). Moreover, internationalization and market integration have made it easier for manufacturing companies to access foreign markets with the sole aim of enhancing their financial performance (Kinyua, 2014). Firms enjoy greater benefits of increasing their consumer base and having good economies of scale. With these benefits comes the broader complex of financial risks that threatens the financial operation of the business (Kargi, 2011).

According to Kanga and Achako (2016), manufacturing companies are important component of a growing economy. Their health and wealth can be potent indicators of the bigger state of the relevant economic growth. Crises in the manufacturing sector or any other sectors can provide early warning indicators and occasionally are drivers, of wider and potentially systematic risks or failures. Therefore, within the company, good practices in risk identification and management can serve to avoid or respond effectively to crises, whereas, poor practices may signal weakness. As a result, companies must contend with both internal and external risks that threaten their business models (Odalo, 2016).

Globally, companies are faced with continuing and growing pressures from a large set of stakeholders and are keenly aware of the various potential negative factors that can have effect on the company's financial performance and longevity. In the US for instance, there has been a reduction in the number of listed companies from 8000 in 1990s to 3627 in 2017. The

potential for scenarios of financial risks that such companies (manufacturing) are faced with may be credit risk, liquidity risk and market risks (Hejazi & Santor, 2010).

Even though countries stimulate their economic growth through manufacturing activities, developing countries in the African continent still lags behind in terms of effective risk practices that can be effectively used to eliminate certain risks in the market. Over the years, manufacturing industry has been essential in contributing to Kenyan economic growth (Ndung'u, 2014). However, the underlying challenge in the industry is the financial risk exposure that need to be addressed critically as it has major effect on the financial performance of these firms in the industry (Shaban & James, 2018).

1.1.1 Financial Risk Exposure

Financial risks has been ranked top globally as the most risk that affect companies (Cambridge, 2018_a). A survey study by Cambridge established that from an operational perspective, financial risks that firms are exposed to interwoven with revenues, costs, profits and losses; whereas, from the financial market's perspective, it relates to share prices, market capitalization and corporate bonds. According to Gietzen (2017), the volatility of prices affect every firm's value and profitability, hence the need to examine and re-examine all the operations in the security market. This is because changes in the prices ranging from commodity prices to foreign exchange rates, interest rates among others may affects firm's financial performance (Bartram, Brown & Waller, 2015).

Firms are exposed to various financial risks in their operations (Zaremba, 2016). The financial risks that organizations face are associated with economic environment in which all the manufacturing firms as well as other firms in the economy operate in. In their study, Tabari, Ahmadi and Enami (2013) indicated liquidity risk as one of the financial risk that companies are exposed to in the market. The risk was measured using current ratio. A study by Ouma

(2015) also identified liquidity risk as a financial risk that may cause decrease on the financial performance of a company. Asare (2015) and Adjeitsey (2015) in their studies both identified credit risk as a major financial risk that most companies are exposed to both domestically, regionally and globally. And if not well managed, may cause decline in the financial performance. Receivable turnover ratio was adopted as their measure (Gathogo & Ragui, 2014).

Manufacturing companies are facing double competition and challenges domestically and internationally (Kerr, 2018). By 2020, manufacturing's share of GDP will exceed 20% in the top 60 largest global economies. However, financial risks still present major challenges (Kerr, 2018). The level of technological change and competition means market risk remains an indicator of financial risk. Bhatti, Majeed, Rehman and Khan (2010) established the effect of market risk as measured by degree of financial leverage and interest coverage ratio on financial performance. Findings revealed that market risk affect financial performance, inversely. Hence there is need for the management of manufacturing companies to implement policies that can be utilized to monitor market risks (Okeyo, Gathungu & K'Obonyo, 2014).

This study looked at the credit, liquidity and market risk exposures. In addressing whether the credit risk affect financial performance, the study employed the use of receivable turnover which measures the average number of days it takes companies to collect their account receivables (Ouma, 2015). Also, the study included current assets and current liability in measuring liquidity risk. It highlighted whether the company had enough liquid assets to settle their short term liabilities when they fall due, using current ratio (Asare, 2015). Lastly, interest coverage ratio was used as a measure of market risk. Manufacturing companies borrow capital at lower rate so as to finance their operations. However, due to changes in the market, interest rate may arise hence making it hard for these companies to maximise their profits. When

interest rate increases, it puts more pressure to the manufacturing companies, which in turn result to loan default (Kassi, Rathnayake & Louembe, 2019).

1.1.2 Financial Performance

Fullerton and Wempe (2009) in their study suggested that non-financial performance measures provide a means of transforming an organization's strategy and vision into a tool that motivates performance and communicates strategic intent. It must be based on the appropriate feedback; as measured by tracking success factors and strategy implementation (Chenhall & Moers, 2007). However, this study sought to understand the financial performance measures that have been adopted by the previous studies. A substantial body of literature review have provided multiple dimensions of measuring financial performance of a company. Robinson (1995) cited by Carton and Hofer (2010) in their study analysed the best measures of organizational financial performance.

Different financial performance measures were proposed; change in sales, sales level, return on capital employed (Ferreti, 2017), return on equity, return on assets, net profit, earnings before interest and taxes and shareholder value created (Carton & Hofer, 2010). The study tested all these measures individually with independent variables of the study to determine their relationship. The results established that shareholder value created (return on shareholders/assets) was determined to be the most effective measure of financial performance; but all the measures had a positive relationship and were adequate in measuring financial performance (Shaban & James, 2018). Aebi, Sabato and Schmid (2012) in establishing how risk management affect bank performance during the financial crisis concluded that banks with effective credit officer exhibit higher stock returns and ROA during the crisis.

Kangarlouei, Azizi, Farahani and Motavassel (2012) also did a study to establish which among refined economic value added (REVA), market value added (MVA) and economic value added

(EVA) financial measures are more effective in determining the economic performance of an organization using a data derived during 2005 – 2010. The study findings established that REVA and MVA correlates positively in measuring financial performance of the firms. The study further provided additional financial measures such as return on equity, return on investment, residual income, return on sales, dividend per share and return on assets. Further, Hejazi and Santor (2010) assessed how foreign disk exposure affect a firm's performance using a detailed quarterly data for a period of 1994 – 2004. Using measures of credit ratings and share price volatility, the results showed a positive association.

This study therefore have established that various measures have been developed to assist in measuring financial performance. The most common and widely used in research include ROA, ROI and ROE (Gunasekaran, Irani, Choy, Filippi & Papadopoulos, 2015). ROA looks at how effectively and efficiently investment managers derive high return from the various investment assets that they have and the extent to which investors may benefit from such assets through high return. ROI is concerned with how effectively investors can be able to obtain maximum return from every investments that they put in the business. ROE addresses the extent of return that investors will get from the equity that they put in the business. This study therefore used ROA as a measure of financial performance since that it has been adopted by previous studies in explaining the financial performance of various firms in the market (Kallberg & Udell, 2015).

1.1.3 Manufacturing Industry

Successful development of any country depends on how effective its manufacturing industry is. There has been need for implementation of good policies for manufacturing sector to grow in developing countries such as in Africa (Ngoze, Bwisa & Sakwa, 2013). However, challenges still exist on ways of improving manufacturing industry in order to promote economic growth.

Developed nations has seen tremendous growth due to robust manufacturing industries policies that they have, hence the need for other nations to adopt such policies (Ndung'u, 2014).

Globally, manufacturing sector plays a key role in creation of employment opportunities for many people. As of 2015, it was estimated that the manufacturing industry employed around 12 million employees in the United States (U.S). Additionally, the industry generated $2 trillion in gross domestic product (GDP), which is about 13 per cent of the GDP prior to 2013. In the developed countries such as United Kingdom (UK), manufacturing has been estimated to make 10 per cent of the GDP, while at the same time, the industry is believed to directly provide employment opportunities to over 3 million people (KAM, 2016).

Performance of manufacturing industry varies across the globe. Due to technology and improved workforce skills, manufacturing industry in developed nations perform better than those in Africa. There is a growing need for African industries to be examined, mostly the manufacturing industry. According to a study conducted by Abdi (2016), manufacturing firms produces an average of US $3000 of output per worker compared to about US $7000 of output per worker in Asian countries such as China and Malaysia. Kenyan manufacturing industries has seen tremendous growth over the years under the umbrella of Kenya Association of Manufacturers (KMA). According to KAM (2016), 95 per cent of manufactured goods and services in Kenya are basic goods like food, building materials and beverages while only the remaining 5 per cent of the other manufactured products represent pharmaceutical products.

Kenyan manufacturing sector has been identified as one of the key indicators in realizing the Kenyan dream of achieving Vision 2030. In addition, it has been identified as one of the Big Four agenda that the country need to achieve before the 2022, hence the need to address it effectively (Kenya Economic Report, 2017). Data from Kenya National Bureau of Statistics (KNBS, 2016) indicated that in the first quarter of 2016, the manufacturing industry grew by

3.6 percent compared to 4.1 per cent in the same quarter of 2015. The downward growth clearly demonstrate that the industry is facing challenges that need to be addressed in order to improve its financial performance (KNBS, 2016).

Current economic environment has seen making firms facing financial challenges across all sectors. Manufacturing industry require high cost of input to produce quality outputs. However, the continuous increase in cost of inputs increases the cost of labour, unreliable and expensive energy which then exposes the firm to various financial risks. In the East African (EA) region, Kenyan manufacturing industry has low productivity due to high cost of production involved compared to other countries in the region (Njoroge, 2015). These challenges therefore require need to investigate the effect of financial risks exposure on financial performance of manufacturing firms listed at the NSE.

1.1.4 Nairobi Securities Exchange

The NSE is the main custodian of all financial platform for all listed companies in Kenya. Over the years since 1958 – 1960, the NSE has been tasked with several functions but majorly to regulate and provide ready-made capital market where investors (both borrowers and lenders) can transact their businesses with high level of transparency and accountability. A lot of improvement has been made in the financial market since the introduction and growth of technology as well as market integration. In the old days, the financial market was mainly dominated by equity and bond securities. However, other financial securities have been introduced in the past few years such as exchange traded funds, financial and commodity derivatives and other securities (Mwangi, 2014).

The financial market has been able to bring both international and local investors by creating liquid market where both primary and secondary market allow easy transaction of financial services. The market is publicly traded and is the second largest exchange market in Africa

(Odalo, 2016). Manufacturing firms listed at NSE and which the study dwelled on are 9 as indicated in appendix 2 of the research study.

1.2 Statement of the Problem

As currently observed, Kenya is among the African countries that have stressed on the need to boost its manufacturing activities, however it is still not a manufacturing powerhouse. The government have focussed on ensuring that the industry develops rapidly, but the competitive advantage and the effective skilled labour is not obvious; the innovation ability is poor; the gap between science and technology and economic development can't be neglected; and most importantly, the development of the international economy have continued in accelerating and spreading of global financial crisis, which has resulted to increased accumulation of the manufacturing industry's financial risks.

In equity market in Kenya (NSE), manufacturing listed companies have faced various challenges with the latest company being Mumias Sugar Company which have been under numerous financial challenges. The company has gone bankrupt; and have not been able to pay its suppliers. Additionally, other firms have also been recording losses which have raised eyebrows from the financial specialists and investors on whether the management of these companies are observing the financial risks in the market. Gathogo and Ragui (2014) stated that companies might face financial crisis if there is neglect of effective prevention of financial risks which leads to deterioration of the financial situation of a company and even the future cash flow.

As the manufacturing industry is tipped to create thousands of jobs to the jobless youths in Kenya and its strategic position improving, by establishing the effect of financial risk exposure of the manufacturing listed companies, it has great practical significance for the management, investors, creditors and other stakeholders (KAM, 2016; Kinyua, 2014; Ayako, Kungu &

Githui, 2015). A review of studies such as Kargi (2011), Ahmed (2015), Ndung'u (2014) and Kinyua (2014) have all been examined to establish the relationship between financial risk exposure and financial performance. However, it is evident that most of these studies have been on the banking sector.

At a time when almost half of the 9 listed manufacturing companies are recording losses, while the government is depending on the same manufacturing sector to boost its economic development and growth, there is need to determine the effect of financial risk exposures on the financial performance of these firms at the equity market. This is because the market liberalization and regional integration could also have exposed these firms into other unknown financial risks. As a result, a review of the literature of the study clearly illustrates that there exist a gap that need to be filled. Hence, this study sought to provide clarity on the effect of financial risk exposure of the financial performance of listed companies in Kenya.

