EFFECT OF LIQUIDITY RISK ON FINANCIAL PERFORMANCE OF MANUFACTURING FIRMS LISTED ON THE NAIROBI SECURITIES EXCHANGE
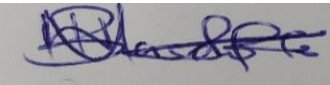
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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES, UNIVERSITY OF NAIROBI

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DECLARATION

This research project is my original work and has not been presented for a degree at any other University.

Signed…………………………………… Date: **15-11-2022**

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This research project has been submitted for examination with my approval as University Supervisor.

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DEDICATION

I wish to dedicate this work to my husband for the moral support and encouragement throughout my years of study, my son for his patience, my mother and parents in law for their prayers and encouragement, and my late father who I wish could live to see me accomplish this task.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

EOQ : Economic Order Quantity

EPS : Earnings Per Share

GDP : Gross Domestic Product

KAM : Kenya Association of Manufacturers

NSE : Nairobi Securities Exchange

OLS : Ordinary Least Squares

ROA : Return on Assets

ROCE : Return on Capital Employed

ROE : Return on Equity

ABSTRACT

The manufacturing industry is one of the significant sectors of Kenya's economic development. However, the manufacturing sector has witnessed a slow pace of industrial growth and weak performance by most of the enterprises that has derailed the contribution to Kenya's economy. In recent years, companies quoted in the manufacturing segment at NSE have posted mixed outcomes. The majority of the quoted manufacturing companies' market share reveals a drop in shares' prices resulting in a reduction in the entities' market capitalization. In addition, most companies, such as the Flame Tree Group and the Unga group have recorded very strong negative percentages for their ROA and ROE. This research sought to investigate how liquidity risk influences the financial performance of listed manufacturing firms at the NSE. The independent variable for the research was liquidity risk, measured as the ratio of current liabilities to current assets. Leverage, firm size, and management efficiency were the control variables, while the dependent variable was financial performance measured using ROA. The research was guided by Miller Orr theory, the Baumol cash management model, and the liquidity preference theory. The research made use of descriptive research design. The 9 Kenyan-listed manufacturing firms as at December 2021 served as the target population. The study utilized secondary data from CMA and individual firm's annual reports for five years (2017-2021) on an annual basis. Descriptive, correlation, as well as regression analysis were undertaken and outcomes offered in tables followed by pertinent interpretation and discussion. The research results generated a 0.393 R square value implying that 39.3% of changes in listed manufacturing firms' ROA can be described by the four variables chosen for this research. The multivariate regression analysis further revealed that individually, liquidity risk exhibited a negative effect on ROA of listed manufacturing firms as shown by (β=-0.283, p=0.042). Leverage possess a positive though not significant impact on ROA of listed manufacturing firms (β=0.112, p=0.522). Firm size unveiled a positive but not significant influence on ROA of Kenyan-listed manufacturing firms (β=0.210, p=0.122) while management efficiency exhibited a positive and significant influence on ROA of Kenyan-listed manufacturing firms (β=0.484, p=0.000) respectively. The research recommends the need for listed manufacturing firms to warrant that liquidity risk management policies are crafted based on appropriate strategies for performance enhancement. The policy developers like CMA ought to formulate policy guidelines to direct firms on ways to enhance the efficiency of management. The research recommends the need for further studies focusing on other listed firms at the NSE.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Liquidity and financial performance are crucial for business survival and development; hence, the capability to deal with the trade-off between them is an area of concern among financial managers (Li et al., 2020). There is a trade-off between liquidity and profitability, so companies need to recognize the trade-offs and understand and implement approaches that consider them (Niresh, 2012). Aggressive investment in short-term assets adversely influences the entity's profitability and directly affects the corporation's liquidity (Costa et al., 2016). Liquidity risk emanates from the institution's inability to cope with uncertainties caused by changes in the company's cash flows and, like any other financial risk, adversely affects the organization's profitability. Effective management of liquidity risks is essential for a company's growth and profitability. Therefore, adequate liquidity risk management is a vital goal for all corporations to prevent insolvency and bankruptcy (Dadepo & Afolabi, 2020).

The key theories guiding this study are the Miller Orr theory, the Baumol model of cash management, and the liquidity preference theories. The Miller-Orr model indicates that cash balances are maintained to meet business needs, at the same time, investments in marketable securities provide collateral as a liquid source and may have the opportunity to profit from unexpected transactions such as speculation (Costa et al., 2016). The Baumol's Model states that an enterprise must be able to convert its liquid financial assets into cash without experiencing substantial transaction costs to determine its required cash balance during ordinary corporate events (Moraes & Nagano, 2014). The liquidity preference theory indicates that cash serves as the most liquid asset for operations, therefore,

companies are required to hold cash to run their entities hence the necessity to have cash since there is no perfect coordination between cash disbursements and cash receipts (Abioro, 2013).

The Kenyan manufacturing industry is considered a key sector, under the BigFour Agenda, which is embedded in the realization of Kenya's objective of attaining Vision 2030. However, the Kenyan manufacturing sector's growth pattern remains volatile. The financial performance disclosed by listed companies has a declining trend, with 18 of the 65 listed companies issuing profit warnings in the 2018 fiscal year (Okonji, 2019). Since 2015, several Kenyan manufacturing companies have shut their firms owing to inefficiencies, while other firms have relocated their production facilities to other nations. Various corporations have also reduced their production capacity, adversely impacting the manufacturing companies' financial performance (Oeta, Kiai & Muchiri, 2019).

1.1.1 Liquidity Risk

Liquidity risk designates the threat an entity may not be capable of fulfilling its current financial needs as much as possible (Matar & Eneizan, 2018). It entails the exposure that a company may fail to address its present and prospective revenue requirements. This risk generally refers to a corporation's low financial capacity to fulfill its commitments because they remain unpaid or due without adversely affecting its operations (Effiong & Ejabu, 2020). The risk usually occurs when an entity needs immediate cash and holds a valued asset at hand, but is unable to sell or trade at the existing market price due to market failure or lack of buyers (Zimon et al., 2022). Liquidity risk, therefore, arises from changes in current liabilities and assets and current components of non-current liabilities and assets.

Liquidity risk significantly affects an entity's asset base and performance and thus is a key aspect that requires consideration when planning an investment (Raykov, 2017). Management of liquidity risk enables a company to meet its obligations and increase its survival by reducing the likelihood of adverse financial exposure (Zimon et al., 2022). The company needs to effectively manage liquidity risk to prevent future insolvency (Vu, Truong & Dinh, 2020). Companies cannot attain profit maximization when there is poor management of liquidity risk, which can lead to legal and technical insolvency with consequent low stakeholder support, loss of discount incentives from raw material suppliers, risky borrowers and creditor relationships, employee turnover and loss of assets (Demirgüneş, 2016).

The current and quick ratios are the most used measures of a firm's liquidity (Yameen, Farhan & Tabash, 2019). The current ratio is determined by the ratio of short-term assets to short-term liabilities. This indicator measures a corporation's potential to realize its near-term current obligations (liabilities) using its total short-term assets. The quick ratio is an measure of the availability of manageable liquid assets, which remains within the current financial management. This ratio is the proportion of short-term assets less inventories to short-term liabilities (Raykov, 2017). The current ratio is the utmost popular liquidity ratio based on current assets available to cover short-term liabilities (Demirgüneş, 2016). The operationalization of liquidity risk used the reverse of the current ratio (division of current liabilities with current assets) in this study.

