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EFFECT OF OPERATIONAL EFFICIENCY ON FINANCIAL PERFORMANCE OF LISTED MANUFACTURING FIRMS IN ZIMBABWE (2017-2023)

BY

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DEDICATIONS

With much gratitude, privilege and pleasure, I dedicate this dissertation to myself and my family for their support during my studies.

LIST OF ACRONYMS

ROA	Return on Asset
GDP	Gross Domestic Product
KPI	Key Performance Indicators
ROE	Return on Equity
EPS	Earnings Per Share
CPI	Consumer Price Index
ZIMSTAT	Zimbabwe Statistics
COGS	Cost of Goods Sold
ZSE	Zimbabwe Stock Exchange
AI	Artificial Intelligence
EOQ	Economic Order Quantity
JIT	Just-In-Time
ADF	Augmented Dickey-Fuller
SADC	Southern African Development Community
LLC	Levin-Lin-Chu
ZIMSTATS	Zimbabwe Statistics

Abstract

The study explores the impact of operational efficiency on the financial performance of listed manufacturing firms in Zimbabwe, focusing on data from 2017-2023. Operational efficiency, vital for reducing costs while maintaining quality, is measured using indicators such as total asset turnover ratio and operating expense ratios. The research delves into related variables, including firm size, leverage, and liquidity, to understand their collective influence on financial metrics like return on assets (ROA). Zimbabwe’s manufacturing sector, despite its historic significance, has faced declining contributions to GDP, high inflation, outdated infrastructure, and intense competition from imports, highlighting the urgent need for efficiency-driven strategies. The findings will provide insights for companies, investors, and policymakers, emphasizing the adoption of modern techniques like lean manufacturing, automation, and efficient resource management. The outcomes aim to enhance profitability, resilience, and competitiveness in Zimbabwe's volatile economic landscape, contributing to sustainable industrial growth.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

Manufacturing sector is crucial for economic growth. Operational efficiency refers to a firm's ability to maximize output while minimizing input, essentially delivering goods or services at the lowest possible cost without sacrificing quality. It involves a range of activities, such as efficient resource allocation, streamlined production processes, and minimizing waste. Key performance indicators (KPIs) commonly used to assess operational efficiency include the operating expense ratio, inventory turnover, and asset utilization. As noted by Chan and Wong (2022), operational efficiency is vital for organizations striving to remain competitive, particularly in cost-sensitive markets. In the manufacturing industry, operational efficiency is shaped significantly by technological adoption, process innovation, and effective supply chain management. Companies prioritizing operational efficiency are better equipped to handle market disruptions, such as volatile input costs, thereby enhancing profitability.

Efficient organizations utilize technologies like automation, artificial intelligence, and big data analytics to optimize their processes. For example, Zhang and Li (2021) reported that businesses investing in Industry 4.0 technologies experienced a 15–20% improvement in production efficiency due to reduced downtime and higher production accuracy. This leads to decreased operational costs, increased output, and improved capacity to meet customer demands. In Zimbabwe's manufacturing sector, operational efficiency is particularly critical given challenges like power shortages and limited foreign currency for importing inputs. Research by Moyo et al. (2021) suggests that adopting modern production techniques and lean management practices can enhance operational efficiency, enabling firms to withstand external pressures and boost profitability.

Firm performance refers to the evaluation of an organization's financial and non-financial outcomes over a specific period. Financial performance indicators include return on assets (ROA), return on equity (ROE), net profit margin, and earnings per share (EPS), while non-financial metrics encompass customer satisfaction, employee productivity, and market share. As Harris and Robinson (2023) point out, firm performance is multifaceted and influenced by internal and external factors, such as operational efficiency, market conditions, and management strategies. Strong financial performance indicates a company's ability to generate sustainable revenue, control costs, and deliver value to shareholders.

Operational efficiency and firm performance are closely linked. Efficient operations help organizations lower costs, increase output, and improve quality, directly contributing to better financial performance. By optimizing processes, companies can reduce waste, improve productivity, and allocate resources more effectively. Smith and Brown (2023) found a positive relationship between operational efficiency and financial metrics such as ROA and profit margins. Companies that streamline their operations experience higher profitability, better cash flow, and stronger competitiveness.

