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

SPECIALIZATION: FINANCE

UNIT BAC 907

INDEPENDENT STUDY IN FINANCE

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NAME: BETTY CHEPNGETICH RUTO

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DECLARATION

This independent paper is my original work and has not been presented for a degree in any other university.

Signature…… Date……

BETTY CHEPNGETICH RUTO

This independent paper is submitted for examination with my approval as university supervisor.

Signature…… Date……

Dr. Ambrose Jagongo, (PhD) Kenyatta University, Kenya

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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

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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, 2018).

Financial performance: This is the subjective measure of how well a firm uses its assets to generate sales and enhance profitability (Ferreti, 2018)

Liquidity risk exposure: This is the risk associated with ability of the firm to pay its debt obligations when they fall due (Douglas, 2016).

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, 2017).

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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, 2019). One such challenge that has affected firms across the global business environment is the financial risk exposure (Chen & Pan, 2016). 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, 2019). 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, 2019).

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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, 2017). 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 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 (Brown & Waller, 2016).

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, (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 2017) and (Adjeitsey 2019) in their studies both identified credit

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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 had exceeded 20% in the top 60 largest global economies. However, financial risks still present major challenges (Kerr, 2020). The level of technological change and competition means market risk remains an indicator of financial risk. (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 (Gathungu & K'Obonyo, 2016).

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This study looks at the credit, liquidity and market risk exposures. In addressing whether the credit risk affect financial performance, the study will employ 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 will include current assets and current liability in measuring liquidity risk. It will highlight whether the company has enough liquid assets to settle their short term liabilities when they fall due, using current ratio (Asare, 2015). Lastly, interest coverage ratio will be 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 maximize their profits.

When interest rate increases, it puts more pressure to the manufacturing companies, which in turn result to loan default (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 analyzed the best measures of organizational financial performance.

Different financial performance measures will be 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 will test all these measures individually with independent variables of the study to determine their relationship.

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 will further provide 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.

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

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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 will use 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 have 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

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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).

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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).

1.2 Statement of the Problem

Declining returns and repeated losses reported by manufacturing firms listed at the Nairobi Stock Exchange have resulted in a slow growth by individual sectors as well as overall national economic growth. Poor financial performance has been attributed to cycles of financial distress problems affecting firms under manufacturing sectors in the recent past. KNBS Economic survey (2019) confirms a declining trend on the market capitalization of firms listed at NSE. In the year 2017 alone, ARM and E.A Cables losses after tax rose by 134% and 14% respectively. Additionally, Eveready East Africa and Mumias sugar Company losses hit the highest increase in the year 2018 at 144% and 375% respectively. Identified knowledge gaps prompted the study to mainly determine the effect of poor financial performance as measured in terms of risk exposure on financial performance of selected firms listed at NSE.

Positive financial health and sustainability are strategic objectives that ensure firms to promptly meet their financial obligations and enhance loyalty among stakeholders (Wesa & Otinga, 2018; Altman & Hortchkiss,2010). However, financial distress in terms of risk hinders the achievement of such goals to portray an overall poor performance of a firm (Bender,2013).NSE annual bulletin (2016) reports of Kenyan listed corporations that have been subjected to either statutory management, financial restructuring or delisted from NSE due to financial distress since the establishment of NSE.

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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 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 exists a gap that need to be filled. Hence, this study sought to provide clarity on the effect of risk exposure of the financial performance of listed companies in Kenya.

1.3 Research Objectives

1.3.1 General Objective

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

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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.

iv) To establish the firm size and its effect on financial performance of manufacturing firms listed at the NSE.

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1.4 Research Hypotheses

H_{01}: Credit Risk Exposure has no significant effect on financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

H_{02}: Liquidity risk exposure has no significant effect on financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

H_{03}: Market Risk Exposure has no significant effect on financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

H_{04}: Firm size has no significant effect on financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

1.5 Significance of the Study

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1.5.1 Management of Manufacturing Firms

The study will allow 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 will provide 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 will provide additional literature review for future research.

1.6 Scope of the Study

The study will focus on the relationship between risk exposure and financial performance of manufacturing firms in Kenya and will be delimited to all firms listed in the Nairobi Stock Exchange. Manufacturing firms were chosen because it 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). Their inclusion in the Kenya Vision 2030 economic blueprint as drivers of economic growth shows the importance the government has placed on the contribution of manufacturing firms towards economic growth. The study will cover a period of five years between January 2016 and December 2020. The period was chosen because period below five years, either the study problem at hand has been overtaken by events or a solution to the problem has already been found by previous researchers.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This part of the study gives a 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.

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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 result 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.

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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

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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 decision 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.

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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 result 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

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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 Their inclusion in the Kenya Vision 2030 economic blueprint as drivers of economic growth shows the importance the government has placed on the contribution of DT-SACCOs towards economic growth. The study will cover a period of five years between January 2016 and December 2020. The

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period was chosen because period below five years, either the study problem at hand has been overtaken by events or a solution to the problem has already been found by previous researchers

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.

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Masinde (2017) completed 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 study will utilize a graphic study investigate plan. The study will utilize 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

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banks. The outcomes got likewise demonstrated that bank size, influence and development were additionally decidedly interlinked with one another.

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. Kuma 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.

Muturi and Waweru (2016) assessed the effect of market risk on financial performance of commercial banks in Kenya. The study will adopt 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 will be 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 will use 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

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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 will be 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 will be determined to show the relationship between the study variables.