1.3 Research Objectives

1.3.1 General Objective

To investigate financial risk exposure and its effect on the financial performance of manufacturing firms listed at the NSE.

1.3.2 Specific Objectives

i) To assess credit risk exposure and its effect on financial performance of manufacturing firms listed at the NSE.

ii) To determine liquidity risk exposure and its effect on financial performance of manufacturing firms listed at the NSE.

iii) To establish market risk exposure and its effect on financial performance of manufacturing firms listed at the NSE.

1.4 Research Questions

The study was guided by the following research questions;

i) How does credit risk exposure affect the financial performance of manufacturing firms listed at the NSE?
ii) What is the effect of liquidity risk exposure on the financial performance of manufacturing firms listed at the NSE?
iii) To what extent does market risk exposures affects the financial performance of manufacturing firms listed at the NSE?

1.5 Significance of the Study

1.5.1 Management of Manufacturing Firms

The study allowed the management of these manufacturing firms under the study to clearly understand how each financial exposure affect their financial performance and develop a clear framework of mitigation where necessary.

1.5.2 Manufacturing Industry

The study may bring out the need for manufacturing industry players, including the oversight body which is KAM, to address the need for manufacturing firms to develop policies which assist in monitoring for financial risks exposures in the market across the region.

1.5.3 Researchers and Academicians

To the researchers, the study provided an opportunity for financial risks exposures reviews and their effect on financial performance and develop a positive critique on the subject of the study. To the academicians, the study provides additional literature review for future research.

1.6 Scope of the Study

The motivation behind the examination was to explore the financial risk exposure and its effect on financial performance of the manufacturing firms at the NSE. Of the 9 listed firms, only data for the 7 firms were found eligible for a study period of 10 years. The study therefore had 70 observations. The predictive variables of the study included; credit, liquidity and market risk exposures measured by receivable turnover ratio (RTR), current ratio (CR) and interest coverage ratio (ICR) respectively while dependent variable was financial performance measured by return on assets (ROA). The study utilized descriptive design and computed secondary data.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This part of the examination study gave synopsis data from different researchers who embraced their investigation in a similar field of financial risk exposure and financial performance. The decision of the writing was constrained to just those that have vast commitment to financial risk exposure and financial performance in the organization. The investigation along these lines covered theoretical review, empirical review, conceptual framework and operationalization of factors.

2.2 Theoretical Review

The study had theory of information asymmetry, capital structure (irrelevance) and agency theories which formed the theoretical foundation and fundamental basis of the variables of the study. According to Kombo and Tromp (2009), a theory is a tested and believed review of certain phenomenon with given propositions and assumptions to be correct. A hypothetical audit (theory) is thusly a gathering of interrelated ideas, yet not really well-planned. Further, hypothetical survey controls the examination contemplate and gives components on how factors ought to be estimated and set up the relationship that exists between factors of the investigation and the hypotheses picked for the investigation.

2.2.1 Information Asymmetry Theory

The theory was developed by Akerlof (1970) and later advanced by Spence (1973). According to the theory, people possess different level of information. And to a high degree, the information they possess influence their behaviour in many scenarios. In a market, owners of goods or sellers always adjust the price of their items based on their knowledge of the prices of similar items on the market and condition of the items among other factors. On the other

hand, a buyer can similarly have the information about the prices of similar items in the market. However, what the buyer lacks is the depth of information about the quality of the item as the seller or the owner of the goods. Thus, there is clearly an information asymmetry between the two individuals (Akerlof, 1970).

In the paper developed by Akerlof (1970) titled *The market for "Lemons": Quality Uncertainty and the Market Mechanism*, he argued that in many markets the buyer uses some market statistic to measure the value of a class of goods. As such, the buyer sees the average of the whole market while the seller has more intimate knowledge of a specific item. In his argument, Akerlof maintained that this information asymmetry gives the seller an incentive to sell goods of less than the average market quality. Spencer (1973) also posits that organizations hire employees as investment decisions made under uncertainty. This is because the employer is not sure of the immediate productive capabilities of an employee before hiring. Hence the chances of winning is determined by the prior experience in the job market and the signals an employee transmits and the indices they have.

In credit market, information asymmetry occurs because financial borrowers understand more facets allied to their investment projects compared to the lenders. In this context, the asymmetry takes place as "ex post" or "ex ante". *Ex ante* asymmetry happens if the lender of the financial asset is not in a position to understand borrowers with their different credit risks when providing loans (Auronen, 2003). This may results to adverse problem of selection. It is worth noting that adverse selection problems may exist if an interest rates' increase abandon risky borrowers in a market for funds. Connecting this theory to the study, manufacturing firms may borrow loans to finance their operations. While they may not be well financially, lenders may not have full information regarding their internal financial struggles. Thus, the theory emphasize on the concept of adverse selection since it tends to increase the possibility of loans becoming bad credit risks.

2.2.2 Capital Structure Theory

Modigliani and Miller (1958) theorized that the capital structure of a company, i.e. its total debt to its equity, is of no relevance with respect to its evaluation (irrelevance) – assuming perfect capital markets. However, the two (Modigliani and Miller) had such strict assumptions which cannot be held true in the current financial market. For instance, in practice capital markets or financial markets have shown many times throughout the modern history that they are far from being perfect. Challenges such as information asymmetry, agency problems, transactional costs and taxes when summed up together add up to the market's imperfections.

Therefore, to the contrary opinion that seemed to dominate their financial practice; the capital structure of any firm may influence a firm's financial performance. As such, the capital structure of the company is influenced by the type of firm in question – whether privately or publicly listed at the security exchange (M&M, 1958). A number of studies done to determine the relationship between capital structure and performance have based their findings on top management, and have established that companies have certain distinct features which are subject to information asymmetry, a potential cause of financial distress which is in respect to the said capital structure (Abor, 2005).

A study by Graham and Harvey (2001) established that companies keep a certain degree of financial flexibility regarding their capital structure. Most companies would prefer to finance their operations using debt financing since it brings the benefits of tax shield to the company. However, too much borrowing might be a disaster for the company if there is high degree of financial misuse and misappropriations. Most financial managers may not be able to effectively allocate adequate capital to either short term or long term assets and as a result may lead to financial problems. Companies are currently faced with various financial challenges arising from inability to pay short term loans when they fall due. This is called liquidity risks. The relevance of the theory to the study is that it emphasizes on the need for the company to

maintain adequate capital structure by balancing between debt and equity so that the company can be able to pay its short-term debts when they fall due using the available liquid cash. As such, the theory also provides an overview of how degree of financial leverage is an important factor in analysing market risk.

2.2.3 Agency Theory

The theory was first introduced by Jensen and Meckling (1976) and later on addressed by Ross (2005) who applied it in the study of economics. According to this theory, there is existing relationship or interactions between management as agents and shareholders as principals in the organizations and company set-ups. According to Ross (2005), the goal of the theory was to address the challenges that could exist between managers and business owners who hire managers to act on their best interest in the company. Every decisions that finance managers make in the company should consider the interest of the shareholders; since the goals of any business is to maximize shareholder wealth as the main objective followed by profit making. Therefore, the theory advocate for good understanding and relationship between principals and agents in the company.

Agency theory also examines the gap of ownership and control and managerial motivation factors in every company aiming to remain competitive in the market and increase its financial performance (Hill & Jones, 1992). In the daily operations of the business, it has been observed that the primary agency relationship and understanding affects the attitude of the management teams' attitudes towards/ in response to risk taking and risk assessment in the firm. This theory acknowledges that there exist possible differences between managers and principals and this could be; in decision making and earnings distribution in the company. The conflict may arise which may results to poor management and decision making and the end results could be operational risk exposure in the company leading to reduced financial performance (Ross, 2005).

The importance of this theory to the study and its relationship to operational risk exposure is that it provides solid foundation as to why companies engage in techniques of addressing financial risks exposures to address the divergent interest of the principals and management in the organization (Donaldson & Davis, 1991). This is mainly because in some instances, managers may prefer short term projects over long term projects due to their low risks associated with them; whereas principals may prefer long term projects over short term projects due to their high returns associated with them. Though there is correlation between high return and high risks, principals believe that managers should be in a better possible to reduce and manage such high risks that could be involved in long-term projects in order to maximize high returns. The difference in decision making between managers and principals therefore may lead to operational risk exposure in the company hence low financial performance (Donaldson & Davis, 1991).

2.3 Empirical Review

This area discusses the connection between the independent variables and dependent variable of the study based on the existing scholarly work. It endeavours to address the technique that was utilized by different scholars as well as the findings and implication of their studies.

2.3.1 Credit Risk Exposure and Financial Performance

Asare (2015) surveyed the connection between credit hazard introduction and gainfulness of some chosen banks in Ghana. A decent board information from seven chose banks covering the nine-year (2005 – 2013) was examined inside fixed and irregular impacts models. Two key proportions of productivity (subordinate factors) utilized in the investigation were ROA and ROE. Credit chance presentation quantifiable factors were non-performing advances to add up to advances, advance misfortune arrangements proportion and advances and advances proportion. The aftereffects of the examination demonstrated that non-performing credits is

adversely identified with gainfulness while advance misfortune arrangement proportion and advances proportion are emphatically critical to bank's productivity.

Adjeitsey (2015) investigated the impact of credit risk exposure on the gainfulness of rustic banks in Ghana. The examination utilized a blended methodology and survey was utilized to assemble information from 40 respondents. The examination discoveries uncovered that credit offices of the provincial bank are related with a few types of hazard including account holder's bankruptcy, monetary misfortune coming about because of changes in the credit spreads, obligation uneconomical to seek after and when indebted person steal away. The investigation further demonstrated that to decrease the dimension of hazard presentation related with the credits allowed to clients, a lot of criteria is utilized to assess planned customers.

Masinde (2017) completed an examination an investigation to explore the effect of credit risk exposure on the financial performance of Kenyan business banks. The particular destinations utilized in the examination were to set up the effect of credit misfortune, impact of capital ampleness and the effect of non-performing advances on monetary advancement of Kenyan business banks. The investigation embraced causal and effect research design. Optional information was gathered from the examined 29 banks out of the each of the 42 business banks authorized for activity by CBK, and the period for the investigation was 2012 – 2016. Information was dissected utilizing SPSS programming and other indicative tests were performed. The investigation discoveries built up that there exist an opposite connection between monetary execution and loss of the credit, and increment in advance misfortune is related with diminished money related execution.

Seed and Zahid (2016) inspected the effect of credit chance presentation on benefit of five major UK business banks. Benefit as a needy variable was estimated by both ROA and ROE while acknowledge chance introduction as an autonomous variable was estimated by two

factors; net charge off (or weaknesses) and non-performing credits. Various factual investigations were performed and auxiliary information was utilized for a time of 2007 – 2015. The examination built up that credit chance presentation markers had a positive relationship with benefit of the banks. The outcomes got likewise demonstrated that bank size, influence and development were additionally decidedly interlinked with one another.

2.3.2 Liquidity Risk Exposure and Financial Performance

Tabari, Ahmadi and Emami (2013) analyzed the impact of liquidity risk exposure on the performance of business banks in Iran. The investigation inspected 15 Iranian banks for a multi-year time span from 2003 – 2010 utilizing the board information. The banks were gathered into two gatherings of bank-explicit factors and full scale financial factors. The investigation discoveries built up that factors of bank's size, bank's benefit, total national output and swelling will cause to improve the execution of banks while credit hazard and liquidity chance exposures will cause to debilitate the execution of the business banks in the nation.

Olawanle (2014) completed an examination to survey the effect of liquidity risk exposure on the gainfulness of Nigerian banks. Information for the examination was essential information and was gathered from a sample of 518 appropriated among worker of banks, with a reaction rate of 76 percent. Optional information drawn from fiscal summaries were likewise utilized for a time of 2006 – 2010. Likewise, the examination utilized the review configuration in accordance with cross – sectional research plan. The investigation discoveries demonstrate that there is a huge connection between liquidity chance introduction and gainfulness of both local and remote banks in Nigeria.

Ouma (2015) inquired about the impact of liquidity chance introduction on gainfulness of business banks in Kenya. The examination utilized a graphic study investigate plan. The examination utilized auxiliary information gathered from yearly reports submitted to the CBK

for the objective populace containing all the business banks in Kenya. Information was broke down utilizing relapse show. The examination found that mean of current proportion is generally high when contrasted with different factors. Moreover, the discoveries additionally uncovered exorbitant liquidity chance presentation in the firm will in general influence the productivity of business banks in the nation which moderates their development and their commitments to the financial advancement.