1.1.2 Financial Performance

Financial performance essentially portrays a corporate sector's outcomes and represents the general segment's financial position in a specific period. It depicts how effectively a

business unit uses its assets to enhance shareholder capital and return (Naz, Ijaz & Naqvi, 2016). It indicates the manner a firm can employ its most essential process assets to make profits. It reflects the well-being of the corporation and, in the long run, its continued existence (Abd-Elmageed et al., 2020). Financial performance depicts a corporation's capacity to make profits relative to its aggregate assets, sales, equity, and shows how efficiently the company manages its resources to get income, which is a focus for corporate stakeholders (Alhassan & Mamuda, 2020).

Financial performance is essential for any company's survival and the continuing support of future and current investors, stakeholders, and creditors (Saidu & Gidado, 2018). Performance is the key characteristic that determines the competitiveness, business potential, management's economic benefits, and the presence of prospective suppliers (Adegbie, Akintoye & Alu, 2019). A higher financial performance portrays that the firm is effectual and operative in using funds and then contributing at a macro level to the economies of countries (Matar & Eneizan, 2018). Good company performance plays a key part in raising the entity's market value and towards industry growth, which eventually leads to overall economic prosperity (Widyastuti, 2019).

Financial performance is operationalized by assessing profits, growth of sales, production capacity, and the use of financial and investment resources (Arief, 2021). Performance measures are the basis for evaluating the financial performance of a business organization. An organization's performance can be measured through, among other things, ROE, ROA, and EPS (Naz, Ijaz & Naqvi, 2016). The commonly used indicators are ROA and ROE. ROA is a profitability metric that computes the potential return on a business or investment. ROE reveals the company's after-tax profit compared to the total shareholder capital found

on the balance sheet (Saidu & Gidado, 2018). ROA was the financial performance measure for this study.

1.1.3 Liquidity Risk and Financial Performance

The financial performance-liquidity interconnection is a significant area in corporate finance. The profitability-liquidity trade-off principle supports that, operational management of a company's liquidity is very important for maintaining the safety and welfare of their operating systems to a degree that they can meet their fiscal commitments with less difficulty (Musah & Kong, 2019). The Baumol cash model indicates that cash is the most liquid asset, so holding an optimal cash balance significantly impacts a corporation's performance (Wang et al., 2016). The Miller and Orr (1961) theory suggests that business units may determine the upper limit and return point of cash balances that affect a firm's financial performance. Liquidity preference theory argues that the choice between cash balances and other asset classes lies in the area of investment and consumption decisions, which ultimately affect corporate profits (Baafi et al., 2020).

Empirically, Sanghani (2014) investigated liquidity and its impact on NSE non-financial firms' financial performance and revealed that liquidity positively affected the firms' profitability. Waswa, Mukras and Oima (2018) examined how liquidity management affected Kenyan sugar firms' performance and revealed a negative interrelationship. In Ghana, Li et al. (2020) explored the liquidity and performance of listed non-financial firms and revealed a negative interrelationship while Etale and Bingilar (2016) examined liquidity management and performance among Nigerian food companies and revealed a positive relationship between the constructs. Zimon et al. (2022) examined the liquidity

management strategy of construction firms in Poland and revealed an inverse interrelationship.

1.1.4 Listed Manufacturing Firms at the Nairobi Securities Exchange

Kenya's manufacturing companies are a major pillar of resource allocation (Oyiro, 2017). The manufacturing industry encompasses companies involved in the mechanical, chemical, or physical conversion of raw materials, components, or substances into novel products. The Kenya Manufacturers Association (KAM) is the main representative body for Kenyan industrial firms. KAM is a representative organization for industrialists, acting as a common voice for the industry and providing essential links for government cooperation, dialogue as well as understanding (Okonji, 2019). NSE quoted manufacturing entities include; BAT, Carbacid Investments, Mumias Sugar, EABL Unga Group, B.O.C Kenya, Kenya Orchards, Flame Tree Group and Eveready East Africa.

The manufacturing industry is the fourth leading sector in the Kenyan economy and accounts for 8.4percent of Kenya's GDP. The sector also directly or indirectly provides jobs and livelihoods for millions of Kenyans (Nyamongo, 2019). The sector's overall goal is to raise its input to the GDP by 10% annually. The sector is further projected to increase its regional market share from 7% to 15% and interest at best ten major strategic stakeholders in key market-oriented agricultural sectors (Kinyua, Wafula & Kimani, 2022). However, in Kenya, despite the government's commitment to increase production, most companies saw a decline in performance, with financial managers focusing on financial restructuring and liquidity management.

Listed Kenyan manufacturing companies are going through difficult times, which poses a significant challenge to their financial results and their liquidity levels (Kinyua, Wafula & Kimani, 2022). While companies such as British American Tobacco and the East Africa Breweries have performed well and have maintained high liquidity for years, others like Mumias sugar, Eveready East Africa and Unga group are performing poorer marked and poor liquidity levels in some years the current liabilities exceeding their current assets (Okonji, 2019). Reports of the economic survey according to KNBS of 2020 and 2021 depict a declining financial performance trend, which has adversely affected their liquidity levels and increased liquidity risk. In 2016, statistics show that the average profit from listed manufacturing companies was 31%, while in 2017 it decreased to an average of 21.4% (Oeta, Kiai & Muchiri, 2019).

1.2 Research Problem

Profitability and liquidity largely remain the most significant topics in corporate finance studies (Raykov, 2017). Liquidity risk management makes certain that an entity has the capacity to meet current commitments and ensures that the company can achieve returns that exceed its costs (Hamid & Akhi, 2016). Profit maximization is every company's ultimate objective. However, an excessive focus on profitability can trap a company by diluting its liquidity position. As a result, liquidity and profitability goals are contradictory in most decisions made by CFOs (Niresh, 2012). In addition, liquidity risks frequently deteriorate the entity's fiscal state and accelerate bankruptcy. High liquidity risk also makes it difficult for a business to achieve its obligations forcing it to pursue debt funding to sustain its operations (Dadepo & Afolabi, 2020).

The manufacturing industry is one of the significant sectors of Kenya's economic development (Okonji, 2019). However, the manufacturing sector has witnessed a slow pace of industrial growth and weak performance by a majority of the enterprises, which has derailed the contribution to Kenya's economy. In recent years, companies quoted in the manufacturing segment at NSE have posted mixed outcomes. For example, in 2018, the Eveready East Africa and Mumias Sugar losses peaked at 144% and 375%, respectively (Kangogo & Irungu, 2020). The majority of the quoted manufacturing companies' market share reveals a drop in shares' prices resulting in a reduction in the entities' market capitalization. In addition, most companies, such as the Flame Tree Group and the Unga group, have recorded very strong negative percentages for their ROA and ROE (Kinyua, Wafula & Kimani, 2022).

From an empirical viewpoint, Effiong and Ejabu (2020) examined how liquidity risk management affects Nigerian consumer good financial performance and revealed a significant and positive interrelationship but the context of the study was not manufacturing entities. Demirgüneş (2016) examined liquidity and its effects on Turkish Retail Industry profitability and revealed a substantial positive link but the research focused on retail firms whose liquidity risk differs with manufacturing entities. However, Azhar (2015) in India, examined liquidity and profitability among power distribution entities in India and discovered an insignificant link between liquidity ratio and profitability though the study's context was power utility firms.