This connection is particularly pronounced in manufacturing, where factors like input costs, production cycles, and resource utilization significantly influence profitability. For instance, Thomas and Martin (2022) demonstrated that manufacturing firms implementing lean manufacturing techniques and improving supply chain operations achieved an average profit margin increase of 10%. In Zimbabwe, where manufacturers contend with high production costs and economic instability, operational efficiency is crucial for enhancing firm performance. According to the Confederation of Zimbabwe Industries (CZI, 2023), companies adopting efficiency-driven strategies have managed to maintain profitability even during economic downturns.

This study aims to fill this gap by providing empirical evidence on the relationship between operational efficiency and financial performance in Zimbabwe's manufacturing sector. Using a panel data set of listed manufacturing firms over a period of five years, the study will employ quantitative methods, including regression analysis, to assess key performance indicators such as return on assets (ROA), return on equity (ROE), and net profit margins. The findings are expected to contribute to the broader literature on operational efficiency and financial performance, with specific insights relevant to emerging markets like Zimbabwe.

1.2 Background to study

Operational efficiency was defined as a practice that encompass a process that intertwine all organs of a firm and rely on employees with right qualifications and capabilities, managers with right decision-making skills, supply chains that ensure products are delivered when needed, use of the right technology and availability of any other resource that the organization needs (Handoyo *et al*., 2023). In a resource-constrained competitive economy, firms cannot always secure everything they need. Companies that develop effective strategies to navigate environmental challenges are more likely to achieve operational efficiency. Across industries, firms strive to optimize their financial and operational performance to

sustain daily operations, attain market leadership, and accumulate wealth for significant investments across various markets (Chen, Lin & Liu, 2020). However, in the manufacturing sector, volatility, supply chain disruptions, and intense competition have often led to reduced efficiency levels, which negatively impact financial performance.

1.2.1 Overview of Zimbabwe's Manufacturing Sector

Zimbabwe, classified as a low-income economy, is recovering from a prolonged economic crisis. Between 2000 and 2009, the country experienced an economic collapse characterized by hyperinflation and severe macroeconomic imbalances (Kanyenze and Chitambara, 2020). Following the adoption of dollarization in 2009, Zimbabwe's economy initially stabilized, with growth averaging nearly 8% annually from 2009 to 2011, driven by reduced inflation. However, this growth remained fragile due to external factors like declining commodity prices, internal challenges such as fiscal and trade deficits, and political uncertainties (ibid, 2020).

In the early 1990s, Zimbabwe boasted one of Africa's most advanced and diversified industrial sectors. By 1993, manufacturing contributed 24% of GDP, accounted for 21% of formal non-agricultural employment, and generated 42% of total export earnings (Gunning and Oostendorp, 1999). Despite this strong performance, the sector began to decline due to mounting economic challenges. By 2009, during the hyperinflation crisis, manufacturing's share of GDP fell to 15.5%, while non-agricultural employment in the sector dropped to 17.7%, as numerous firms contracted or exited the market.

Although the government implemented several policies aimed at fostering economic growth, employment, industrial development, and international trade, the manufacturing sector continued to deteriorate. By 2019, the sector's share of formal employment had further declined to just 8% (ZIMSTAT, 2020). This protracted economic crisis not only hindered production and industrialization but also adversely impacted employment levels and overall human development (World Economic Forum, 2023).