Bwacha and Xi (2018) completed an examination to decide the effect of liquidity hazard introduction on benefit in the financial segment in the worldwide point of view. A quantitative report was directed on an examination test including 50 banks which happen to be the piece of the 100 biggest banks on the planet by resource estimate in three land districts of Asia, Europe and North America. The period for the examination was 10 years that is, 2008 – 2017. The quantitative information for these banks was gathered to give proportion of the factors: credit to store proportion (LDR), store to resource proportion (DAR), and money and money counterparts to store proportion (CDR) as liquidity hazard introduction measures while return on value (ROE) and profit for resources (ROA) as gainfulness measures. The investigation discovered that just DAR altogether impacts benefit registered as ROE while every different theory demonstrated unimportant. Both LDR and CDR were found to have less huge effect on ROE and ROA.

2.3.3 Market Risk Exposure and Financial Performance

Interest rate risk (also known as market risk) is the risk to current or anticipated earnings or capital arising from movements in interest rates. According to Kumar (2014), interest rate risk (market risk) has the potential to create adverse effects on the financial results and capital of various companies arising from their financial books. Companies, for instance, manufacturing firms borrow funds at a lower rate so as to finance their operations, so as to maximize profits. However, interest rate risks (market risks) increases due to changes in the market rates. Kumar

explains that when interest rates rise, it puts too much pressure on the financial performance of the company, and may results in defaults of debt payments.

Muriithi, Muturi and Waweru (2016) assessed the effect of market risk on financial performance of commercial banks in Kenya. The study adopted a descriptive research design and covered a period of 2010 – 2015. Measures of market risk adopted in the study were degree of financial leverage, interest rate risk and foreign risk exposure while financial performance was measured using return on equity. Secondary data drawn from the 42 banks were used in the study for data analysis. The study findings established that both the study variables have negative significant relationship bank profitability.

Also, Kassi, Rathnayake, Louembe & Ding (2019) investigate the effect of market risk exposure on the financial performance 31 non-financial companies listed on the Cablanca Stock Exchange (CSE) over the period of 2006 – 2016. Three alternative variables were used to measure financial performance; return on asset, return on equity and profit margin. Measures used for market risk were degree of financial leverage, book-t-market ratio and gearing ratio. For data analysis, the study used pooled ordinary least square regression model, the fixed effect model and random effect model. The study showed that different measures of market risk have significant negative influence on the companies' financial performances.

Bhatti, Majeed, Rehman and Khan (2010) did a study on the effect of leverage on risk and stock returns of Pakistan companies. The study also determined the relationship between leverage and systematic risk and how they affect financial performance. Data for the study was collected from 8 industries that are cotton, engineering, chemicals, sugar and allied, cement, fuel and energy, transport and communications. Secondary data which are annual reports were gathered from Karachi Stock Exchange for a period of last five years (2005 – 2009). Statistical analysis was determined to show the relationship between the study variables. The results of

the study showed that high level of leverage creates high level of systematic risk, which leads to high volatility in the stock prices.

Gatsi, Gadzo and Akoto (2013) further did a study to investigate how degree of financial and operating leverage affect profitability of insurance firms in Ghana. The study utilized secondary data drawn from 18 insurance companies publicly traded. Supplementary analysis was undertaken to assess the impact of growth, GDP and firm size on profitability. Also, e-views 7 was used to analyse data. Using the panel data gathered, the study findings showed that degree of financial leverage are inversely related to profitability while operating leverage is positively related to profitability.

2.4 Conceptual Framework

A figure illustrating the relationship between the independent variables of the study and dependent variables as shown below

2.4.1 Credit Risk Exposure

Refers to the risks that occurs when debtors fail to repay their debts on time. Companies therefore set high receivable turnover so as to minimise risks, Douglas (2014).

2.4.2 Liquidity Risk Exposure

This is the risk associated with ability of the firm to pay its debt obligations when they fall due. Douglas (2014) in his study included current ratio to measure liquidity of the firms under the study.

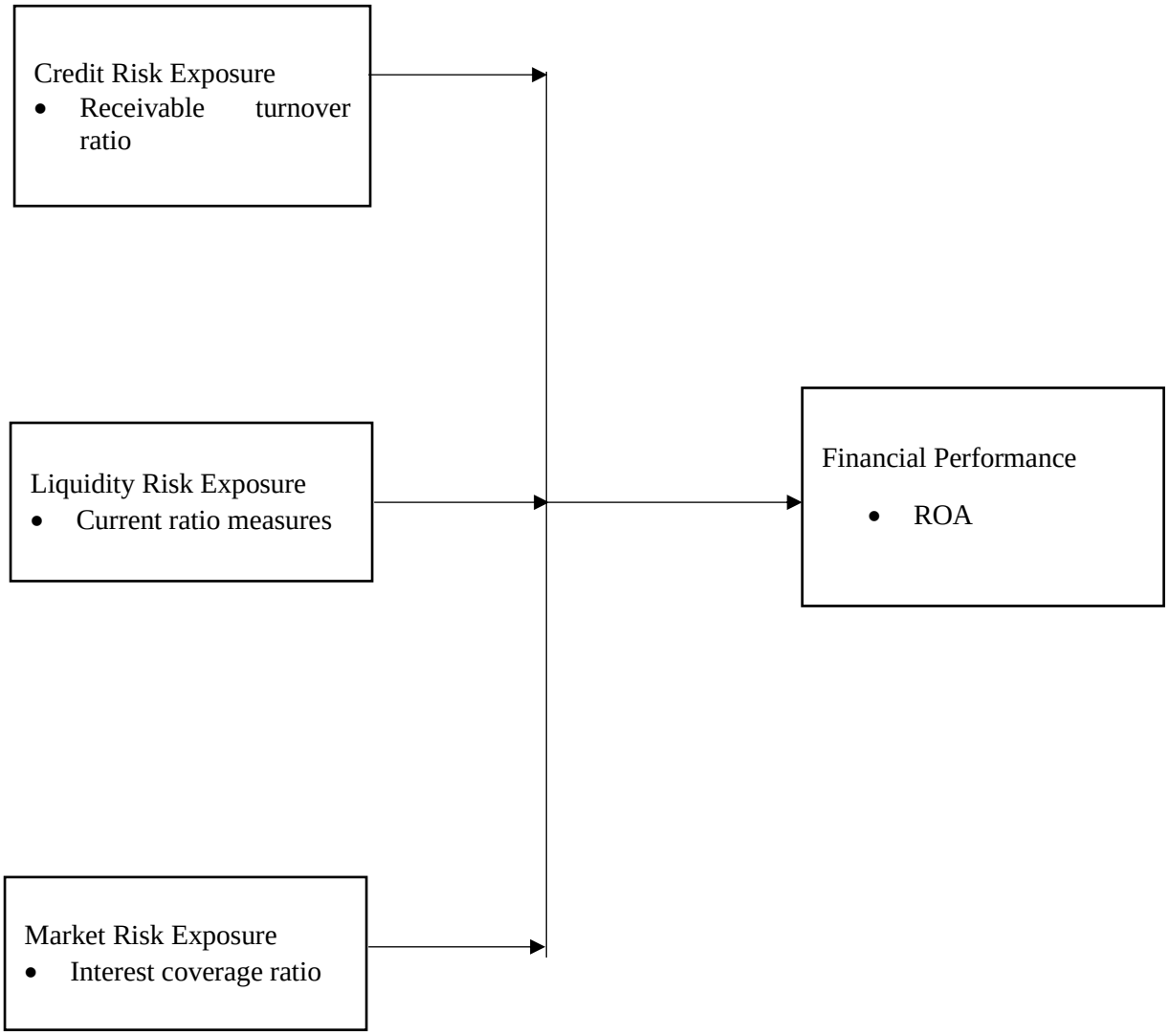
2.4.3 Market Risk Exposure

Market risk is the risk that the value of an investment will decrease due to changes in market factors such as exchange rate, interest rate risk. Muriithi *et al* (2016) used interest coverage ratio as a measure.

2.4.4 Financial Performance

This is the subjective measure of how well a firm uses its assets to generate sales and enhance profitability. Ferreti (2017) in his study used ROA as a measure of profitability of firms.

Independent variables **Dependent variable**



Source: Author (2019)

Figure 2.1 Conceptual Framework

2.5 Operationalization of Variables

This is the concept of changing theoretical concepts into measurable units to enhance empirical determination as indicated in the table below.

Table 2.1 Operationalization of Variables

Variables	Indicators	Measurement
Credit Risk Exposure	*RTR*	Refers to the average number of times that the company collect its debts from the account receivables in annual basis. $$RTR = Sales \div Average\ account\ receivables$$
Liquidity Risk Exposure	*CR*	CR is a comparison of current assets to current liabilities. Measures a firm's ability to pay short term debts $$CR = CA \div CL$$
Market Risk Exposure	*ICR*	Measures a company's ability to meet its interest payments $$ICR = EBIT \div Finance\ cost$$
Financial Performance	*ROA*	Measures how profitable a company is relative to its total assets $$ROA = (Net\ Income) \div (Total\ Assets)$$

Source: Author (2019)

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This section gave the system and strategies that were utilized in the examination. It lay-out the means and techniques that were utilized to accumulate information for the examination with the objective of tending to inquire about objectives and research questions. The chapter discussed research design, target population, data collection instruments, data processing and analysis and diagnostic tests which involved normality test, multicollinearity test, heteroscedasticity test and Hausman test.

3.2 Research Design

According to Cooper and Schindler (2011), a research design for a study is a strategy adopted by the researcher in conducting the research study with the goal of examining specific measureable research questions. The study adopted a descriptive research design. This type of research design was quite useful since it provided causal effects of independent variables on dependent variables of the study. In short, it tended to describe the relationship between two variables of the study (predictor variable X, vs dependent variable Y) (Saunders, Lewis & Thornhill, 2009).

Further, a design also provides plans which articulates strategies and tools through which empirical data gathered was examined and analysed to provide study inferences (Barbie, 2016). Research design served to link research questions to the data and provided steps by which research hypothesis was tested and research objectives achieved. Kothari (2014) further explained that research design must address research questions, identify appropriate data for the study, incorporate data collection techniques and lastly, identified means by which data was analysed, verified and interpreted.

3.3 Target Population

As per Mugenda and Mugenda (2003), target population is the general or whole population to which the scientist needs to sum up the discoveries of the investigation on. It can likewise be characterized as the arrangement of examining units or cases that the analyst is keen on. Target population can be occasions, individuals or items from which a scientist wishes to sum up the consequences of the examination on. The target population for this study was the listed manufacturing firms at the NSE. The 9 listed firms formed the accessible target population as shown in appendix 2. An evaluation of the 9 firms were directed for the time of 2009 – 2018. This was to ensure that there was adequate information aimed at answering the research questions.

3.4 Data Collection Instruments

Mugenda and Mugenda (2012) argues that information is anything given as a reality in making study conclusions. They further characterized data collection instruments as the apparatuses and systems utilized in estimation of study factors in research. This study used secondary data. Kothari (2009) defined secondary data as second hand information or available data that has been gathered and scrutinized before, and readily available in journal publications, websites or in form of financial statements of the companies. Therefore, the research instrument for data collection was data collections sheets which was used to obtain other additional information regarding the research objectives. Data collection forms were regarded as the best alternative data collection instruments after questionnaire when it comes to accessing secondary data due to their objectivity and simplicity of the data (Kothari, 2009).