Several studies have also been undertaken in Kenya. Oyiro (2017) for instance, examined liquidity risk determinants among NSE listed manufacturing companies and revealed that inventory turnover and inflation positively affected liquidity risk while company size and

debtor turnover had an inverse link. Okonji (2019) explored liquidity risk and its effects on stock returns among NSE listed firms and revealed a negative interrelationship though the dependent variable was stock returns. The reviewed studies show that various studies exist on the liquidity – financial performance interrelationship. These studies have been undertaken using different variable measures, through different methodologies and undertaken in various contextual settings making it hard generalizing the conclusions to this study's context. Furthermore, the findings oscillate from negative to positive interrelationships that can be attributed to the different context they were undertaken as different sectors have different liquidity requirements. These observations open an interesting empirical gap which this research pursued to assess by examining, the effect of liquidity risk on financial performance of quoted manufacturing corporations in Kenya.

1.3 Research Objective

To determine the effect of liquidity risk on financial performance of manufacturing companies quoted at the Nairobi Securities Exchange.

1.4 Value of the Study

The study's results could be useful to the management of listed manufacturing corporations to come up with suitable decisions about liquidity risk and strategies to manage liquidity risks to enhance the entities productivity. The administration of the listed manufacturing firms can use the research inferences and recommendations to develop suitable liquidity risk mitigation approaches to enhance their corporations' financial performance.

The findings will also benefit to policymaking entities like the capital markets authority, the Nairobi securities, the Kenya Association of Manufacturers and the government

agencies tasked with policy formulation concerning listed manufacturing firms. Various policymakers and regulators can utilize the conclusions and recommendations of the research to formulate strategic policies to mitigate the liquidity risk and the manufacturing companies' profitability.

Finally, the findings will supplement the available empirical literature on liquidity, liquidity risk, and financial performance and theoretical literature on the Miller-Orr model, the Baumol theory of cash management, and the liquidity preference theory. The paper shall also form a base for upcoming researches as well the forthcoming scholars can adopt the study to set a base for their individual studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This part presents the reviewed study theories, the various financial performance determinants, and a review of previous studies in the empirical review section. The section further presents the conceptual model and summary of the reviewed literature.

2.2 Theoretical Review

The Miller Orr theory, the Baumol cash management model, and the liquidity preference theory guided this study.

2.2.1 Miller-Orr Theory

Miller and Orr's (1966) theory is a cash equilibrium model that deals with the outflows and inflows of cash that oscillate randomly on a daily basis. This model enforces a lower and upper limit that triggers sell or buy activities to bring cash balances to an equilibrium point. Thus, it limits cash movement up and down to acceptable limits (Wang et al., 2016). This theory permits an entity to establish a minimum limit and at the same time define a maximum limit as well as a normal cash requirement. The theory indicates that the institution would sell or buy securities for cash to bring its cash requirements back to the average point. In the case the cash requirements, reach the maximum limit, the institution purchases stocks to decrease the cash requirement to the average level. Correspondingly, if the cash requirement stretches to the minimum limit, the institution sells stocks to obtain an appropriate balance of cash (Abioro, 2013).

Miller and Orr (1966) indicate that cash outflows and inflows are random, with an optimal cash requirement being a function of the minimum total cost. The model presumes

aggregate cash flows are normally distributed with mean and zero standard deviation. The theory integrates further realistic conventions about the cash flows uncertainty via a return point which is depended on conversion costs, daily resource opportunities and changes in daily net cash flow (Wang et al., 2016). This model aims at achieving a reasonable level of realism while not too complicated (Costa et al., 2016).

Miller and Orr (1966) put forward a theory that satisfies cash flows randomness while considering the presence of two assets mainly cash and investments, the latter being a variant of high liquidity and lower risk (Moraes & Nagano, 2014). This theory explains cash balance as unequal volatility, characteristic of a random indicator, and recommends a non-probabilistic approach for managing cash balances. In this study, the theory supports that whenever manufacturing firms cash balance falls below the lower limit, a redemption (conversion of the investment amount to cash) is necessary to restore the liquidity of the manufacturing company, and whenever cash balance is over the maximum limit, a portion of the resource becomes necessary, thus preventing a liquidity surplus.

2.2.2 Baumol's Model of Cash Management

Baumol (1952) developed this theory to maintain and reduce the cash holding opportunity cost and the business cost of translating other assets into cash flows. The theory assumes that companies hold a number of highly-liquid assets or securities in the market that can be easily convert into cash. The theory postulates that cash balance may be considered as inventory. Under the model, as improved from EOQ to incorporate optimization of cash, the optimal cash balance is expressed as a function of the interrelationship between transaction and opportunity costs. The theory indicates that transaction costs increase when

12

a corporation requires selling securities to accrue cash; while the opportunity cost increases with the presence of a cash balances because it is nonrevenue (Moraes & Nagano, 2014).

This theory is a cost analysis model concerned with maintaining an optimal cash balance where the opportunity cost arises from the rate of interest that a firm fails to receive for not using the assets and the cost of raising cash to convert savings into cash (Costa et al., 2016). The key limitation of this model is that it focuses on reducing overall costs in the case of discrete time and fails to account financial managers risk preferences. In addition, the impact of stock risk on decision-making is completely ignored. Moreover, the model has other flaws, such as; the model's assumption that the corporation maintains consistent cash flows is largely unrealistic because the payout ratio varies. The model further presumes that an entity will not collect any cash during the identified time-period (Wang et al., 2016).

The theory holds that the most liquid asset item is cash and the key required input to ensure that the entity is operational, and further the expected end product of the business and the sale of services or products produced by a company. Therefore, management of cash is essential in every business entity, since cash is considered the lifeblood of every business (Abioro, 2013). In this study, this theory supports that management of liquidity should ensure ensuring satisfactory cash balances and other short-term assets, like accounts receivable and inventory. The theory indicates that if the level of liquid resources is inadequate, it raises the corporation's operational and liquidity risks. Therefore, manufacturing firms should optimal working capital assets to reduce liquidity risk due to the liquidity-profitability tradeoff.

2.2.3 Liquidity Preference Theory

Keynes (1936) conceptualized this theory, which holds that the demand for cash as a resource is determined by the interest rate lost by for not investing in bond securities. Keynes considered money to be the most liquid asset and indicated that the faster an asset is changed to cash, the more liquid it is (Abioro, 2013). According to the model, the need for liquidity is explained by three key motives; the transaction motive – under which individuals desire liquidity to secure ordinary transactions, the precautionary motive – under which individuals prefer cash in the event of unexpected social difficulties. Finally, there is the speculative motive - where individuals maintain cash to speculate that security prices will change and they benefit from any arbitrage profits (Baafi et al., 2020).

The theory states when companies trade long-term securities, investors will mostly demand higher rates of interest. This action regularly inclines to high risk since, all other factors unchanged, corporate investors choose to hold liquidity or cash. Based on this model, rates of interest on short-term investment securities is normally low since corporate investors buy assets in long- or medium-term investment securities, thus forfeiting less liquidity. The premise of the model is that mostly liquid investments in a company are easier to sell at full value (Abioro, 2013).

This theory proposes that all other things being equal, most investors will desire to invest in liquid investments to investments that are said to be marketable for cash, that is, illiquid investments and will pursue an investments premium that extend beyond their maturities (Baafi et al., 2020). In his study, this theory explain why firm hold liquid assets. The theory explains that firm often use liquid assets because they also avoid highly liquid investment companies by hiding their money in highly liquid investment companies, thus making it

difficult for investors to invest as highly liquid companies are exposed to financial risks related to their poor financial position. Therefore, a firm's intention to achieve high liquidity, as the theory suggests, can expose companies to higher liquidity risk and can reduce performance.