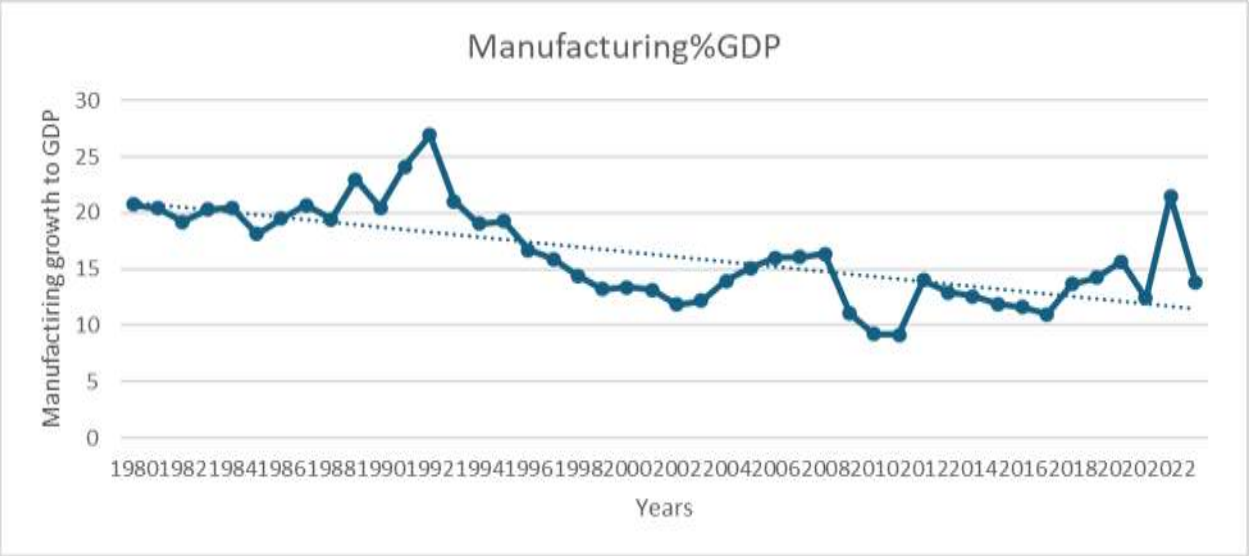
The decline in formal sector employment coincided with a significant rise in informal manufacturing activities. From 2011 to 2019, informal manufacturing employment grew from approximately 77,000 to 151,000, surpassing formal manufacturing employment, which had dwindled to 67,000 by 2019 (ZIMSTAT, 2020). This shift reflects the structural transformation within Zimbabwe's economy, driven by persistent economic instability. The 2011–2012 Poverty, Income, Consumption, and Expenditure Survey (PICES) revealed that

62.6% of Zimbabwean households were classified as poor, with 16.2% living in extreme poverty (ZIMSTAT, 2018).

The manufacturing sector's contribution to Zimbabwe's GDP has been in continuous decline. Figure 1.1 illustrates this downward trend in its GDP share.

Figure 1.1: Contribution of manufacturing sector to GDP

Figure 1



Source: World bank (2024)

Figure 1.1 illustrates the manufacturing sector's contribution to Zimbabwe's GDP from 1980 to 2022, highlighting a consistent long-term decline. Initially, the sector's contribution ranged between 20% and 25%, peaking at nearly 30% in the early 1990s. However, from the mid-1990s onward, the sector experienced a steady decline, reaching its lowest levels, below 10%, around 2010. This downward trend reflects structural changes in the economy, potentially driven by deindustrialization, shifts in global trade dynamics, and a transition toward service-oriented sectors. Recent years have seen some fluctuations, including a brief spike followed by a decline, suggesting either cyclical variations or an uncertain recovery. Overall, the data emphasizes a significant reduction in the manufacturing sector's share of GDP over the past four decades.

Zimbabwe's manufacturing sector continues to face persistent challenges, largely stemming from broader macroeconomic instability and internal inefficiencies. One major obstacle is economic instability, with hyperinflation reaching 837.53% in July 2020 (World Bank, 2021). Such high inflation exacerbates production costs, creates pricing uncertainties, and disrupts supply chains, making it difficult for manufacturers to plan, price products

competitively, and manage operational expenses. Consequently, many firms have experienced shrinking profit margins and have been forced to operate below optimal capacity.

Beyond inflationary pressures, inefficiencies in production processes remain a critical issue. Many manufacturers in Zimbabwe rely on outdated technologies and face significant infrastructure challenges, including unreliable electricity and inadequate transportation networks. For instance, the Zimbabwe Electricity Transmission and Distribution Company (ZETDC) reported that power outages in 2022 led to an average loss of 8–10 production hours per week for manufacturers (ZETDC, 2022). This unreliable infrastructure compels firms to invest in costly backup power solutions, further straining their resources and diminishing profitability.