3.5 Data Processing and Analysis

As indicated by Zikmund *et al.,* (2010), information analysis alludes to the utilization of thinking and judgment to comprehend the information that has been gathered with the objective of evaluating reliable outcomes and abridging the pertinent data accomplished in the

examination. Trend analysis was determined to show the performance of the study variables over-time. For this examination, data collected was investigated by the utilization of inferential analysis with the aid of STATA programme. Different models were executed as follows;

Pooled Ordinary Least Square (OLS) which has no one of a kind qualities of study factors and no impacts crosswise over time was displayed as pursues;

$$\gamma_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots (i)$$

Fixed Effect (FE) model has unique characteristics of variables but do not vary across time and was presented in equation (ii), or time related effects which do not vary over variables as were indicated in equation (iii) or both variables and time effects as were shown in equation (iv) that may be analysed statistically but not accurately predictable. These traits or behaviours were in form of $\mu\, i$ for variables and $\lambda\, t$ for time in regression equations as shown below;

$$\gamma_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu\, i + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots (ii)$$

$$\gamma_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \lambda\, t + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots (iii)$$

$$\gamma_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu\, i + \lambda\, t + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots (iv)$$

Random Effects (RE) model have a unique time constant traits of variables or individuals that are not associated with the individual regressors that may be analysed statistically but not accurately predicted such that the error term was assumed to have a random variation over i or t as shown in equation (v) and (vi).

$$\gamma_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon_i + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots (v)$$

Or

$$\gamma_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \omega_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots (vi)$$

Where Y = Dependent variable: Financial Performance (ROA)

B0 = Constant

B1 – B3 = Coefficient of independent factors

X1 = credit risk exposure (receivable turnover)

X2 = liquidity risk exposure (current ratio)

X3 = market risk exposure (interest coverage ratio)

μ I = observable individual dummy

λ t = observable time dummy

Ɛ I = decomposed individual error term

Ɛ = random error term

ω it = Ɛ I + Ɛ it, unobserved dummy

i = Individual index, 1, 2, 3 … ..n

Ł = time index, 1, 2, 3 … …. n

3.5.1 Diagnostic Tests

The most vital assumption for the investigation was that the information for examination was drawn from a typically disseminated population. Prior to leading regression analysis, a few diagnostic tests, for example, normality test, multicollinearity test, heteroskedasticity and Hausman test were performed to decide the fittingness of the information for making inferences for the examination (Field, 2009).

Normality Test

This test was conducted to establish whether the residual data was normally distributed. A p – value greater than 0.05 indicated normal distribution while a p – value less than 0.05 indicated that data was not significantly distributed.

Null hypothesis: data was significantly normally distributed (when the p-value is > 0.05, reject alternative hypothesis and accept null hypothesis)

Alternative hypothesis: data was not significantly normally distributed (when p-value is < 0.05, reject null hypothesis and accept alternative hypothesis)

Heteroskedasticity Test

The test was performed to establish whether data was homogenous, where highly dispersion revealed problem of heteroscedasticity. Breusch – Pagan test/ Cook-Weisberg test was used. A p-value of greater than 0.05 showed no presence of heteroscedasticity while a p-value of less than 0.05 showed presence of heteroscedasticity.

Null hypothesis: data was significantly homogenous (no presence of heteroscedasticity) (when the p-value is > 0.05, reject alternative hypothesis and accept null hypothesis)

Alternative hypothesis: data was not significantly homogenous (presence of heteroscedasticity) (when the p-value is < 0.05, accept alternative hypothesis and reject null hypothesis)

Multicollinearity Test

Was performed to investigate whether there exist correlation in the regression model among the independent variables of the study. A good regression model should be free from correlation effects. VIF less than 4.0 show multicollinearity was not a major problem while VIF greater than 4.0 showed presence of multicollinearity.

Null hypothesis: there exist correlation in the regression model of the independent variables (VIF > 4.0, show presence of multicollinearity; reject alternative and accept null hypothesis)

Alternative hypothesis: there exist no correlation in the regression model of the independent variables (VIF < 4.0, no presence of multicollinearity; accept alternative hypothesis and reject null hypothesis)

Hausman Test

The test was performed to determine the appropriate model between RE and FE model where REM was null hypothesis (H_0) while FEM was alternative hypothesis (H_1). If p-value was less than 0.05, (H_1 was true) then FEM was chosen for the study while if p-value was greater than 0.05 (H_0 was true) then REM was effective or appropriate to use.

Null hypothesis: if the p-value was >0.05, accept the REM model as the true model of the study and reject the FEM as alternative hypothesis.

Alternative hypothesis: if the p-value was < 0.05, accept FEM as the true model of the study and reject REM as a null hypothesis.

The study also formed other tests such as serial autocorrelation; which aimed to show whether standard errors of the coefficients to be smaller than they actually are and higher R-squared using Wooldridge test. Additionally, a unit root test or stationarity test was determined whether there was unit root in the panel data or data was stationary (free from unit root) using Harris and Tzavalis test. Lastly, test for random effects regression which aimed to establish which between RE and simple OLS regression is good for the study.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter provides analysis of the information gathered from the target population for making study conclusions. The study sought to utilize secondary data (annual consolidated financial statements) from the nine (9) listed manufacturing companies at the NSE as shown in appendix 2 for a period of 2009 to 2018 (10 period). However, only seven (7) manufacturing firms managed to meet the inclusion exclusion criteria of having secondary data of 2009-2018 as shown in appendix 3. Therefore, this chapter provides descriptive statistics where overall, between and within analysis is made. It also discusses the study variables in relation to the observable companies and their trends, as well as diagnostic tests which aids in identifying the appropriate model for the study. Inferential statistics was also undertaken to establish the relationship between independent and dependent variables of the study.

4.2 Descriptive Statistics

The area presents finding summary of descriptive statistics of the population under the study as shown in table 4.1

Descriptive statistics sought to describe the most centred and most widely dispersed data for the study variables. In the descriptive table 4.1, (N) refers to the total number of observations, (n) is the total number of companies while (T) is the total observed period for each company of the study. The study findings established that financial performance (ROA) had a mean of 0.108 with a standard deviation of 0.191, 0.142 and 0.138 for overall, between and within respectively. Credit risk exposure (RT) had a mean of 6.417 with a standard deviation of 3.411, 2.865 and 2.12 for overall, between and within respectively. Liquidity risk exposure (CR) had a mean of 2.337 with a standard deviation of 2.327, 2.290 and 0.925 for overall, between and

within respectively. Lastly, market risk exposure (ICR) had a mean of 8.387 with a standard deviation of 53.909, 23.509 and 49.250 for overall, between and within respectively. As a result, market risk exposure measured by interest coverage ratio (IC) was the most centred observation with a high mean of 68.387 and also the most widely spread data with the overall standard deviation of 53.909. The findings further showed that there was a slightly higher variations between the companies than within the same companies over the year. This means that the companies maintained almost the same level of financial performance (ROA) over the years.

Table 4.1 Descriptive Statistics

Variables		Mean	Std. Dev.	Min	Max	Observations
Financial performance	Overall	0.108	0.191	-0.76	0.43	N = 70
	Between		0.142	-0.081	0.371	n = 7
	Within		0.138	-0.571	0.499	T = 10
Credit risk exposure	Overall	6.417	3.411	0.137	21.573	N = 70
	Between		2.865	3.83	11.299	n = 7
	Within		2.121	2.028	16.691	T = 10
Liquidity risk exposure	Overall	2.337	2.327	0.029	10.625	N = 70
	Between		2.290	0.858	7.394	n = 7
	Within		0.925	-0.799	5.568	T = 10
Market risk exposure	Overall	8.387	53.909	-365.662	186.722	N = 70
	Between		23.509	-38.906	32.999	n = 7
	Within		49.250	-318.368	162.111	T = 10

Source: Author (2019)

4.3 Exploratory Data Analysis

This section sought to describe the data trend for each study variables. Line plot/trend plot analysis was used to explain how each variable performed across the companies over the study period where 1 = B.O.C Kenya, 2 = BAT, 3 = Carbacid, 4 = EABL, 5 = Eveready, 6 = Mumias and 7 = Unga group.

4.3.1 Credit Risk Exposure (Receivable turnover ratio)

Credit risk exposure was used to determine number of days (times) it takes a company to collect its debt in a year on an average basis. Using receivable turnover ratio (RTR) as a measure of credit risk exposure, a high RTR indicate that a firm's collection of account receivable is efficient and that the firm has a high proportion of quality clients or customers that pay up their debt on time or quickly. The findings were presented in figure 4.1.

The findings in (figure 4.1) established that B.O.C Company (1) had RTR range of 6 – 8 times in a year. This implied that the company took 7 times to collect its account receivables in 2009 being the highest, and 3 times in 2017 as the lowest number of collection times in a year for account receivables. For BAT Company (2), the number of times for RTR ranged between 6 – 13 times in a year with 2011 being the highest year that it took the company 12 times to collect its account receivables. Carbacid Company (3) had high RTR in 2013 at 5 times annually with an average account receivables collection times being 4 – 5 times. Also, EABL Company (4) had average RTR of between 6 – 9 times annually across the study period with 2009 having the highest RTR of 9 times while 2016 having the lowest RTR of 6 times.

The performance of Eveready Company (5) in relation to credit risk exposure established that the firm had a high RTR of 7 times in 2012 and the lowest RTR of 1 time in 2009 (figure 4.1). Since 2012 – 2018, the average times of collection of account receivables in a year has been on the decline for the study period. For Mumias Company (6), RTR times was high in 2009 at 6 times and lowest in 2017 at 1 time annually. Further it was established that the average times of account receivables collection times annually reduced from 2009 to 2013 but slightly increased in 2014. However, the continuous decline was witnessed till 2018. Lastly, Unga Company (7) had the highest number of times of RTR in 2009 at 21 times annually, with above RTR of 10 times from 2009 – 2012 and below 10 times annually from 2013 to 2018 across the study period. The study findings further corresponds with the study findings of both Asare

(2015) and Masinde (2017) that when firms manage their credit risk effectively, there is high chances of revenue increase in the company.

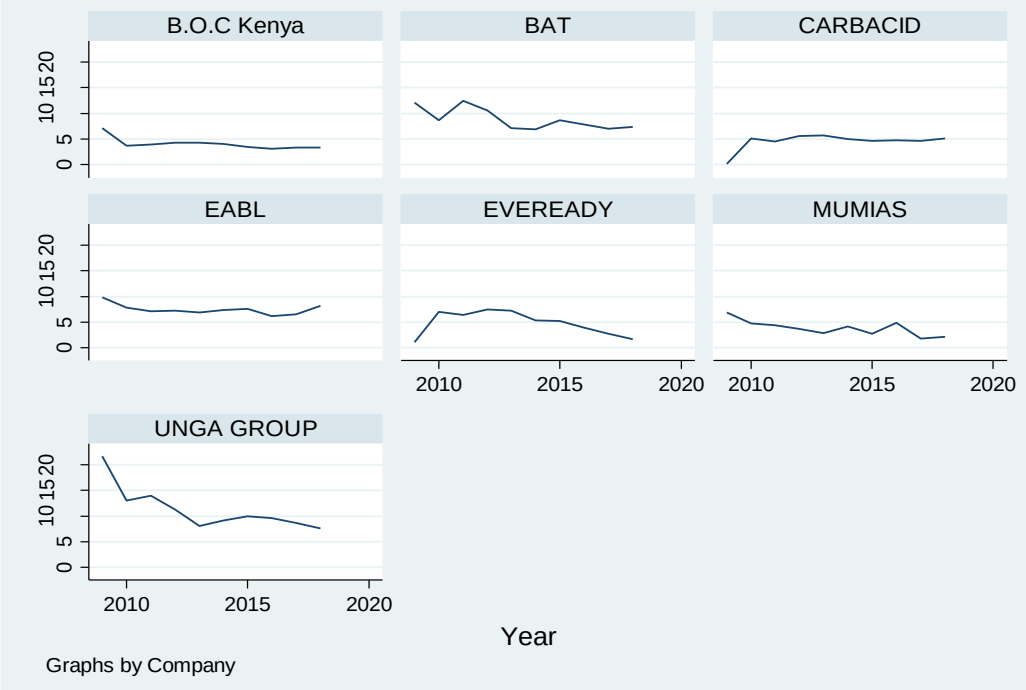


Figure 4.1 Line Plot Analysis of Credit Risk Exposure (RTR)

Source: Author (2019)

4.3.2 Liquidity Risk Exposure (Current ratio)

The study sought to determine how liquidity risk exposure may affect the financial performance of manufacturing firms listed at the NSE. Liquidity risk exposure of a firm was measured using current ratio (CR) as a measure that explains whether a firm has enough cash to meet its short term obligations when they fall due. A high liquidity may means that the firm have too much liquid cash while a low liquidity ratio may means that the firm may not be able to meet its short term obligations when they fall due. Companies therefore should balance their assets and liabilities.