2.3 Determinants of Financial Performance

Various factor including liquidity, leverage, size, age, ownership, management efficiency as well as macro and industry related factors that affect financial performance been identified in literature by various authors. Capital and labour intensity characterize manufacturing sector necessitating high liquidity, effective management of operations and as well as diversified firm size to provide adequate capital. Thus, liquidity risk, financial leverage, management efficiency and firm size were examined as the key factors influencing firms' financial performance.

2.3.1 Liquidity Risk

Liquidity risk indicates the possibility that an entity may not have the capability to pay its present debt at maturity (Zimon et al., 2022). Liquidity risk is an important indicator of past financial performance. In many studies, it is often considered as a key variable related to firm performance. Due to unpredictable factors leading to funding depletion, many companies find that they do not have enough funds to fulfill their due assignments. Severe cases have resulted in the closure of several companies. Liquidity risk evaluates the failure to raise sufficient funds owing to the high cost of switching to liquidity, which may affect an entity's current and future income (Arief, 2021).

A company needs to make sure that it has enough liquidity to satisfy its current commitments. However, the challenge in managing liquidity is to strike the necessary balance liquidity and profitability. The greater a corporation's liquidness, the more funds it has available to fund investments and operations, so investors' perception of performance will also increase (Widyastuti, 2019). Maintaining liquidity and suitable management of liquidity risk controls an entity's progress and financial performance. A business must retain an appropriate level of short-term resources, as insufficient working capital is detrimental to the smooth functioning of the organization, to maintain liquidity (Zimon et al., 2022).

2.3.2 Financial Leverage

Leverage indicates the degree to which a business or investor uses borrowed money. Leverage is an indicator of how well a corporation uses debt to fund its assets and increases as debt increases (Rehman, 2013). High interest payments accompany high levels of financial levels hence, the bottom line of companies is adversely affected. The leverage effect can take the form of a loan or another loan (debt) whose proceeds are reinvested to achieve a return above interest costs (Musah & Kong, 2019). Decisions by the company's management to use debt is a signal to investors when assessing a company's prospects. Firms with good prospects decide to use debt as an alternative source of financing versus self-financing (Widyastuti, 2019).

Changes in leverage affect a company's profitability and increase the risk to shareholder earnings, and investors have begun to invest in such a company with caution. The increased debt usage in a corporation's funding structure raises the risk of distress and possible bankruptcy (Rehman, 2013). Institutions with more debt are likely to face negative

16

outcomes because of the risk of default, and if the company cannot fulfill its commitments, it remains difficult for them to get new debt from the marketplace. Leverage is operationalized as the total debt/equity ratio or portion of debt/assets. Debt ratio is a comparison between aggregate debt and overall assets, while the proportion of debt/equity portrays a comparison between aggregate debt and equity (Matar & Eneizan, 2018).

2.3.3 Firm size

Firm size regulates to what extent legal and financial factors influence a bank. Since large companies collect cheap capital and produce huge income, bank size is closely linked to capital adequacy (Amato & Burson, 2007). Bank's total assets book value is usually used to determine its size. Furthermore, ROA and bank size possess positive link demonstrating large banks can achieve economies of scale and lower operational costs yet growing their loan portfolios (Amato & Burson, 2007). Bank size is correlated with capital rationing and that profitability increases with size (Magweva & Marime, 2016)

Amato and Burson (2007) mentioned that a firm's size is dependent on the assets owned by the organization. One could argue that a bank's ability to invest and earn more money depends on the amount of assets it owns as opposed to smaller businesses with less assets. Additionally, a larger firm can have extra collateral which can be used as security for more credit services (Njoroge, 2014). According to Lee (2009), a company's assets under its control have an effect on its profitability level over time.

2.3.4 Management Efficiency

Management efficiency is a measure of management's ability to use company resources (tangible and intangible) to generate revenue. In other words, their definition and measure

of managerial ability focus on the ability of firms to generate revenue (output) by estimating the overall performance of the firm, suggesting that firms efficiently generate more revenue from a given set of inputs (assets) (Abd -Elmageed et al., 2020). Management ought to pay consideration to the efficiency and effectiveness of the business in utilizing assets in generating revenue, generate sales in cash and credit, and compare them with the initial cash flows (Adegbie, Akintoye & Alu, 2019).

Management efficiency is a significant element that influences an enterprise profitability. Various financial indicators express management efficiency such as the growth rate of total assets and the rate of profit growth (Gautam, 2018). Management efficiency is often achieved by streamlining the activities of corporate centers to respond to economically changing market forces. Thus, the company's productivity and effectiveness depend on the manager's ability, skill and performance and the manager's role in achieving the organization's best output. Performance measures are directly associated with the market value of publicly traded insurers' operations and are closely related to performance measures (Abd-Elmageed et al., 2020). Management efficiency is assessed through the expenditure to income ratio.

2.4 Empirical Review

2.4.1 Global Studies

Bari, Ghosh and Kabir (2021) explored liquidity impact on corporate performance. The study focused on pharmaceutical firms and used a combination of the OLS, fixed and random effects models, as well as the two-stage least squares (2SLS), the instrumental variable model and regression approach in examining the interrelationships. The research

documented that liquidity values and lagged ROE significantly affected lagged ROA. The outcomes of regression IV using 2SLS approach indicated that the lagged value of ROA as well as ROE positively affected liquidity.

Arief (2021) examined the impact of liquidity, cash flow, asset management and financial structure on profitability. Data for the study was collected from 85 listed Indonesian manufacturing companies. Multiple linear regression approach was applied for analyzing of data. The findings indicated that the liquidity (current ratio) significantly influenced ROA as well as asset management and cash flow had an insignificant effect. Furthermore, capital structure insignificantly affected ROA, while liquidity, management of assets, funding structure and cash flow significantly influenced the entity's profitability.

Vu, Truong and Dinh (2020) examined the determinants of corporate liquidity among listed Vietnamese manufacturing companies. The study employed three econometric models to determine the interrelationship and hypothesis testing. Secondary data was obtained from the listed corporations for the time-duration (2015-2019). The findings indicated that the quick ratio and the current ratio as the measure for liquidity positively influenced the entities productivity. Further, it was documented that board independence, net operating cycles and board size negatively affected the corporations' profitability.

Yameen, Farhan and Tabash (2019) examined whether liquidity affects listed pharmaceutical companies' profitability. The study was undertaken among listed pharmaceutical companies in India and uses balance panel secondary data collected from 82 pharmaceuticals for a 10-year period covering 2008 and 2017. The results indicated that the quick ratio and the current ratio as liquidity measures directly and significantly influenced the firm's profitability measured through the ROA ratio. The study further

showed that leverage, firm age and size adversely and negatively affected the pharmaceutical companies' profitability.

Musah and Kong (2019) examined the liquidity-financial performance nexus in Ghana. The study focused on listed non-financial companies in Ghana. Panel secondary data was obtained from the yearly audited reports from 15 companies between 2008 and 2017. By the use of the panel regression approaches to analyse data, the findings showed that the liquidity operationalized through the current ratio, the cash flow and quick ratio indicators insignificantly affected the listed companies ROCE and ROA respectively.

2.4.2 Local Studies

Achach (2021) examined whether liquidity management affects Kenyan-listed non-financial firms performance. Using a descriptive survey, secondary data was gathered from the listed 42 non-financial firms for a five years period (2016-2020). Analysis was of data was undertaken through correlation and regression techniques. The study documented that liquidity management positively and significantly affected the entities financial performance. Further, the study documented a negative link between leverage and performance and an insignificant link between firm size and performance.