Additionally, the sector faces intense competition from regional and international markets. The influx of cheaper imports, primarily from South Africa and China, has significantly reduced the market share of local manufacturers. As a result, the manufacturing sector's contribution to GDP declined from 19% in the 1980s to approximately 9% in 2021 (African Development Bank, 2022). Capacity utilization has also remained low, averaging 47% in 2022, down from 56.25% in 2021. These production inefficiencies, combined with competitive pressures and external shocks, have directly impacted the sector's financial performance.

Collectively, these challenges have undermined the manufacturing sector's ability to drive economic growth and improve financial outcomes. Without addressing the structural inefficiencies and macroeconomic hurdles, the sector is unlikely to reverse its current trajectory and achieve sustainable growth.

1.2 Problem statement

The Zimbabwe's manufacturing sector has faced significant challenges in recent years, including economic instability, inefficiencies in production processes, and competitive pressures, all of which have adversely affected financial performance (Muhla et al., 2023). Despite these challenges, there has been limited empirical investigation into how operational efficiency directly impacts the financial outcomes of listed manufacturing firms in the country (Gaswa et al., 2023). This gap is critical because operational efficiency is a key determinant of profitability and sustainability in competitive markets. Over the past two

decades, manufacturing firms in Zimbabwe have operated within a volatile economic landscape characterized by currency fluctuations, policy shifts, and supply chain disruptions (Simuka et al., 2024; Kamutando and Edwards, 2024). These adverse conditions underscore the need for a closer examination of whether and how improvements in operational efficiency can bolster financial performance amidst such adversity.

Furthermore, the limited attention to operational efficiency in Zimbabwe's manufacturing sector contrasts with global trends, where operational improvements have proven transformative in revitalizing struggling industries. For example, firms in emerging economies have leveraged lean manufacturing, automation, and robust supply chain management to overcome similar challenges. Zimbabwean firms have an opportunity to draw from these practices and adapt them to their unique context, provided there is empirical evidence to guide such efforts. This study, therefore, seeks to fill the knowledge gap by identifying specific operational strategies that can enhance financial outcomes for Zimbabwe's manufacturing firms. In doing so, it aims to provide actionable insights for business leaders and policymakers, fostering a more resilient and competitive manufacturing sector capable of driving sustainable economic growth.

1.3 Objectives of the study

Overall study objective:

The study seeks to assess the effect of operational efficiency on financial performance of listed manufacturing firms in Zimbabwe (2017-2023).

Specific objectives:

The study seeks to achieve the following objectives

1. To assess the impact of total assets turnover ratio (operation efficiency) on financial performance of listed manufacturing firms in Zimbabwe.
2. To assess the effect of firm size on financial performance of listed manufacturing firms in Zimbabwe.
3. To determine the impact of firm leverage on financial performance of listed manufacturing firms in Zimbabwe.
4. To assess the impact of firm liquidity on financial performance of listed manufacturing firms in Zimbabwe.

1.4 Research questions

Guided by the research objectives, the following research questions were formulated.

1. What is the impact of total assets turnover ratio (operation efficiency) on financial performance of listed manufacturing firms in Zimbabwe?
2. What is the effect of firm size on financial performance of listed manufacturing firms in Zimbabwe?
3. What is the impact of firm leverage on financial performance of listed manufacturing firms in Zimbabwe?
4. What is the impact of firm liquidity on financial performance of listed manufacturing firms in Zimbabwe?

1.5 Hypothesis

Guided by the objectives of the study, the following null hypothesis were formulated.

1. Total assets turnover ratio (operation efficiency) has positive impact on financial performance of listed manufacturing firms in Zimbabwe.
2. Firm size influences financial performance of listed manufacturing firms in Zimbabwe.
3. Firm leverage influences financial performance of listed manufacturing firms in Zimbabwe.
4. Firm liquidity has a positive impact on financial performance of listed manufacturing firms in Zimbabwe.