Based on the study findings in figure 4.1, the findings established that B.O.C Company (1) had a CR below 1 with high CR witnessed in 2011 at 0.628. For BAT Company (2), its CR was

within 1.5 to 2.8 with highest CR being in 2009 at 2.755 while the lowest was in 2017. It could be observed that the company (2) managed to keep its CR at the required ratio of 2:1. Carbacid Company (3) also had a CR within 1 with lowest being in 2009 at 0.015 while highest being in 2012 at 0.491. Additionally, the findings established that for EABL Company (4) and Eveready Company (5), their CR was within 2 with highest being in 2009 at 1.461 for EABL Company (4) and Eveready Company in 2010. Lastly, the study findings established that Mumias Company (6) had a high CR in 2009 at 1.139 and lowest in 2018. However, the movement of CR line has been up and down consistently for the study periods (figure 4.1).

Lastly, Unga Company (7) have been having consistent CR line within 2.0 but was highest in 2012 at 2.637 and lowest in 2009 at 1.093. This therefore implied that the company applied the rule of having CR of 2:1. The findings of this study as shown using trend plot analysis supports the view of Ouma (2015) who indicated that firms need to have strong liquidity policies that can effectively be used to ensure a balanced current assets and current liabilities in the company as shown in figure 4.2.

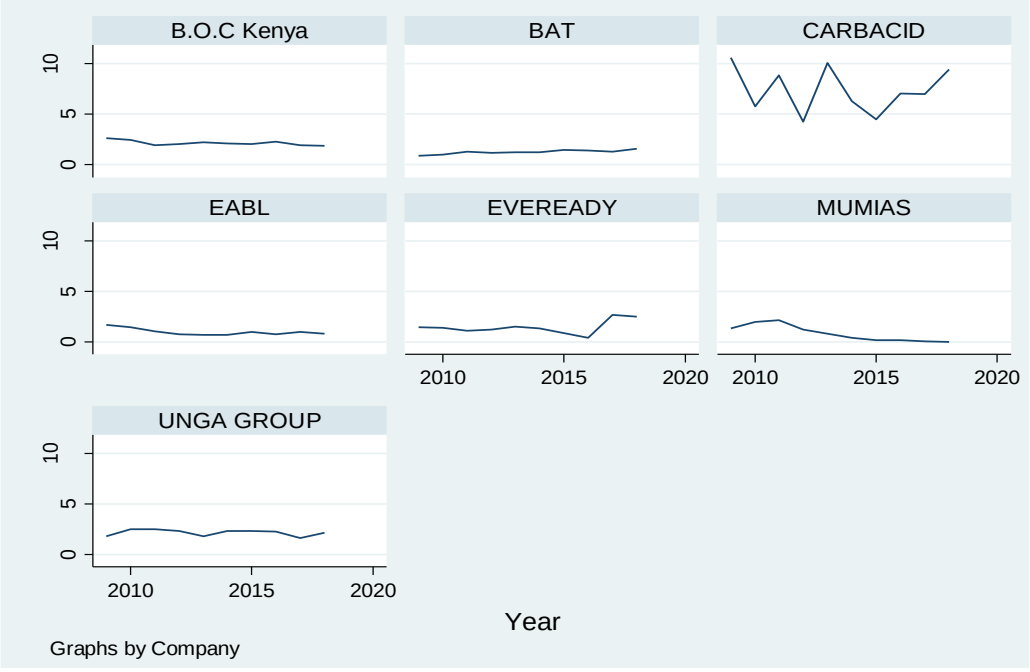


Figure 4.2 Line Plot Analysis of Liquidity Risk Exposure (CR)

Source: Author (2019)

4.3.3 Market Risk Exposure (Interest coverage ratio)

The performance of market risk exposure was determined to aid in determining the financial profitability level, and the sensitivity of the companies' operating profit in meeting the interest payment expenses to the company. Interest coverage ratio (ICR) was used to measure market risk. Companies with lower interest coverage ratio (ICR) suggest the companies are experiencing debt burden; a sign that the company may face possibility of bankruptcy and default. The findings were presented in figure 4.3.

The study findings in (figure 4.3) indicated that of the listed manufacturing firms in the study, BOC Company and EABL Company were the most two companies that registered a high interest coverage ratio (ICR) over the study period with ICR of 113.98 for BOC Company and 1.86.72 for EABL Company. As a result, a high ICR indicated that in those periods, the two companies had a better financial health which enabled them to pay their financial costs. However, it was also evident as shown in (figure 4.3) that the financial performance was just high in one period of the study (e.g. 2014 and 2009 respectively) while other periods recording average or fair financial performance to cater for the interest expenses.

Moreover, the findings also revealed that for BAT Company, Carbacid Company and Unga Group Companies, the market risk exposure performance was fairly distributed based on the trend line analysis shown in (figure 4.3). The high ICR performance recorded by each company was 26.12 for BAT Company, 8.71 for Carbacid Company and 52.42 for Unga Group Company. These findings illustrates that the company managed to manage their market risks effectively, resulting improved operating profit that enabled them to pay their interest expenses (figure 4.3). Also, it was established that Eveready Company performed dismally in managing

its market risk, especially in 2018. The company experienced a lower interest coverage ratio (ICR) of -365.66. This means that the debt burden of the company increased in 2018 with a high possibility of loan defaults. It further highlighted that the business of the company was more vulnerable to increase in interest rates in the market (figure 4.3)

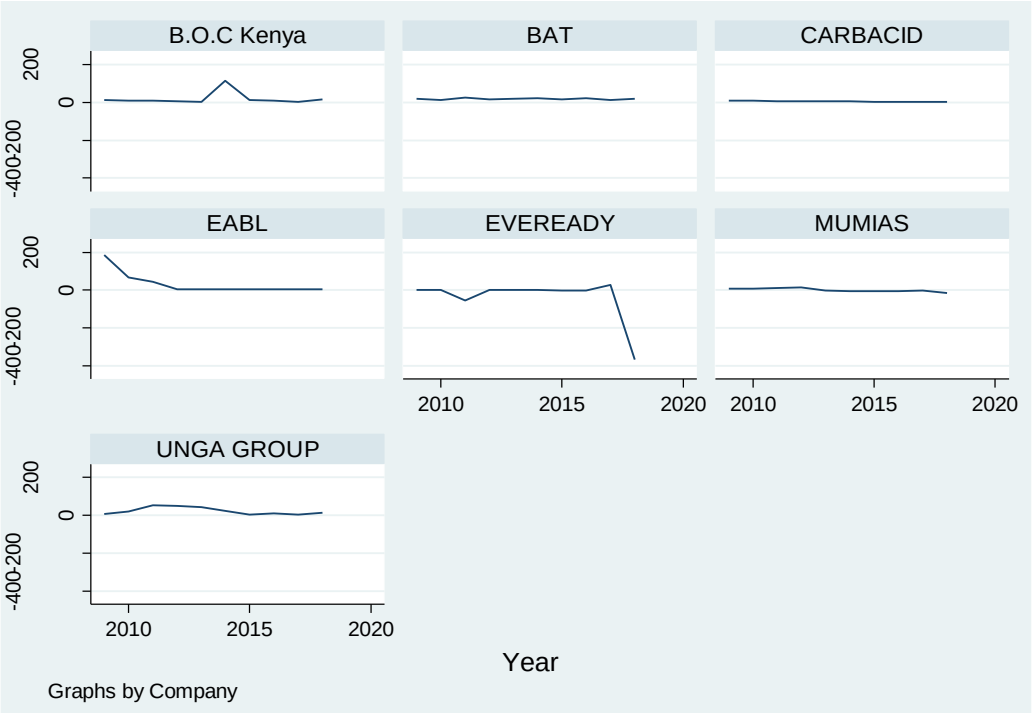


Figure 4.3 Line Plot Analysis of Market Risk Exposure (ICR)

Source: Author (2019)

4.3.4 Financial Performance (Return on assets)

Financial performance was the dependent variable of the study. It was measured using return on assets (ROA). Return on Assets (ROA) aimed to illustrate how much profit the companies were able to generate from their assets across the study periods. It was shown as a percentage (%) and the higher the number, the more efficient a company's management is at managing the assets to derive more profit for the shareholders and to maximize their wealth as well. The findings were presented in figure 4.4.

As indicated in figure 4.4, the findings revealed that B.O.C Company (4) had a negative return on assets in 2014. For BAT Company (2), the findings revealed that the performance of return on assets has been close in each year with the highest return on assets witnessed in 2012 at 42.6% and lowest performance or return on assets experienced in 2010 at 27.3%. Carbacid Company (3) saw a negative return on asset performance both in 2009 and 2018 with -7% and -9.5% respectively. However between 2010 and 2017, the performance of return on assets has been on a slight increase and decrease. Also, EABL Company (4) had lowest return on asset performance in 2018 at -9.3% and the highest return on asset performance at 27%. Therefore across the study period, the findings established that the performance of return on assets has been up and down. The study further revealed that Eveready Company (5) had a negative performance of return on assets in 2011, 2014, 2016 and 2018. However, there was a slight profit compared to other companies' performance in the remaining years.

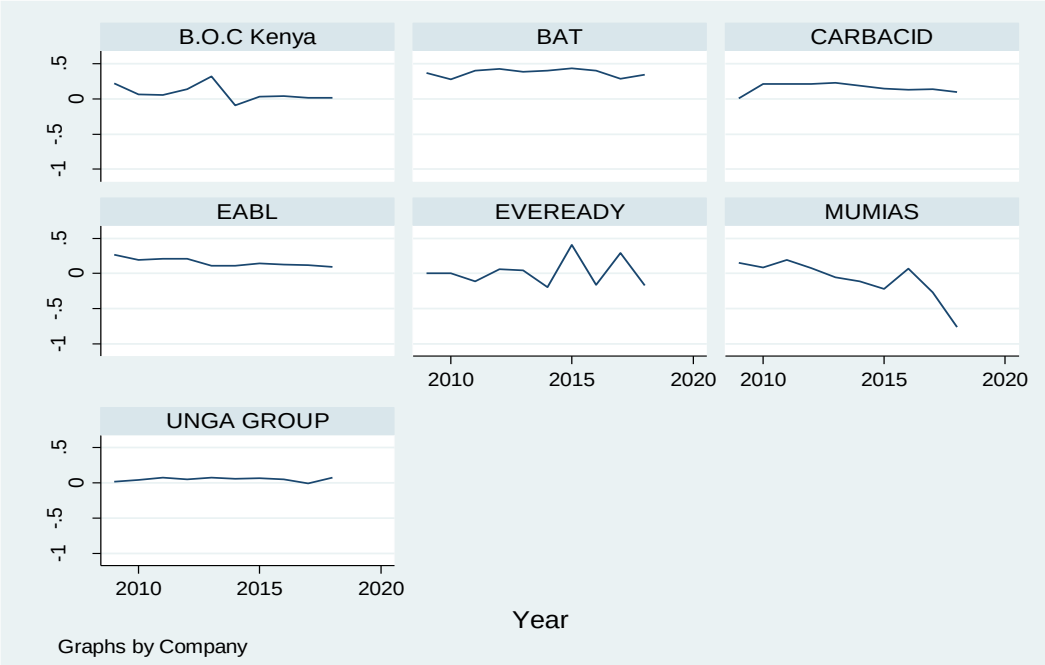


Figure 4.4 Line Plot Analysis of Financial Performance (ROA)

Source: Author (2019)

For Mumias Company (6), the study established (figure 4.4) that there was a positive performance of return on assets between 2009 and 2012, with the performance of return on assets being negative from 2013 - 2018. This could be due to the mismanagement of assets hence no effective utilization of assets to generate profits for the company. For Unga Company (7), the results revealed that there was a positive performance of return on assets all through the study periods except in 2017 when the firm had a negative return on assets. However, the performance of return on assets has not been attractive enough based on the line plot. Ngoze, Bwisa and Sakwa (2013) indicated that for firms to improve their financial performance, they must manage financial risks that firms are majorly exposed to in the market. Based on the findings of this study, it is evident that the companies have not done enough practices to manage this risk since the financial performance has been on the decrease.

4.4 Diagnostic Tests

The main objective of the study was to determine the effect of financial risk exposure on financial performance of manufacturing firms listed at the NSE. The study sought to utilize secondary data. However, once data has been collected and coded, diagnostic tests was determined to ensure that the data fits the model of the study before answering the study hypotheses. Further, diagnostic tests sought to establish the appropriate model of the study using various tests. The tests had certain set statistical criteria that were met in answering the research objectives (Gelman & Hill, 2007). The diagnostic tests performed included autocorrelation test, unit root or stationarity test, normality test, heteroskedasticity test, multicollinearity test, Hausman test and test for random effects (RE).