Kemboi (2021) assessed the influence of liquidity management of listed Kenyan banks financial performance. Applied was descriptive research survey and data gathered from 11-listed Kenyan bank from 2016 to 2020 (5 years). Data was analyzed through correlation and the fixed effect regression techniques. The findings indicated that liquidity management negatively affected bank performance while capital adequacy possess

insignificant positive impact on bank performance. The study resolved that liquidity significantly affects banking entities performance.

Otieno (2020) examined the liquidity risk-financial performance nexus in Kenya. The research focus on listed NSE agricultural firms. A longitudinal study approach was utilized for the research. Data was obtained from six listed agricultural companies over a ten-year period. The regression and correlation approaches were adopted for analysis. The outcomes designated that liquidity risk had a negligible adverse impact on agricultural firms operating and financial performance.

Nyamongo (2019) examined financial risks and their effected on NSE quoted manufacturing corporations financial performance. Secondary data was obtained from nine corporations over a 5-year duration (2009-2018). A multiple regression approach was used for analysis of the data. The research outcome indicated that credit risk had a positive substantial link with the corporation's fiscal performance. Second, the research finds that liquidity risk has a negligible positive link with the corporation's profitability. The findings further showed a non-significant positive link between the level of market risk and ROA.

Njoroge (2015) examined the liquidity-financial performance nexus among listed construction companies at the NSE. Secondary data was obtained for 10 years between 2005 and 2014 and the regression approach was adopted analyzing data. The conclusions depicted that liquidity directly affected the profitability of the construction corporations and associated companies quoted at NSE. Further, the outcomes further indicated that the current ratio directly influenced the entities financial performance and that a growth of operating cash flows positively influenced the entities financial performance.

2.5 Conceptual Framework

This study consists of the independent variable (liquidity risk) and the dependent variable (financial performance) as well as control variables (financial leverage, management efficiency and firm size). Figure 2.1 depicts the study's conceptual model

```
┌─────────────────────────┐              ┌─────────────────────────┐
│   Independent variable  │              │    Dependent variable   │
│                         │─────────────▶│                         │
│   • Liquidity risk      │              │   • Financial performance│
│                         │          ↗   │                         │
└─────────────────────────┘        ╱     └─────────────────────────┘
┌─────────────────────────┐      ╱
│     Control variables   │    ╱
│   • Financial leverage  │  ╱
│   • Firm size           │╱
│   • Management efficiency│
└─────────────────────────┘
```
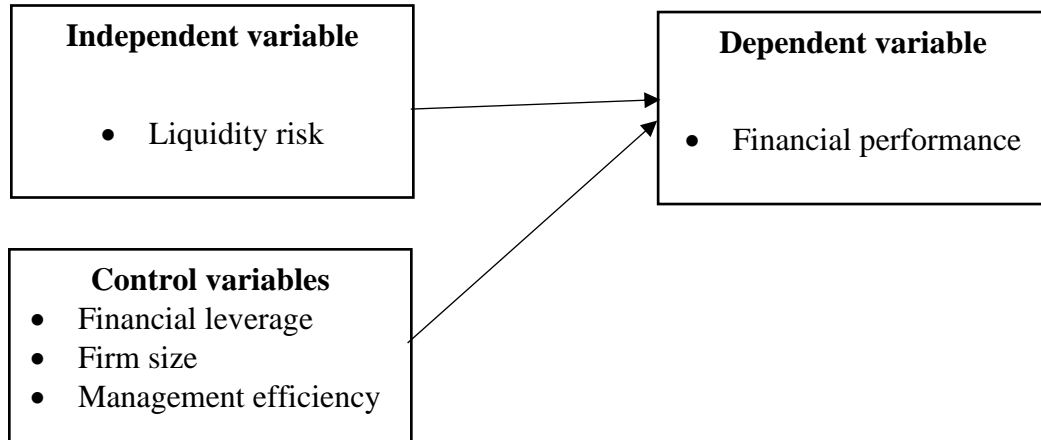
Figure 2.1: Conceptual Framework

Source: Researcher (2022)

2.6 Summary of Literature Review

This study reviewed several empirical studies undertaken on the macroeconomic factors and tax revenue. However, the reviewed studies focused on a different combination of variables. Studies by Bari, Ghosh and Kabir (2021) focused on the pharmaceutical industry, Musah and Kong (2019) concentrated on nonfinancial corporations in Ghana while Yameen, Farhan and Tabash (2019) concentrated on pharmaceutical companies Otieno (2020) concentrated on agricultural firms while Kemboi (2021) examined liquidity-performance nexus nut the context was listed Kenyan banks. Nyamongo (2019) focused on financial risk exposure while Njoroge (2017) focused on profitability and construction firm's liquidity management practices. The available studies on liquidity-financial

performance relationship have been undertaken in different firms and majority of them, especially in Kenya, have used primary data obtained via questionnaires. Thus, secondary data was used in this research and pursued examining the link between liquidity and financial performance of manufacturing firms in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is often used to achieve the goals of research by obtaining a good outcome at the end of the study. This chapter entails the research design, the study's population, data collection and analysis, which incorporates the analytical model, diagnostic tests, and the tests of significance.

3.2 Research Design

This research adopted a descriptive survey to attain its objectives. A descriptive study plan entails the collection of data to describe a trend, case, or phenomenon (Kumar, 2011). The study design precisely reflects a wide variety of variables, including the behavior, opinions, beliefs, knowledge and skills of a particular person, group or situation. The descriptive survey was accepted as it provides quantifiable information that can be used to analyze statistical conclusions. This study's design is important since it documents the explanatory variables causal effect on the response study variables. In summary, the design described the link between two study variables (the predictor X versus the response variable Y).

3.3 Population of the Study

There were nine listed manufacturing firms at the NSE as at 31st December 2021. The research target population encompassed the nine listed manufacturing corporations at the NSE as at 31st December 2021. This research undertook a census of the nine listed firms. A census design was considered since the population was small, finite and easily accessible. The census method includes a complete list of units that make up the target population.

3.4 Data Collection

This study entirely used secondary data, which was extracted from audited financial statements of the individually listed manufacturing firms for a 5 years duration from 2017 to 2021. The 5-year period provided the most recent data on the study variables and gave adequate data points for the study. The key data collected included data on liquidity risk (current liabilities and current assets), financial leverage, management efficiency, firm size, and financial performance (ROA). The data was obtained via a data collection sheet.

3.5 Data Analysis

The obtained data was tabulated and summarized via descriptive statistics that is mean as well as standard deviation. The multiple regression approach was also employed find out whether explanatory and control variables affect the dependent variable. Regression techniques describe the link between an independent variable and a dependent variable.

3.5.1 Analytical Model

The regression model was formulated as follows

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$$

Where,

Y = Financial performance (ROA)

X_1 = Liquidity risk (the reverse of current ratio)

X_2 = Financial leverage (debt ratio)

X_3 = Firm size (Log total assets)

X_4 = Management efficiency (income to expenditure ratio)

β_0 = Constant

β_1- β_4 = Regression Coefficients

it = Firm and time indicators

ε = Error term

3.5.2 Diagnostic Tests

This research undertook multicollinearity, homoscedasticity, autocorrelation, normality and stationarity tests. The assumption of normality determines how likely it is that the data set is distributed normally and was measured via the Shapiro Wilk test. Multicollinearity is the occurrence of high correlations between two or several explanatory variables in a regression model, and the variable inflation factors (VIF) was used to test for multicollinearity. The assumption of homoscedasticity states that the errors in the term defects should be the same for the independent variables values and that the Breusch-Pagan test was used to check for similarity. A p value exceeding 0.05 indicates no presence of variable variance, whereas a p value below 0.05 indicates the presence of variable variance. Autocorrelation occurs when the error members of a pair of observations are not independent and were evaluated using Durbin -Watson test. The stability test, which evaluates whether a time series data set is not stationary and has a unit root, was evaluated using the Levin-Lin Chu test. This ensured that data was stationary and checks the spurious regression problem.