1.6 Justification of the study

Company Management and Executives

The study is crucial for company management and executives as it provides actionable insights into how operational efficiency directly impacts financial performance. By understanding this relationship, managers can make more informed decisions about resource allocation, process improvements, and strategic initiatives. This knowledge helps in identifying inefficiencies and implementing best practices to streamline operations, reduce costs, and enhance overall profitability. Furthermore, it allows companies to benchmark their performance against industry standards and leading firms, fostering a culture of continuous improvement and innovation.

Investors and Shareholders

For investors and shareholders, the study offers valuable information on the factors influencing a firm's financial health. A clear understanding of how operational efficiency

drives financial performance enables investors to assess the risk and potential return of their investments more accurately. Companies that exhibit high operational efficiency are often perceived as more stable and capable of delivering consistent returns, making them attractive investment opportunities. This study, therefore, helps investors make better-informed decisions and manage their portfolios more effectively.

Policymakers and Regulators

Policymakers and regulators benefit from this study by gaining insights into the operational challenges and successes within the manufacturing sector. Understanding the link between operational efficiency and financial performance can inform the development of policies and regulations that support industry growth and competitiveness. This knowledge can also help in designing initiatives aimed at promoting operational best practices, improving industry standards, and enhancing the overall economic stability of the manufacturing sector.

1.7 Assumptions of the study

The study is based on the following assumptions.

- All the listed companies did not change their status over the period under study.
- All the variables and data is available

1.8 Limitations

The study on the effect of operational efficiency on the financial performance of listed manufacturing firms in Zimbabwe for the period 2017-2023 faces several limitations. Firstly, the reliance on publicly available financial data may not accurately capture the full scope of operational efficiency or internal company practices. Secondly, the study period of six years may not be sufficient to observe long-term trends or impacts, potentially overlooking cyclical economic variations or external shocks. Thirdly, the focus on listed manufacturing firms excludes private and non-listed entities, which may limit the generalizability of the findings across the entire manufacturing sector. Additionally, the study does not account for external factors such as macroeconomic conditions, political instability, or regulatory changes that could significantly influence financial performance. Furthermore, there may be industry-specific factors within the manufacturing sector that are not considered, leading to potential biases. Finally, the study assumes a direct relationship between operational efficiency and

financial performance, which might oversimplify the complex interplay of multiple variables affecting a firm's financial outcomes.

1.9 Delimitations of the study

The study on the effect of operational efficiency on the financial performance of listed manufacturing firms in Zimbabwe for the period 2017-2023 is delimited to several key areas. Firstly, it focuses exclusively on firms that are publicly listed on the Zimbabwe Stock Exchange, thus excluding privately held and non-listed entities. Secondly, the study is confined to the manufacturing sector, disregarding other industries such as services, agriculture, or mining. Thirdly, the timeframe is limited to six years, from 2017 to 2023, which may not capture longer-term trends and impacts. Additionally, the research relies on publicly available financial data, which might not fully reflect the operational intricacies or internal efficiencies of the firms. The geographical focus is limited to Zimbabwe, potentially limiting the generalizability of the findings to other contexts or regions. Finally, the study assumes that financial performance is directly influenced by operational efficiency, potentially overlooking other significant external factors such as economic conditions, regulatory changes, or global market dynamics.

1.10 Definition of terms

1.10.1 Operational Efficiency

Operational efficiency refers to a firm's ability to deliver goods or services in the most cost-effective manner while maintaining high-quality standards. It involves optimizing the utilization of resources, including labour, materials, and capital, to minimize waste and maximize output. In manufacturing firms, operational efficiency is particularly critical for streamlining production processes, reducing lead times, and lowering operational costs. According to Anwar (2023), operational efficiency is a vital determinant of competitiveness in dynamic markets, especially in industries where cost leadership is essential for survival. Efficient resource allocation and the elimination of inefficiencies allow firms to improve their profit margins while ensuring consistent output quality.