4.4.1 Autocorrelation Test

Serial correlation test was determined to ensure that standard errors of the coefficients were smaller than they actually are and higher in higher R-squared. The null hypothesis stated that there is no serial correlation when p-value > 0.05 and alternative hypothesis stated that there

was serial correlation if p-value < 0.05. Wooldridge test for autocorrelation was used and the findings presented in table 4.2

The findings in (table 4.2) revealed that the p-value of 0.7855 was greater than 0.05. We therefore fail to reject the hull hypothesis and conclude that the data does not have first – order autocorrelation (Baum, 2006; Kohler & Kreuter, 2009).

Table 4.2 Test for Autocorrelation

Wooldridge test for autocorrelation in panel data H0: no first-order autocorrelation		
F(1,	6) =	0.081
	Prob > F =	0.7855

Source: Author (2019)

4.4.2 Unit Root or Stationarity Test

The test was performed to determine whether panel data variables were non-stationary and possess a unit root. The null hypothesis was that the data contains a unit root if the p-value > 0.05, and the alternative hypothesis was that the panel data is stationary if the p-value < 0.05. The test was performed using Harris-Tzevalis unit root test and the findings were presented in table 4.3.

Table 4.3 Unit Root Test/ Stationarity Test

Harris-Tzavalis unit root test for roa			
H0: Panels contain unit roots			Number of panels = 7
Ha: Panels are stationary			Number of periods = 10
AR Parameter: Common			Asymptotics: N -> Infinity
Panel Means: Included			T Fixed
Time trend: Not included			
	Statistic	z	p-value
rho	-0.0288	-7.2574	0.0000

Source: Author (2019)

Based on the findings as shown in (table 4.3), the study established that there was a p-value of 0.0000 which was less than 0.05. We therefore reject the null hypothesis of a unit root and conclude that the panel data was stationary (Harris & Tzavalis, 1999).

4.4.3 Normality Test

This test was conducted to establish whether the residual data was normally distributed. A p – value greater than 0.05 indicated normal distribution while a p – value less than 0.05 indicated that data was not significantly distributed. Null hypothesis stated that data was significantly normally distributed (when the p-value is > 0.05, reject alternative hypothesis and accept null hypothesis) while the alternative hypothesis stated that data was not significantly normally distributed (when p-value is < 0.05, reject null hypothesis and accept alternative hypothesis). Skewness/Kurtosis test for normality was used.

(Table 4.4) on normality test of the study was based on the residual variables of the study. Data findings indicated that the study had a skewness of 0.442 and kurtosis of 0.692 with a p-value of 0.05527 which is higher than or greater than a p-value of 0.05. As such that, the study determined that the null hypothesis of the normality test which indicated that data was significantly normally distributed (when the p-value is > 0.05, reject alternative hypothesis and accept null hypothesis) was accepted and alternative hypothesis rejected. This was based on the assumption as presented in the work of Shapiro and Wilk (1965). Therefore, data for the study was normally distributed.

Table 4.4 Skewness/Kurtosis Test for Normality

Skewness/Kurtosis test for Normality					
				-joint-	
Variable	Observation	Pr (Skewness)	Pr (Kurtosis)	Adj chi 2 (2)	Pro>chi2
Residual	70	0.442	0.692	16.31	0.0527

Source: Author (2019)

4.4.4 Heteroskedasticity Test

The test was performed to establish whether data was homogenous, where highly dispersion revealed problem of heteroscedasticity. Breusch – Pagan test/ Cook-Weisberg test was used. A p-value of greater than 0.05 showed no presence of heteroscedasticity (null hypothesis) while a p-value of less than 0.05 showed presence of heteroscedasticity (alternative hypothesis).

The findings in (Table 4.5) revealed that there was a chi of 1.60 and a probability or significant value of 0.2064 which is greater than a p-value of 0.05. We therefore fail to reject the null hypothesis of the study and conclude that there was no presence of heteroskedasticity. This implied that data for the study was significantly homogenous as explained by the work of White (1980) and Kim (2009).

Table 4.5 Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

Breusch-Pagan/Cook-Weisberg test for Heteroskedasticity
Ho: Constant Variance
Variable: Fitted values of Financial Performance (ROA)
Chi 2(1) = 1.60
Prob > chi 2 = 0.2064

Source: Author (2019)

4.4.5 Multicollinearity Test

This test was performed to investigate whether there existed correlation in the regression model among the independent variables of the study using Variance Inflation Factor (VIF). A good regression model should be free from correlation effects. VIF above 4.0 showed multicollinearity was a major problem (null hypothesis) while VIF less than 4.0 showed no presence of multicollinearity (alternative hypothesis).

The findings in (table 4.6) was used to reveal the variance inflation factor of each independent variables of the study as well as their overall mean VIF. Multicollinearity sought to determine that there was no correlation between independent variables of the study; that is, credit risk exposure, liquidity risk exposure and market risk exposure as measured by receivable turnover (RT), current ratio (CR) and degree of financial leverage (DFL) respectively. The study results revealed that the VIF for each independent variables of the study were far below recommended VIF of 4.0.

Credit risk exposure measured by RT had a VIF of 1.12, liquidity risk exposure measured by CR had a VIF of 1.08 while market risk exposure measured by ICR had a VIF of 1.04. The overall VIF mean was 1.08 (table 4.6). As such, the study findings established that there was no presence of correlation between independent variables of the study. Therefore, the alternative hypothesis which suggested that there exist no correlation in the regression model of the independent variables (VIF < 4.0, no presence of multicollinearity; accept alternative hypothesis and reject null hypothesis) was accepted and null hypothesis rejected (Decker, Krackhardt & Snijder, 2003; Zainodin, Noraini & Yap, 2011).

Table 4.6 Variance Inflation Factor Test for Multicollinearity

VIF Test for Multicollinearity		
Variable	VIF	1/VIF
Credit Risk Exposure (RT)	1.12	0.893
Liquidity Risk Exposure (CR)	1.08	0.924
Market Risk Exposure (ATR)	1.04	0.966
Mean VIF	1.08	

Source: Author (2019)

4.4.6 Hausman Test

The test was performed to determine the appropriate model between random effect (RE) and fixed effect (FE) model where REM was null hypothesis (H_0) while FEM was alternative

hypothesis (H_1). If p-value was less than 0.05, (H_1 was true) then FEM was chosen for the study while if p-value was greater than 0.05 (H_0 was true) then REM was effective or appropriate to use.

Table 4.7 Hausman Test for REM and FEM

	-Coefficients -			
	(b) fe	(B) re	(b-B) Difference	Sqrt (diag (v_b-V_B)) S.E.
Credit Risk Exposure (CR)	0.0139	0.0146	-0.0008	0.0029
Liquidity Risk Exposure (RTR)	0.0269	0.0232	0.0036	0.0097
Market Risk Exposure (ATR)	-0.0005	-0.0005	-5.99e-06	0.0000

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

Chi2 (3) = (b-B) ' [v_b-B) ^ (-1)] (b-B)

= 0.23

Prob>chi2 = 0.9727

Source: Author (2019)

As shown in (table 4.7), Hausman test was conducted to determine which between the random effect and fixed effect model fits the study. REM was considered the null hypothesis (H_0) while FEM was considered the alternative hypothesis (H_1) of the study. A p-value less than 0.05, (H_1 was true) indicated that fixed effect model (FEM) was fit for study while a p-value greater than 0.05 (H_0 was true) then REM was effective or appropriate to use for the study. The findings obtained established that the prob>chi2 of 0.9727 was greater than the recommended p-value of 0.05. As such, the study accepted the null hypothesis which indicated that if the p-values was greater than 0.5 (Choi, 1992) as shown in table 4.5, then the random effect model (REM) was the most appropriate for the study. Therefore, the model for the study was REM as indicated in Choi's (1992) research.

4.4.8 Testing for Random Effects

Testing for RE was determined using Breusch-Pagan Lagrange Multiplier (LM). LM was aimed to decide between RE regression and a simple ordinary least square (OLS) regression. The null hypothesis was that variances across companies were zero. That is, no significant differences across unities (panel data). Alternative hypothesis stated that there was significant differences across the units (panel data).

The Lagrangian Multiplier (LM) test for random effects in (table 4.8) established that there was a p-value of 0.0000 which is less than 0.05. As such we reject the null hypothesis and conclude that random effects is the appropriate regression for the study. That is, there is evidence of significant differences across companies, therefore we can run a random effect regression (Greene, 2008).

Table 4.8 Test for Random Effects

Breusch and Pagan Lagrangian Multiplier test for random effects		
Y [company1, t] + u [company1] + e [company1, t]		
Estimated results:		
	Var	sd = sqrt (Var)
Financial Performance	.0366	.1914
e	.0191	.1388
u	.0272	.1650
Test: Var (u) = 0		
	Chibar2 (0) = 46.59	
	Prob > chibar2 = 0.0000	

Source: Author (2019)

4.5 Model Fitting

To effectively fit the model for the study, random effects regression was established based on the appropriate model as determined to be random effect model (REM) using Hausman test, and the equation for the model was indicated as follows;

$$\gamma_{it} = \beta_0 + \beta X_{1it} + \beta X_{2it} + \beta X_{3it} + \alpha + \mu_{it} + \varepsilon_{it}$$

Where Y = Dependent variable: Financial Performance (ROA)

B0 = Constant

$B_1 – B_3$ = Coefficient of independent factors

X_1 = Credit risk exposure (RT)

X_2 = Liquidity risk exposure (CR)

X_3 = Market risk exposure (ICR)

μ_{it}= Between entity

ε_{it} = Within entity

i = Individual index, 1, 2, 3 …..n

4.5.1 Correlation Analysis

Correlation analysis aimed to determine the strength of the relationship between study variables. Therefore, this study applied Pearson correlation coefficient which is a measure of the strength of linear association that could exist between two or more variables in the study. In addition, this was determined to indicate the extent of degree of association between study variables; that is, financial performance measured by return on assets (ROA), credit risk exposure measured by receivable turnover (RT), liquidity risk exposure measured by current ratio (CR) as well as market risk exposure measured by degree of financial leverage (DFL).

The coefficient of correlation of the study ranges from -1 to +1. In cases where negative coefficient values estimated, there existed negative correlation and positive coefficient values implied that there was a positive correlation. In addition, a coefficient correlation value above 0.5implied a strong positive correlation while below 0.3 implied weak correlation among variables of the study.

The Pearson correlation summary (table 4.9) illustrate that the strength of the relationship between credit risk exposure measured by receivables turnover (RT) ratio and market risk exposure measured by interest coverage ratio (ICR) as independent variables, and financial performance measured by return on assets (ROA) as dependent variable of the study was significant at the 95% confidence interval, while that of liquidity risk exposure measured by current ratio (CR) was positively insignificant; that is, above significant level of 0.05. Thus, the correlation analysis to establish the strength of the relationship between independent variables and dependent variables of the study yielded a significant positive correlation coefficient value of 0.3386 for credit risk exposure (RT); insignificant positive correlation coefficient value of 0.1265 for liquidity risk exposure (CR); and significant positive correlation coefficient value of 0.2367 for market risk exposure (ICR).

Table 4.9 Pearson Correlation Coefficient Results

Pearson Correlation Coefficient Table					
Variables		**Financial performance**	**Credit risk**	**Liquidity risk**	**Market risk**
Financial performance	Correlation	1.0000			
	Sig. (2-tailed)				
	N	70			
Credit risk	Correlation	0.3386**	1.0000		
	Sig. (2-tailed)	0.0041			
	N	70	70		
Liquidity risk	Correlation	0.1265	-0.1839	1.0000	
	Sig. (2-tailed)	0.2968	0.1276		
	N	70	70	70	
Market risk	Correlation	0.2637**	0.2747**	-0.0252	1.000
	Sig. (2-tailed)	0.0217	0.0214	0.8357	
	N	70	70	70	70

*Correlation is significant at 0.01 level
*Correlation is significant at 0.05 level

Source: Author (2019)

Of the three variables of the study (table 4.9), the study established that credit risk exposure had the highest positive correlation with financial performance (ROA). The findings agreed with the findings of Olalare *et al*, (2018). Market risk exposure (ICR) came second with a positive correlation, however the correlation was weak, same as the positive correlation between liquidity risk exposure (CR) and financial performance (ROA) which had the lowest correlation coefficient value. The findings therefore disagreed with the findings of Ouma (2015) which stated that there is significant correlation between liquidity risk exposure and financial performance. Also, the study showed that there was a significant positive correlation between market risk and financial performance (table 4.9). The findings disagreed with the findings of Gatsi, Gadzo and Akoto (2013) who stated that there was inverse correlation between the variables.