3.5.3 Tests of Significance

The t-test and the F-test were applied in testing the statistical significance of the explanatory variables and response variable respectively. The statistical significance test was done at 5% significance levels.

CHAPTER FOUR: DATA ANALYSIS RESULTS AND FINDINGS

4.1 Introduction

The chapter presents descriptive statistics and the results and interpretations of various tests namely; test of normality, Multicollinearity, heteroscedasticity tests, autocorrelation and stationarity test. The chapter also presents the outcomes of Pearson correlation and regression analysis.

4.2 Descriptive Statistics

This segment presents the descriptive findings from the collected data. The descriptive results include mean and standard deviation for each of the study variables. The analyzed data was obtained from CMA and individual firms annual reports for a duration of 5 years (2017 to 2021). The number of observations is 44 as Mumias Sugar did not have data for the year 2021. Table 4.1 exhibits the outcomes.

Table 4.1: Descriptive Results

	N	Minimum	Maximum	Mean	Std. Deviation
ROA (Ratio)	44	-1.2214	.3673	.026368	.2812690
Liquidity risk (Ratio)	44	.1	34.4	1.827	5.2840
Leverage (Ratio)	44	.1	1.9	.570	.3310
Firm size (Log)	44	4.9	7.9	6.580	.8307
Management efficiency (Ratio)	44	1.2761	25.0471	3.287725	4.2346573
Valid N (listwise)	44				

Source: Field Data (2022)

4.3 Diagnostic Tests

The most suitable linear fair estimators were sampled before undertaking linear regression (BLUE). This study employed normality, homoscedasticity, multiple-collinearity, and autocorrelation tests. The Shapiro-Wilk test was applied to estimate the normality of data utilized in the analysis. The Breusch-Pagan test for homoscedasticity was employed to decide if the independent variables employed in the study have constant variance, while to establish multi-collinearity, Variance Inflation Factors (VIF) statistics were embraced. Autocorrelation was tested via the Durbin-Watson d statistic. Stationarity test were carried out using Levin-Lin Chu unit root test.

4.3.1 Normality Test

The normality of data can be tested using different methods. The most commonly utilized approaches include the Shapiro–Wilk test, Kolmogorov–Smirnov test, skewness, kurtosis, histogram, P–P Plot, box plot, Q–Q Plot, mean and standard deviation. The most extensively used normality tests are the Kolmogorov–Smirnov test and the Shapiro–Wilk test. The Shapiro–Wilk test is better for small sample sizes (n <50 samples), while it can also be used on more extensive samples selections, whereas the Kolmogorov–Smirnov test is better for n>50 samples. As a result, the study used the Kolmogorov–Smirnov test as the numerical method of determining normality. For the above both tests, the null hypothesis says that the data are obtained from a normal distribution population. When P-value is below 0.05, null hypothesis is rejected and the data are said to be not normally distributed.

Table 4.2: Test for Normality

	Kolmogorov-Smirnov	P-value
ROA	0.789	0.083
Liquidity risk	0.874	0.091
Leverage	0.892	0.101
Firm size	0.975	0.128
Management efficiency	0.923	0.120

Source: Research Findings (2022)

From Table 4.2 results, all the study variables have a p value more than 0.05 and therefore were normally distributed.

4.3.2 Multicollinearity Test

Multicollinearity arises when the independent variables in a regression model are significantly linked. Multicollinearity was assessed using the VIF and tolerance indices. When the VIF value is higher than ten and the tolerance score is less than 0.2, multicollinearity is present, and the assumption is broken. The VIF values are below 10, indicating no problem with multicollinearity.

Table 4.3: Multicollinearity

Variable	Collinearity Statistics	
	Tolerance	VIF
Liquidity risk	0.672	1.488
Leverage	0.598	1.672
Firm size	0.734	1.362
Management efficiency	0.671	1.490

Source: Research Findings (2022)

4.3.3 Heteroscedasticity Test

The residual variance from the model must be constant and unrelated to the independent variable in linear regression models calculated using the Ordinary Least Squares (OLS)

method(s). Homoscedasticity refers to constant variance, whereas heteroscedasticity refers to non-constant variance (Field, 2009). The study used the Breusch-Pagan/Cook-Weisberg test to check if the variation was heteroskedastic. The null hypothesis implies constant variance, indicating that the data is homoscedastic. The outcomes are as displayed in Table 4.4.

Table 4.4: Heteroscedasticity Results

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
chi2(1)	=	0.3418
Prob > chi2	=	0.1629

Source: Research Findings (2022)

Table 4.4 reveals that the null hypothesis was not rejected since the p-value was 0.1629, which was statistically significant (p>0.05). As a result, the dataset had homoscedastic variances. Since the P-values of Breusch-Pagan's test for homogeneity of variances were greater than 0.05. The test therefore confirmed homogeneity of variance. The data can therefore be used to conduct panel regression analysis.

4.3.4 Autocorrelation Test

Serial correlation, also known as autocorrelation, makes the standard errors of coefficients appear to be less than in linear panel data models, resulting in higher R-squared and erroneous hypothesis testing Autocorrelation was tested via Durbin-Watson test. If the result of the Durbin-Watson test is equal to 2, the error terms of the regression variables are uncorrelated (i.e. between 1 and 3). The closer the value to 2 is; the better. The outcomes are displayed in Table 4.5.

Table 4.5: Test of Autocorrelation

Durbin Watson Statistic
2.243

The Durbin-Watson statistic was 2.243, according to the findings in Table 4.7. As the Durbin-Watson value was near to 2, this demonstrates that the error terms of the regression variables are uncorrelated.

4.3.5 Stationarity Test

The research variables were subjected to a panel data unit-root test to establish if the data was stationary. The unit root test was Levin-Lin Chu unit root test. At a standard statistical significance level of 5%, the test was compared to their corresponding p-values. In this test, the null hypothesis is that every panel has a unit root, and the substitute hypothesis is that at least one panel is stationary. Levin-Lin Chu unit root test outcomes are depicted in Table 4.6.

Table 4.6: Levin-Lin Chu unit-root test

Levin-Lin Chu unit-root test			
Variable	**Statistic**	**p value**	**Comment**
Liquidity risk	6.5126	0.0000	Stationary
Leverage	8.5031	0.0000	Stationary
Firm size	8.2718	0.0000	Stationary
Management efficiency	7.2447	0.0000	Stationary
Liquidity risk	7.1132	0.0000	Stationary

As demonstrated in Table 4.6, this test concludes that the data is stationary at a 5% level of statistical significance because the p-values all fall below 0.05.

4.4 Correlation Results

Correlation analysis was implemented to establish the degree and direction of link between every predictor variable and the response variable. The correlation findings in Table 4.7 display correlation nature between the research variables in relation to magnitude and direction. The correlation results disclose that liquidity risk and ROA have a negative as well as significant correlation (r=-0.583) at 5% significance level. The link between leverage and ROA was negative and significant (r=0.345) at 5 % significance level. The results also disclose that firm size has a weak positive though not significant link with ROA of Kenyan-listed manufacturing firms (r=0.533) at 5 percent significance level. Management efficiency and ROA are positively significantly linked (r=0.509) at significance level of 5%.