The measurement of operational efficiency often relies on key performance indicators (KPIs) such as the operating expense ratio, inventory turnover, and overall equipment effectiveness (OEE). As highlighted by Zhang and Li (2022), these metrics provide valuable insights into how effectively a company manages its resources and achieves economies of scale. For manufacturing firms, operational efficiency impacts not only cost structures but also their ability to meet customer demand promptly, which directly influences financial performance.

In Zimbabwe’s manufacturing sector, operational efficiency plays a pivotal role given the country’s persistent economic challenge, including foreign currency shortages, unreliable power supply, and inflationary pressures. Moyo et al. (2021) emphasize that firms adopting operational efficiency strategies, such as lean manufacturing and automation, are better equipped to navigate these obstacles. Enhancing operational efficiency allows firms to remain profitable even under adverse conditions, making it a cornerstone for improving financial performance among Zimbabwe's listed manufacturing companies.

Moreover, as global markets increasingly emphasize sustainability and innovation, operational efficiency is becoming a strategic imperative for manufacturing firms. By embracing resource-efficient technologies and process improvements, Zimbabwean manufacturers can not only mitigate the impact of local economic constraints but also position themselves competitively on the global stage. Integrating operational efficiency with sustainable practices could open up opportunities for market expansion, cost savings, and resilience in the face of external shocks, ultimately contributing to long-term financial stability.

1.10.2 Financial Performance

Financial performance refers to the assessment of a firm's financial health over a defined period, using metrics such as revenue, profit margins, return on assets (ROA), return on equity (ROE), and earnings before interest, tax, depreciation, and amortization (EBITDA). It evaluates how effectively a company utilizes its assets to generate revenue and manage liabilities. Financial performance analysis is critical for stakeholders, including investors, creditors, and management, as it provides insights into a firm’s profitability, liquidity, and solvency. According to Smith and Brown (2023), financial performance serves as a key indicator of a company’s ability to create shareholder value and sustain long-term growth.

The financial performance of manufacturing firms is influenced by various factors, including operational efficiency, market dynamics, and financial strategies. Gonzalez and Fernandez (2022) note that enhanced financial performance is typically linked to a firm’s capacity to control costs, boost sales, and manage its capital structure effectively. In the manufacturing sector, financial performance is closely tied to production efficiency, cost management, and responsiveness to demand fluctuations—elements essential for maintaining profitability and achieving strategic financial objectives.

In Zimbabwe, the financial performance of listed manufacturing firms has been significantly shaped by macroeconomic conditions such as inflation, exchange rate volatility, and fiscal

policies. Research by Dube et al. (2022) highlights that firms with strong financial performance have successfully optimized operations, lowered debt levels, and refined cost structures despite the challenging economic environment. These firms' financial health is often viewed as a testament to their adaptability and resilience in navigating Zimbabwe's volatile business landscape.

Furthermore, financial performance in the Zimbabwean context is increasingly influenced by external pressures such as global competition and the demand for sustainable business practices. Firms that integrate innovative strategies to enhance both operational efficiency and environmental sustainability may unlock additional revenue streams, strengthen their market position, and improve access to financing. This underscores the importance of aligning financial performance metrics with broader economic and environmental goals to ensure long-term viability and growth in the manufacturing sector.

Operational efficiency remains a critical determinant of financial performance across industries, including manufacturing. Studies have shown that firms prioritizing lean operations, technology adoption, and effective supply chain management often achieve superior financial outcomes. Efficient resource utilization not only reduces costs but also enhances productivity, creating a direct positive impact on key financial metrics like ROA and profit margins. This highlights the interconnected nature of operational and financial performance, making efficiency-focused strategies essential for achieving sustained financial health.

Additionally, financial performance is influenced by firms' ability to manage risks and adapt to external shocks. For example, companies that adopt robust financial planning practices, such as hedging against currency risks or diversifying revenue streams, are better positioned to weather economic instability. Research emphasizes the importance of strategic foresight in safeguarding financial stability and maintaining profitability in volatile markets.