4.5.2 Random Effects Regression Analysis

The study performed RE regression analysis to estimate the relationship between the independent variables of the study (credit risk exposure, liquidity risk exposure and market risk exposure) and the dependent variables of the study (financial performance) when pooled together using the estimated model. The analysis was basically performed so as to determine the degree of effect of independent variables of the study (credit risk exposure as measured by receivable turnover (RT), liquidity risk exposure as measured by current ratio (CR) and market risk exposure as measured by interest coverage ratio, ICR) on dependent variable of the study (financial performance as measured by return on assets, ROA). The findings were recorded.

(The table 4.10) presented the model summary of the RE regression model. From the results obtained after analysis using STATA, the estimated RE regression equation model was

$$Y = -0.0444 + 0.0146X_1 + 0.0232X_2 + 0.0005X_3$$

Table 4.10 Model Summary

Random-effects GL regression			Number of obs		= 70
Group variable: company1			Number of groups		= 7
R-sq:	within	= 0.1197	obs per group	min	= 10
	between	= 0.2137		avg	= 10.0
	overall	= 0.1648		max	= 10
			wald chi2(3)		= 9.43
corr (u_i, x)	= 0 (assumed)		prob>chi2		= 0.024

Financial performance	Coeff.	Std. Err.	z	p>/z/	[95% Conf.	Interval]
Credit risk exposure (RTR)	0.0146	0.0076	1.93	0.048	-0.0002	0.0294
Liquidity risk exposure (CR)	0.0232	0.0153	1.51	0.131	-0.0069	0.0532
Market risk exposure (ICR)	0.0005	0.0003	1.59	0.113	-0.0001	0.0012
_Cons	-0.0444	0.0893	-0.5	0.619	-0.2195	0.1306
Sigma_u	0.165					
Sigma_e	0.1388					
rho	0.5857	(fraction of variance due to u_i)				

Source: Author (2019)

The results obtained above (table 4.10) clearly illustrates that both independent variables of the study; credit risk exposure (RT), liquidity risk exposure (CR) and market risk exposure (ICR) have a positive regression coefficient values. An indication that the independent variables have varied positive effect on the dependent variable (ROA) of the study. However, the findings also showed that only credit risk (RT) had significant coefficient value while liquidity and market risk exposures have insignificant regression coefficient values. Additionally, the results further revealed that the coefficient value of the dependent variable (financial performance) shown as (Constant) in the table had a negative value. This could be due to the poor financial performance (ROA) that most companies considered in the study had experienced.

The study further established that credit risk exposure (RT) had a p-value of 0.048 which is less than the significance level of 0.05 recommended for the study. This suggested that the study accepted the alternative hypothesis of the variable that there is a significant positive

relationship between credit risk exposure (RT) and financial performance (ROA) of the listed manufacturing firms. The findings concurred with the study findings of Asare (2015) and Adjeitsey (2015) whose findings revealed a significant positive relationship between credit risk exposure (RT) and financial performance. The findings also established that liquidity risk exposure (CR) had a p-value of 0.131 which is greater than recommended p-value of 0.05. As such, results reveals that there is insignificant positive relationship between liquidity risk exposure and financial performance. This finding is not in line with the finding of Tabari, Ahmadi and Enami (2013) who stated that there is significant positive relationship between the variables. Lastly, the results from (table 4.10) showed that there is a positive insignificant relationship between market risk and financial performance ($p = 0.113 > 0.05$). The findings disagreed with the findings of Kassi *et al.,* (2019).

The interpretation of the findings from the table therefore could indicate that if all factors are held constant; that is, credit risk (RT), liquidity risk (CR) and market risk (ICR) exposures, the financial performance (ROA) of the listed Manufacturing firms would be valued at -0.0444. An indication that the listed Manufacturing firms have been performing dismally (poorly) over the years. However, when other factors are not held constant such as credit risk exposure (RT), liquidity risk exposure (CR) and market risk exposure (ICR), there would be a unit increase in the financial performance of the listed Manufacturing firms (table 4.10). That means, a unit increase in credit risk exposure (RT), liquidity risk exposure (CR) and market risk exposure (ICR) would result to a unit decrease in the negative financial performance (ROA) of the listed Manufacturing firms. However, only the positive effect of credit risk will be significant while those of liquidity risk exposure and market risk exposures will be insignificant.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary of the study findings, conclusion and recommendations which are based on the study conclusions. Also, areas for action and further research are discussed in the area of study.

5.2 Summary of the Findings

The study aimed to establish the effect of financial risk exposure on the financial performance of listed manufacturing firms at the NSE, with a special reference to the Nine (9) listed manufacturing firms. However due to inclusion and exclusion criteria that was set in the study, only 7 firms managed to fully satisfy all these criteria. As such, the study only took place in the seven companies whose data for 2009 – 2018 were fully available for use in data analysis. To ensure that data of the study was effective for fitting the model of study, a number of diagnostic tests were performed. The summary findings of the study were therefore based on each research objective as discussed below.

5.2.1 To determine the effect of Credit Risk Exposure on the Financial Performance of Listed Manufacturing Companies at the NSE.

The first objective of the study was to establish the effect of credit risk exposure on the financial performance of the listed manufacturing firms at the NSE. Based on the study findings using trend or plot analysis, the study established that the highest number of times it took the companies to collect their debt from their clients was witnessed by Unga Group Company (7). This means that overall, the company had the best average collection period in a year than other companies. The reflection of this finding is that the company managed to limit or manage risks such as credit risk that could be felt by the company as a result of bad debts or default risks.

Increase in the company's receivable turnover ratio therefore symbolizes that the company had a high sale than its competitors in that period.

A look at the findings on receivable turnover ratio in BOC Company (1) established that the company had a high receivable turnover ratio in the first year of the study period. However, there were mixed results over the study period, an indication that the company could have not have set a limit of its receivable turnover. The results also revealed that the receivable turnover of BAT Company (2) was not that bad. This implied that the company's trend of receivable turnover was somehow given attention by the bodies in charge of collecting debts from clients; with the highest of collection witnessed in 2011 while the range lied between 6 – 12 times. It was also evident that the credit risk exposure varies across the companies since some companies had better average number of collection days annually than others.

A correlation analysis was performed between credit risk exposure measured by receivable turnover ratio (RTR) and financial performance measured return on assets (ROA). This was aimed at estimating the strength of the relationship between these two variables (independent and dependent respectively). Based on the Pearson correlation results table, the study findings revealed that there was a significant positive correlation between credit risk exposure (receivable turnover ratio, RTR) and financial performance (return on assets, ROA) of the listed manufacturing firms at the NSE. Further, the findings also revealed that the correlation was the highest, such that there was a strong positive correlation between the two variables and within the recommended level of significance for analysis in the study.

Also, a regression analysis was determined to estimate whether credit risk exposure (receivable turnover ratio, RTR) have effect on financial performance (return on assets, ROA) of listed manufacturing firms at the NSE. This was achieved by establishing the relationship between the variables. Companies with lower receivable turnover ratio imply that their level of sales is

down, while those that have high receivable turnover ratio means that their level of sales is high since such companies are able to collect their debts/bills appropriate and at all time. As such, the study established that there was a significant positive relationship between credit risk exposure (receivable turnover ratio, RTR) and financial performance (return on assets, ROA) of listed manufacturing firms at the NSE. This was based on the established p-value between the variables which was lower than the recommended level, a sign that the relationship between the variables (credit risk exposure as measured by receivable turnover ratio and financial performance as measured by return on assets) was significant. Therefore, the study found out that there was significant effect of credit exposure on financial performance. This means that the study accepted the alternative hypothesis while rejecting the null hypothesis of the study.

5.2.2 To determine the effect of Liquidity Risk Exposure on the Financial Performance of Listed Manufacturing Firms at the NSE.

The study also sought to establish the effect of liquidity risk exposure on financial performance of listed Manufacturing firms at the NSE. Using the trend plot analysis, the study determined the liquidity level of each firm over the study period. Carbacid Company (3) had the highest liquidity level across the study period than any other companies. This could be as a result that the company was not able to balance its current assets and current liabilities. Nevertheless, it was also a sign that the firm had too much current asset which indicated that there was too much liquid cash in the company. Firms do not need to keep a lot of cash with them. Rather, organizations need to ensure that they invest their cash on liquid assets which can be easily converted into cash when their current liabilities fall due. Additionally, the study also indicated that BOC Company (1) and Unga Group Company (7) had a well-balanced current ratio over the study period. This therefore demonstrated that the firm paid attention to its current assets and current liabilities by ensuring that the available cash were invested in the liquid assets that can be easily converted to settle current liabilities in the company.

It was also evident that BAT Company (2) and EABL Company (4) had current ratio below the required level of two. This further indicated that these firms were able to balance their current assets and current liabilities over the study period. It means the companies were able to pay their short term debtors such as suppliers on time and as a result, invested the remaining cash in liquid assets. Eveready Company (5) also had a positive current ratio over the study period. However, it was only Mumias Company (6) which had a low liquidity for the better part of the study period. This could have been characterised by the fact that the company has been under financial challenges with the level of liabilities in the company increasing on a yearly basis. Further, the company has been experiencing losses which meant that it has not been able to meet its financial obligations such as paying short term suppliers in the company.

Correlation analysis was determined to indicate the strength of the relationship between liquidity risk exposure and financial performance. From the correlation analysis, the study established that liquidity risk exposure measured by current ratio (CR) had a positive correlation with financial performance measured by return on assets (ROA) of the listed manufacturing firms. Whilst liquidity risk exposure (CR) and financial performance (ROA) had a positive correlation, the strength of the relation was not strong. Suggesting that the correlation between the two variables (liquidity risk exposure and financial performance) was weak but insignificantly positive. Thus, there was insignificant positive correlation between the two variables.

Further, a regression analysis was conducted to show the extent of effect of liquidity risk exposure on the financial performance of listed manufacturing firms at the NSE by determining their relationship. The study findings established that there was a weak positive relationship between liquidity risk exposure and financial performance. This was effectively supported by the established higher p-value which suggested that the relationship was insignificant. As such, the study determined that there was insignificant positive relationship between liquidity risk

exposure (CR) and financial performance (ROA) of the listed manufacturing companies at the NSE. This implied that there was insignificant effect of liquidity risk exposure on financial performance. Therefore, the study accepted the null hypothesis which suggest that there is insignificant relationship between liquidity risk exposure (CR) and financial performance (ROA) and rejected the alternative hypothesis which hold that there is significant relationship between the two variables.

5.2.3 To find out the effect of Market Risk Exposure on the Financial Performance of Listed Manufacturing Firms at the NSE.

Market risk is the risk arising of potential loss owing to changes in market prices of values. Further, market risk implies the possibility of the occurrence of adverse effects on the companies' financial results and their capitals from changes in the value of financial income statement positions and statement of financial positions arising from changes of prices and interest rates in the market. The findings from the trend plot analysis presented the market risk exposure (interest coverage ratio, ICR) results of each company over the study period. It was established that most companies had a positive and a high ICR, meaning that the ability of the companies to meet their interest payment expenses was adequate. Also, it showed that most companies had a sound financial health (high operating profit) to settle their interest expenses. Also, it was established that Eveready Company recorded the lowest negative ICR, an indication the company recorded high operating loss during that period.

The study also did a correlation analysis to determine the strength of the relationship between market risk exposure measured by interest coverage ratio (ICR) and financial performance measured by return on assets (ROA) of the listed manufacturing firms at the NSE. The results revealed that there was a significant positive correlation between the independent and dependent variables of the study (market risk exposure (interest coverage ratio) and financial performance (return on assets) respectively. It was further established that of the three

variables, market risk exposure measured by interest coverage ratio (ICR) had the second most and significant positive Pearson correlation coefficient value compared to liquidity risk exposure. The correlation coefficient value was also below the recommended significant value, suggesting that there was significant positive correlation between market risk exposure and financial performance.

To determine the effect of market risk exposure (ICR) on the financial performance (ROA), a regression analysis was conducted. The study findings established that there was a positive insignificant relationship between market risk exposure (ICR) and financial performance (ROA). The positive relationship between the two variables was insignificant due to the high p-value of the study which was not within the recommended level of significance for the study. The p-value was higher than the recommended p-value. As such, the study accepted the null hypothesis which suggested that there is no significant (insignificant) relationship between market risk exposure (ICR) and financial performance (ROA) while rejected the alternative hypothesis which suggested that there is significant relationship between the two variables.