Table 4.7: Correlation Results

		ROA	Liquidity risk	Leverage	Firm Size	Management efficiency
ROA	Pearson Correlation	1				
	Sig. (2-tailed)					
Liquidity risk	Pearson Correlation	-.583**	1			
	Sig. (2-tailed)	.000				
Leverage	Pearson Correlation	-.345*	.691**	1		
	Sig. (2-tailed)	.022	.000			
Firm Size	Pearson Correlation	.091	.205	.146	1	
	Sig. (2-tailed)	.556	.182	.345		
Management efficiency	Pearson Correlation	.509**	.527**	.614**	.295	1
	Sig. (2-tailed)	.000	.000	.000	.052	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
c. Listwise N=44

Source: Research Findings (2022)

4.5 Regression Results

To determine the extent to which ROA is described by the chosen variables, regression analysis was used. In Table 4.8, the regression's findings are displayed.

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.627[a]	.393	.331	.2300606

a. Predictors: (Constant), Management efficiency, Firm Size, Leverage, Liquidity risk

Source: Research Findings (2022)

From the conclusions as epitomized by the R^2, the studied independent variables explained variations of 0.393 in ROA among Kenyan-listed manufacturing firms. This infers other factors not incorporated in this study account for 60.7% of the variability in ROA among Kenyan-listed manufacturing firms, while the four variables account for 39.3% of the variations.

Table 4.9: ANOVA Analysis

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.338	4	.334	6.318	.001[b]
	Residual	2.064	39	.053		
	Total	3.402	43			

a. Dependent Variable: ROA

b. Predictors: (Constant), Management efficiency, Firm Size, Leverage, Liquidity risk

Source: Research Findings (2022)

The data had a 0.000 significance level, according to Table 4.9's ANOVA results, inferring the model is the best choice for drawing conclusions about the variables.

Table 4.9: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.439	.294		-1.492	.144
	Liquidity risk	-.042	.020	-.283	-2.107	.042
	Leverage	.095	.147	.112	.647	.522
	Firm Size	.071	.045	.210	1.580	.122
	Management efficiency	.014	.002	.484	4.832	.000
a. Dependent Variable: ROA						

Source: Research Findings (2022)

The coefficient of regression model was as below;

$$Y = -0.439 - 0.283X_1 + 0.484X_2$$

Where:

Y = ROA; X_1 = Liquidity risk; X_2 = Management efficiency

4.6 Discussion of Research Findings

The objective of this research was to establish the effect of liquidity risk on ROA of Kenyan-listed manufacturing firms. The research employed a descriptive design whereas population was the 9 Kenyan-listed manufacturing firms. Complete data was obtained from 8 firms as Mumias Sugar did not have financial results for 2021. The research utilized secondary data which was gotten from CMA and individual firms annual reports. The specific attribute of liquidity risk considered was ratio of current liabilities to current assets. The control variables were leverage, firm size, and management efficiency. Both descriptive as well as inferential statistics, were employed in analyzing the data. This section discusses the findings.

Multivariate regression outcomes discovered that the R square was 0.393 implying 39.3% of changes in ROA of listed manufacturing firms are due to four variables alterations selected for this study. This means that variables not considered explain 60.7% of changes in ROA. The overall model was also statistically significant as the p value was 0.000 that is below the 0.05 significance level. This implies that the overall model had the required goodness of fit.

The multivariate regression analysis further revealed that individually, liquidity risk exhibited a negative effect on ROA of listed manufacturing firms as shown by (β=-0.283, p=0.042). Leverage possesses a positive though not significant impact on ROA of listed manufacturing firms (β=0.112, p=0.522). Firm size unveiled a positive but not significant impact on ROA of Kenyan-listed manufacturing firms (β=0.210, p=0.122) while management efficiency exhibited a positive and significant influence on ROA of Kenyan-listed manufacturing firms (β=0.484, p=0.000) respectively.

These conclusions concur with those of Arief (2021) who examined the impact of liquidity, cash flow, asset management and financial structure on profitability. Data for the study was collected from 85 listed Indonesian manufacturing companies. The research utilized multiple linear regression approach for analyzing of data. The findings indicated that the liquidity (current ratio) significantly influenced ROA as well as asset management and cash flow had an insignificant effect. Furthermore, capital structure insignificantly affected ROA, while liquidity, management of assets, funding structure and cash flow significantly influenced the entity's profitability.

The research findings also concur with Kemboi (2021) who assessed the influence of liquidity management of listed Kenyan banks financial performance. A descriptive

research survey was adopted and data gathered from 11-listed Kenyan bank from 2016 to 2020 (5 years). Data was analyzed through correlation and the fixed effect regression techniques. The findings indicated that liquidity management negatively affected bank performance while capital adequacy possessed insignificant positive impact on bank performance. The study resolved that liquidity significantly affects banking entities performance.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The key aim of the research was determining how liquidity risk influences the profitability of Kenyan-listed manufacturing firms. This section includes a summary of the findings from the previous chapter as well as the conclusions and limitations of the study. Moreover, it makes recommendations for potential policy measures. The chapter provides recommendations for further research

5.2 Summary

The objective of this research was to establish the effect of liquidity risk on ROA of Kenyan-listed manufacturing firms. The research employed a descriptive design whereas population was the 9 Kenyan-listed manufacturing firms. Complete data was obtained from 8 firms as Mumias Sugar did not have financial results for 2021. The research utilized secondary data that was obtained from CMA and distinct firms' annual reports. The specific attribute of liquidity risk considered was current liabilities to current assets ratio. The control variables were leverage, firm size, and management efficiency. The analysis of data implemented the use of both descriptive and inferential statistics.

The correlation results disclose that liquidity risk and ROA have a negative as well as significant correlation at 5% significance level. The link between leverage and ROA was negative and 5 % significance level. The results also disclose that firm size has a weak positive though not significant link with ROA of Kenyan-listed manufacturing firms at 5

percent significance level. Management efficiency possesses positive significant relation with ROA at 5% significance level.

Multivariate regression results revealed that the R square was 0.393 implying 39.3% of changes in ROA of listed manufacturing firms are due to four variables alterations selected for this study. This means that variables not considered explain 60.7% of changes in ROA. The overall model was also statistically significant as the p value was 0.000 that is below the significance level of 0.05. This implies that the overall model had the required goodness of fit.

The multivariate regression analysis further discovered that individually, liquidity risk exhibited a negative effect on ROA of listed manufacturing firms as shown by (β=-0.283, p=0.042). Leverage has a positive but not significant effect on ROA of listed manufacturing firms (β=0.112, p=0.522). Firm size exhibited a positive but not significant influence on ROA of Kenyan-listed manufacturing firms (β=0.210, p=0.122) while management efficiency exhibited a positive and significant influence on ROA of Kenyan-listed manufacturing firms (β=0.484, p=0.000) respectively.

5.3 Conclusions

The research objective was to establish the association between liquidity risk and ROA among Kenyan-listed manufacturing firms. The findings indicated that liquidity risk had a negative as well as significant impact on ROA. This may imply that listed manufacturing firms with high liquidity risk have low levels of ROA. Liquidity risk management is, therefore necessarily to achieve the targeted performance. The research concludes that liquidity risk affects ROA among Kenyan-listed manufacturing firms in a negative manner.

Additionally, the conclusions discovered that leverage has a significant positive effect on ROA, but the effect is not statistically significant. This can be used to explain where the capital structure debate is not yet settled as empirical studies end with different findings. It can be that the effect of leverage on ROA of firms is dependent on firm characteristics or other external factors.