Emerging trends, such as the integration of environmental, social, and governance (ESG) criteria into financial performance evaluations, are reshaping how firms measure success. Stakeholders increasingly value companies that balance profitability with social responsibility and environmental stewardship. Manufacturing firms aligning with ESG principles often experience improved brand reputation, customer loyalty, and access to capital, further enhancing their financial performance in the long term.

Lastly, technological advancements, such as big data analytics and artificial intelligence, are revolutionizing financial performance assessments. These technologies enable firms to analyse vast amounts of data, identify patterns, and make data-driven decisions that optimize

financial outcomes. As digital tools become more accessible, their adoption is expected to drive more accurate performance forecasting and strategic decision-making, giving firms a competitive edge in the marketplace.

1.11 Chapter Summary

The introductory chapter of the study begins with a detailed outline of the key constructs central to establishing the relationship between employee well-being programs and organizational performance, providing a comprehensive rationale for their selection and relevance. The background section delves into defining and explaining these constructs with reference to subject matter experts, analysing points of convergence and divergence in their definitions, and ensuring the researcher's voice is clearly heard throughout. This section also establishes a link between the key study terms, providing a coherent narrative that integrates past research on the topic at international, regional, and local levels using a funnel approach. Additionally, it situates the problem within the specific organizational context, detailing the location, nature of business, staff composition, and the prevalence of the problem that motivated the research. The problem statement succinctly articulates the existence and manifestation of the issue, supported by both anecdotal and empirical evidence, and outlines previous attempts to address it, identifying gaps that the current study seeks to fill. The chapter proceeds to delineate the research objectives, differentiating between general and specific goals and crafting research questions and hypotheses in alignment with these objectives. Justification for the study is provided by highlighting its unique contributions and addressing gaps in existing research. The limitations section acknowledges potential challenges and the strategies to mitigate them, while the delimitations define the scope and boundaries of the research, justifying these choices to ensure a focused and manageable study.