5.3 Conclusions

This section presents the conclusion of the study based on the research objectives. From the forgoing discussion and summary of the study findings, it can be concluded that credit risk exposure (RT) had a significant relationship with financial performance (ROA). However, both liquidity risk exposure (CR) and market risk exposure (ICR) had insignificant positive relationship with financial performance (ROA) of listed Manufacturing firms at the NSE.

5.3.1 Credit Risk Exposure (RTR) and Financial Performance (ROA)

The study concluded that when organizations manage their account receivables effectively by ensuring that the average number of debt collection period in a year is high, there is likelihood of such organizations increasing their sales or revenue hence having high financial performance

(ROA) than their competitors. Based on these findings in trend plot analysis, the study concluded that the management team of listed manufacturing firms need to understand that when credit risks that these firms could be exposed to in the market are managed effectively, there could be increase in the financial performance (ROA) of these companies, hence resulting to growth in the manufacturing sector of the economy.

The study also performed regression and correlation analysis. This was aimed at establishing the strength and the relationship between credit risk exposures (RTR) and financial performance (ROA). The study concluded that there was a strong and significant positive relationship between the two variables. This was supported by having a high correlation coefficient value and high regression coefficient value which were within the recommended p-value of the study, hence making the relationship significant. The study further concluded that the positive effect of credit risk exposure on financial performance may imply that when credit risk exposure is managed effectively in the organization, it may results to high sales which increases financial performance.

5.3.2 Liquidity Risk Exposure (CR) and Financial Performance (ROA)

From the discussion of the study, it was established that financial liquidity has remained a biggest challenge for many firms, not only listed manufacturing firms. While studies have shown that management need to balance their current assets (CA) and their current liabilities (CL), not all companies have managed to hold this principle. While having liquid cash may be good for the company, too much liquidity many mean that the company is not investing enough in assets that can easily be converted to cash if need be. As a result, the study concluded that when companies have too much unused cash in the company, it means the level of investment in liquid assets is low.

Based on the trend plot analysis, most companies had a high ratio of current ratio, a sign that some companies had too much current liabilities to settle with too little current assets. The study concluded that in such a scenario, it simply mean that the company could have over-borrowed short term liabilities with much focus on long-term investments, hence making it difficult for such companies to settle their bills/dues on time. Such challenges affect the financial performance (ROA) of the company and as a result, reduces the good relationship between the suppliers and the management of the organization. This is because, running day-to-day operations in the business require companies to have liquid cash. However, the level of cash available to the management need to be balanced on all occasions so as to ensure efficient usage of company resources.

Further, a Pearson correlation and regression analysis conducted on the liquidity risk exposure (CR) and financial performance established that there was an insignificant relationship between the two variables of the study. The study therefore concluded that when the management team of the companies manage their liquidity risks effectively, the level of risk exposure associated with current assets and current liabilities can reduce and as a result, leading to high financial performance. The study further concludes that liquidity risk exposure have insignificant positive effect on financial performance of the listed manufacturing firms at the NSE. This was based on the acceptance of null hypothesis and rejection of alternative hypothesis.

5.3.3 Market Risk Exposure (ATR) and Financial Performance

The study concluded that almost half of the companies considered under the study from the manufacturing sector had well-balanced or effectively managed market risk in terms of the performance established from the trend plot analysis. The study used interest coverage ratio (ICR) to measure the company's ability to meet its interest payments. The study therefore concluded that market risk remains one of the risks that companies cannot eliminate in the market since it remains undiversifiable. However, there is need for management to pay closer

look at the market performance and develop mechanisms that can be used to ensure that the changes in interest rates does not affect their operating profits negatively.

The study also concluded that of the three independent variables of the study, market risk exposure (ICR) had the second most positive regression and correlation coefficient values, an indication that it had an insignificant positive relationship with financial performance (ROA) of the listed Manufacturing companies at the NSE. This was based on the established significant level which was above the recommended p-value, hence concluding that there was insignificant positive relationship between market risk exposure (ICR) and financial performance (ROA). Variations in market risk exposure therefore caused insignificant positive changes in the financial performance (ROA). These findings were based on the Pearson and regression analysis of the study.

5.4 Recommendations

Arising from the conclusion, the study made the following recommendations.

5.4.1 Manufacturing Companies and Management of Other Companies

Management of manufacturing and other companies need to take note on the effective management of financial risk exposures that could affect financial performance (ROA) of their companies. The study recommends that manufacturing companies need to reassess their liquidity level so as to ensure that there is appropriate balance between current assets and current liabilities. Further, the study recommends that there is need for manufacturing companies to have effective lending policy that could stop them from being exposed to credit risks in the market. Lastly, the study also recommends that management need to ensure that they critically observe market changes and how these changes in the market might cause price fluctuations on their financial statements.

5.4.2 Policy Makers

Policies remain the benchmark for every companies that need to effectively operate at the Nairobi Securities Exchange. Operating in such environment require companies to have sound and good policies that could assist them in managing various risks such as credit risk, liquidity risk and market risks that they could be exposed to in the market. As such, the study recommends that policymakers need to critically analyse the market and make policies that can guide the operations of the business over time. And as such, good policies promotes accountability and transparency that improves the financial performance (ROA) of the listed manufacturing firms.

5.4.3 Academicians

To the academicians, the study recommends that more reviews should be done on financial risk exposure and financial performance of other listed companies at the Nairobi Securities Exchange (NSE) so as to provide future scholars with enough literature for the study.

5.5 Areas for Future Studies

The study further recommend that future study be undertaken on the financial risk exposures using other measures of various financial risks adopted in the study variables. The study recommended that a future study may consider using other financial performance measures like return on equity (ROE) or return on investment (ROI) so as to determine whether the level of consistency in research findings hold. There is also need for the studies to consider other companies listed at the NSE as potential area for research.

5.6 Limitations of the Study

The study targeted 9 listed manufacturing firms. However, only 7 companies met the inclusion criteria for study since they all have the data for the study period. The companies were also considered effective due to their ability to generate more revenues during the study period. The

study took ten (10) periods only (2009 – 2018) and therefore did not capture data before the year 2009. Additionally, the study was also limited to three independent variables; that is, credit risk exposure (RTR), liquidity risk exposure (CR) and market risk exposure (DFL) and did not include other financial risk exposures which may have been effective for the study. The study therefore established the effect of these independent variables on financial performance (ROA) of listed manufacturing companies.

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APPENDICES

Appendix 1: Data Collection Sheet

Year	Current Asset	Current Liability	Net Sales	Total Assets	Net Income	Account Receivables
2009						
2010						
2011						
2012						
2013						
2014						
2015						
2016						
2017						
2018						

Appendix 2: List of Listed Manufacturing firms at NSE as at June 2018

1. B.O.C Kenya Ltd ord 5.00
2. British American Tobacco Kenya Ltd ord 10.000
3. Carbacid Investments Ltd ord 5.00
4. East African Breweries Ltd ord 2.00
5. Mumias Sugar Co. Ltd ord 2.00
6. Unga Group Ltd ord 5.00
7. Eveready East Africa Ltd ord 1.00
8. Kenya Orchards Ltd ord 5.00
9. Flame Tree Groups Holdings Ltd ord 0.825

Appendix 3: List of 7 Companies with Data used for Analysis

1. B.O.C Kenya Ltd ord 5.00

2. British American Tobacco Kenya Ltd ord 10.000

3. Carbacid Investments Ltd ord 5.00

4. East African Breweries Ltd ord 2.00

5. Mumias Sugar Co. Ltd ord 2.00

6. Unga Group Ltd ord 5.00

7. Eveready East Africa Ltd ord 1.000

Appendix 4: Computed Raw Data for Analysis

Company	Year	Financial Performance (ROA)	Liquidity Risk (CR)	Market Risk (ICR)	Credit Risk (RTR)
B.O.C Kenya	2009	0.214	2.641	10.18823	7.09
B.O.C Kenya	2010	0.06	2.48	8.535914	3.694
B.O.C Kenya	2011	0.055	1.94	7.431317	3.93
B.O.C Kenya	2012	0.136	2.079	4.063083	4.331
B.O.C Kenya	2013	0.317	2.227	2.127826	4.355
B.O.C Kenya	2014	-0.095	2.139	113.9898	4.025
B.O.C Kenya	2015	0.03	2.064	12.51661	3.487
B.O.C Kenya	2016	0.034	2.284	9.769577	3.167
B.O.C Kenya	2017	0.01	1.954	1.495214	3.337
B.O.C Kenya	2018	0.015	1.884	13.74443	3.416
BAT	2009	0.367	0.916	17.7249	12.107
BAT	2010	0.273	0.995	11.54948	8.658
BAT	2011	0.402	1.307	26.12173	12.422
BAT	2012	0.426	1.178	14.58655	10.561
BAT	2013	0.385	1.256	19.1603	7.136
BAT	2014	0.4	1.249	23.06287	6.9
BAT	2015	0.43	1.451	14.38011	8.687
BAT	2016	0.4	1.413	21.06064	7.876
BAT	2017	0.286	1.318	10.85078	6.987
BAT	2018	0.343	1.591	18.38266	7.375
CARBACID	2009	0.007	10.625	8.710119	0.137
CARBACID	2010	0.213	5.786	8.63084	5.087
CARBACID	2011	0.211	8.843	5.365249	4.523
CARBACID	2012	0.207	4.258	4.911519	5.553
CARBACID	2013	0.226	10.089	5.301907	5.707
CARBACID	2014	0.184	6.296	5.718107	5.033
CARBACID	2015	0.143	4.511	3.033314	4.66
CARBACID	2016	0.124	7.088	1.777178	4.796
CARBACID	2017	0.137	7.013	2.863065	4.646
CARBACID	2018	0.093	9.428	2.154146	5.119
EABL	2009	0.27	1.691	186.7218	9.852
EABL	2010	0.19	1.494	67.021	7.784
EABL	2011	0.209	1.052	46.04398	7.093
EABL	2012	0.208	0.803	4.343107	7.279
EABL	2013	0.113	0.699	3.650016	6.865
EABL	2014	0.113	0.721	3.39195	7.326
EABL	2015	0.147	1.023	4.473226	7.655
EABL	2016	0.128	0.771	4.840671	6.219
EABL	2017	0.12	1.007	5.087202	6.535
EABL	2018	0.093	0.835	4.412258	8.219
EVEREADY	2009	0.005	1.506	2.558956	1.084

EVEREADY	2010	0.008	1.411	1.254738	7.005
EVEREADY	2011	-0.113	1.114	-53.4969	6.364
EVEREADY	2012	0.065	1.259	0.525841	7.532
EVEREADY	2013	0.043	1.54	2.432592	7.298
EVEREADY	2014	-0.19	1.334	0.970416	5.323
EVEREADY	2015	0.41	0.867	-2.21095	5.264
EVEREADY	2016	-0.162	0.454	-2.02567	3.957
EVEREADY	2017	0.294	2.695	26.58895	2.778
EVEREADY	2018	-0.166	2.532	-365.662	1.654
MUMIAS	2009	0.155	1.359	7.241786	6.924
MUMIAS	2010	0.088	2.002	6.909263	4.74
MUMIAS	2011	0.197	2.199	9.9552	4.393
MUMIAS	2012	0.08	1.264	13.45449	3.68
MUMIAS	2013	-0.053	0.84	-2.08419	2.864
MUMIAS	2014	-0.108	0.409	-4.66189	4.14
MUMIAS	2015	-0.214	0.188	-4.07114	2.708
MUMIAS	2016	0.074	0.177	-5.94264	4.867
MUMIAS	2017	-0.266	0.109	-0.36465	1.865
MUMIAS	2018	-0.76	0.029	-13.8806	2.119
UNGA GROUP	2009	0.018	1.838	7.528111	21.573
UNGA GROUP	2010	0.043	2.544	21.29316	13.033
UNGA GROUP	2011	0.081	2.524	52.42357	14.009
UNGA GROUP	2012	0.055	2.36	49.39666	11.258
UNGA GROUP	2013	0.078	1.843	44.51486	8.081
UNGA GROUP	2014	0.062	2.332	22.83344	9.149
UNGA GROUP	2015	0.073	2.369	3.463736	9.996
UNGA GROUP	2016	0.055	2.299	11.85641	9.629
UNGA GROUP	2017	-0.001	1.658	3.091885	8.654
UNGA GROUP	2018	0.08	2.142	14.02642	7.606