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.

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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.

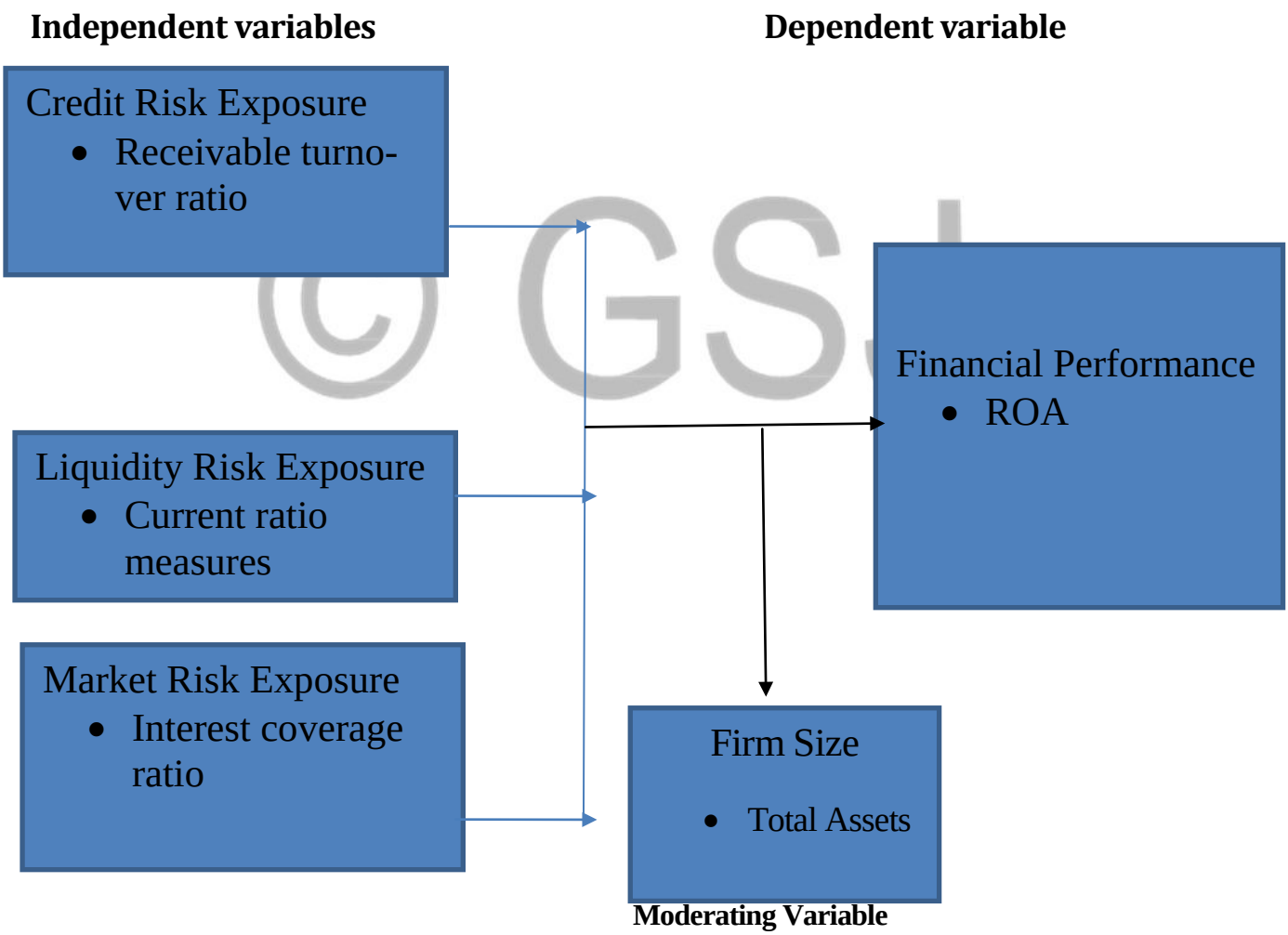
2.4.3 Market Risk Exposure

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.

Conceptual Framework



Source: Author (2022)

Figure 2.1 Conceptual Framework

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2.1 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 (2022)

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CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This section gives the system and strategies that will be utilized in the study. It lays out the means and techniques that will be utilized to accumulate information for the study with the objective of tending to inquire about objectives and research questions. The chapter discusses 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 measurable research questions. The study will adopt a descriptive research design. This type of research design is quite useful since it provides causal effects of independent variables on dependent variables of the study. In short, it tends 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.

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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 will be the listed manufacturing firms at the NSE. The 9 listed firms formed the accessible target population. 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 will use 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 will be data collections sheets which was used to obtain other additional information regarding the research objectives. Data collection forms are considered 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

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analysis will be determined to show the performance of the study variables over-time. For this study, data collected will be investigated by the utilization of inferential analysis with the aid of STATA programme. Different models will be 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 λ t for time in regression equations as shown below;

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

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

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

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

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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 study is that the information for examination will be 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 will be performed to decide the fittingness of the information for making inferences for the examination (Field, 2009).

Normality Test

This test will be 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 indicates that data is not significantly distributed.

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

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

Heteroskedasticity Test

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

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

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

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Multicollinearity Test

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

Null hypothesis: if the p-value is >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 is < 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 showwhether 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 is 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 aims to establish which between RE and simple OLS regression is good for the study.

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