It was established that the influence of firm size on ROA among Kenyan-listed manufacturing firms was positive but not statistically significant. The results, therefore, imply that bigger listed manufacturing firms are not always likely to perform better compared to small listed manufacturing firms. This can be elucidated by the fact that although bigger listed manufacturing firms have more developed structures that help them to manage operations better and to enjoy economies of scale, inefficiencies can also be associated with size of a firm.

The study conclusions revealed that management efficiency had a positive as well as significant effect on ROA. This may mean that the listed manufacturing firms with efficient managers can utilize their assets efficiently by enhancing the revenues generated at the lowest possible cost. They can also take advantage of investment opportunities that might arise in the course of doing business and therefore high levels of ROA compared with firms with less management efficiency.

5.4 Recommendations for Policy and Practice

The research discoveries disclose that liquidity risk negatively and significantly affected ROA. The research consequently recommends listed manufacturing firms management ought to work on their liquidity improvement. The listed manufacturing firms should come

up with effective liquidity management strategies. Regulators should ensure that the listed manufacturing firms maintain a specified amount of liquidity.

From the study findings, management efficiency was found to enhance ROA of listed manufacturing firms; this research recommends that listed manufacturing firms should hire efficient managers who will be able to maximize the returns from the invested assets. To enhance management efficiency, listed manufacturing firms can come up with share ownership plan for executives to align their goals and objectives with those of shareholders. Policymakers should also develop mechanisms of reviewing management performance on a regular basis.

5.5 Limitations of the Study

The focus was on various factors which are thought to impact financial performance of Kenyan-listed manufacturing firms. The research focused on four explanatory variables in particular. Though, in certainty, there is presence of other variables probable to impact ROA of listed manufacturing firms including internal like corporate governance attributes and dividend policy whereas others are beyond the control of the firm like interest rates as well as political stability.

In this study, a five-year period from 2017 to 2021 was selected. There is no evidence comparable results will persist the same across a longer time frame. Moreover, it is impossible to predict if the same outcomes would persist until 2021. Given that additional time contains instances of big economic transitions like recessions and booms, it is more dependable.

The quality of the data was the main restriction for this study. It is not possible to conclude that the study's findings accurately reflect the current reality conclusively. It has been presumed that the data utilized in the study are accurate. Due to the current conditions, there has also been much incoherence in the data measurement. The study made use of secondary data rather than primary data. Due to the limited availability of data, only some of the ROA drivers have been considered.

The data analysis was performed using regression models. Owing to the limitations associated with using the model, like inaccurate or erroneous findings ensuing from a altering in the variable value, the researchers would not be able to generalize the conclusions precisely. A regression model cannot be performed using the prior model after data is added to it.

5.6 Suggestions for Further Research

This research focused on Kenyan-listed manufacturing firms. Further studies can focus on a wide scope by covering other listed firms in Kenya to back or contradict the results of the current study. Further, this research focused on the reverse current ratio as a measure of liquidity risk. Future studies should focus on other liquidity risk measures that were not considered in this study.

The current research scope was restricted to five years; more research can be performed past five years to determine whether the results might persist. Thus, inherent future studies may use a wider time span that can either support or criticize the current research conclusions. The scope of the study was additionally constrained in terms of context where listed manufacturing firms were examined. Further studies can be extended to other listed

firms to establish if they complement or contradict the current study findings. Researchers in the East African region, the rest of Africa, and other global jurisdictions can too perform the research in these jurisdictions to ascertain if the current research conclusions might persist.

The research only used secondary data; alternate research may use primary data sources such as in-depth questionnaires and structured interviews given to practitioners and stakeholders. These can then affirm or criticize the results of the current research. This research used multiple linear regression, as well as, correlation analysis; future research could use other analytic techniques like discriminant analysis, cluster analysis, granger causality factor analysis and descriptive statistics, among others.

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APPENDICES

Appendix I: List of Quoted Manufacturing Firms

1. British American Tobacco

2. Unga Group

3. Carbacid PLC

4. BOC Gases

5. Mumius Sugar

6. East Africa Breweries Limited

7. Eveready East Africa

8. Flame tree Holdings

9. Kenya Orchards

Appendix II: Research Data

COMPANY	Year	Firm size	Leverage	Management efficiency	Liquidity risk	ROA
		Log	Ratio	Ratio	Ratio	Ratio
BAT	2021	7.341	0.5571	1.9497	0.9199	0.1781
	2020	7.263	0.4924	1.9899	0.6285	0.2227
	2019	7.251	0.8749	2.0548	0.7587	0.1878
	2018	7.267	0.8488	2.0628	0.7076	0.2622
	2017	7.271	0.4892	1.9502	0.6891	0.2664
Carbacid	2021	6.545	0.1072	3.6634	0.1756	0.0777
	2020	6.528	0.0970	3.1643	0.1061	0.0866
	2019	6.519	0.1158	3.1819	0.1426	0.1002
	2018	6.489	0.1323	2.5935	0.1411	0.1219
	2017	6.473	0.1656	2.6633	0.2217	0.1325
Eveready	2021	5.395	0.5574	1.2761	0.6658	-1.2214
	2020	5.759	0.2372	1.7804	0.3949	-0.1947
	2019	5.888	0.2890	1.3371	0.3711	0.3531
	2018	6.035	0.5506	4.0623	2.2036	-0.1809
	2017	6.179	0.4666	2.7057	1.1658	0.3070
Unga Group	2021	7.027	0.4312	1.5945	0.5113	0.0512
	2020	6.997	0.4353	1.5059	0.4669	0.0789
	2019	6.976	0.5064	1.4328	0.6032	-0.0007
	2018	6.922	0.4194	1.4350	0.4351	0.0609
	2017	6.938	0.3824	1.5904	0.4222	0.0717
BOC Kenya	2021	6.299	0.2776	1.8435	0.5058	0.0108

COMPANY	Year	Firm size	Leverage	Management efficiency	Liquidity risk	ROA
		Log	Ratio	Ratio	Ratio	Ratio
	2020	6.331	0.2908	1.8274	0.5313	0.0151
	2019	6.348	0.2770	1.8477	0.5118	0.0104
	2018	6.347	0.2366	1.8523	0.4380	0.0346
	2017	6.366	0.2615	1.8534	0.4846	0.0295
EABL	2021	7.940	1	2.9412	1.1371	0.1323
	2020	7.853	0.8365	3.3098	1.1978	0.0897
	2019	7.824	0.8202	3.0119	0.9932	0.1159
	2018	7.791	0.8878	2.8645	1.2975	0.1642
	2017	7.826	0.7937	2.6735	0.9776	0.1190
Mumias	2020	7.197	1.9142	25.0471	34.4342	-0.9623
	2019	7.382	0.9686	12.9502	9.1498	-0.2824
	2018	7.428	0.7179	13.6988	5.5335	0.0555
	2017	7.310	0.7097	7.9565	5.3230	-0.2273
FTG Holdings	2021	6.358	0.5366	2.1135	0.8247	0.0197
	2020	6.265	0.5580	1.6231	0.8745	0.0184
	2019	6.226	0.5648	1.4723	0.7748	0.0237
	2018	6.182	0.5272	1.3339	0.6534	0.0953
	2017	6.123	0.5613	1.2592	0.6094	0.1348
Kenya Orchards	2021	5.134	0.7601	1.4593	0.5055	0.0620
	2020	5.059	0.7884	1.5918	0.4731	0.0776
	2019	5.035	0.8577	1.7271	0.5837	0.0530
	2018	4.951	0.8909	1.9000	0.4947	0.0422
	2017	4.896	0.9235	2.3080	0.4818	0.3673