CHAPTER TWO

LITERATURE REVIEW

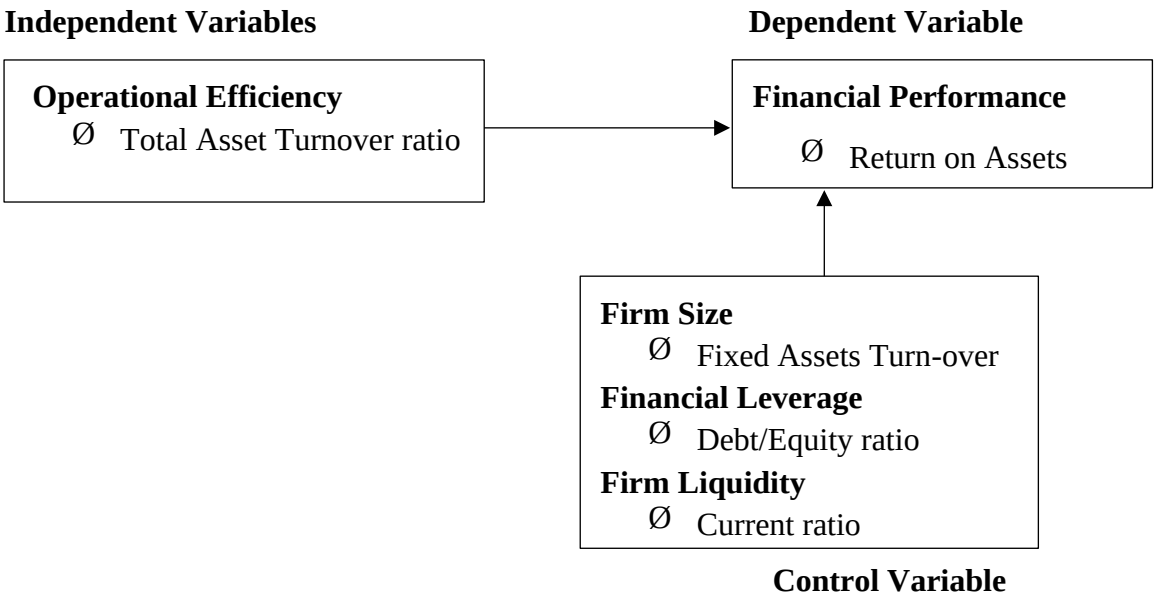
2.0 Introduction

The literature review for the study on the effect of operational efficiency on the financial performance of listed manufacturing firms in Zimbabwe provides a comprehensive examination of both theoretical and empirical foundations relevant to the topic. This chapter begins by outlining key theoretical frameworks that underpin the analysis of operational efficiency and financial performance, such as the Rent Theory of Profit, which explores the ability of firms to generate excess returns over their competitors through efficient operations, and the Conventional Economic Efficiency Theory, which emphasizes optimal resource allocation to maximize output and minimize costs. These theories offer a fundamental understanding of how firms can enhance their financial performance through strategic operational management. Following the theoretical discussion, the chapter delves into empirical literature from a global perspective, examining studies conducted in various countries and regions to understand the diverse impacts of operational efficiency on financial outcomes across different economic environments and industrial contexts. By exploring these empirical studies, the chapter highlights the critical factors influencing operational efficiency and their corresponding effects on financial performance, providing valuable insights that can be applied to the Zimbabwean manufacturing sector. Ultimately, this literature review serves as a foundation for developing a model tailored to the unique economic and operational landscape of Zimbabwe, enabling the researcher to propose strategies that could enhance the financial performance of listed manufacturing firms through improved operational efficiency.

2.1 Conceptual framework

This is an illustrative configuration of association between study variables i.e. operational efficiency, financial performance and firm size (Gubler, Larkin & Pierce, 2022). The conceptual framework of the research study was as shown in Figure 2.

Figure 2.1: Conceptual Framework



2.2 Theoretical literature

The section outlines various theories pertaining operating efficiency of manufacturing firms such as rent theory of profit, Conventional Economic Efficiency Theory.

2.2.1 Rent Theory of Profit

The Rent Theory of Profit, as articulated by Francis Amasa Walker in 1887, builds upon classical economic theories by emphasizing the concept of "economic rent" derived from superior resources, including land, labour, and capital. Walker moved beyond the traditional focus on the natural fertility of land to include the productivity of human and capital resources. He argued that profits are not simply the residual income left after wages and rents are paid but are also shaped by the differential productivity of various factors of production. This differential arises because certain resources, owing to their scarcity or unique attributes, produce greater output compared to others. Walker's interpretation positions profits as akin to economic rents, accruing to those who possess or control the most productive resources. This framing underlines the significance of entrepreneurial skill and innovation in leveraging these resources to generate above-normal returns, portraying profits as a reward for the effective utilization and management of productive assets (Walker, 1887).

Walker's theory broadens the understanding of economic rent by extending its scope beyond land to include differential advantages in capital and labour. Firms with access to advanced technologies, superior managerial talent, or highly skilled labour, for example, can achieve

higher returns than their competitors. These differences, according to Walker, represent sources of economic rent, reflecting the premiums earned from owning or controlling superior productive factors. This perspective has significant implications for income distribution, as it implies that those who control the most productive resources tend to earn disproportionately higher profits. Furthermore, Walker's emphasis on market dynamics and competition underscores the critical role of innovation and continuous improvement in sustaining profitability. His insights serve as a foundation for modern discussions on competitive advantage and the strategic role of unique resources in achieving firm success (Walker, 1887).

Proponents of Walker's theory argue that high-performing firms achieve their success largely due to their financial and human capabilities, which provide a competitive edge. Managers with superior resources at their disposal, supported by efficient and skilled teams, excel at optimizing scarce resources to drive profitability and maintain a strong market position (Daryanto, Samidi & Siregar, 2018). These advantages emphasize the role of strategic resource management and innovation in ensuring a firm's sustainability and growth within a competitive environment.

Walker's framework also anticipates modern economic theories that focus on resource-based views of the firm. By highlighting the importance of unique resources and their efficient management, his theory aligns with contemporary approaches that explore how firms create value through the strategic deployment of scarce and inimitable assets. This alignment underscores the enduring relevance of Walker's insights in analysing profit generation and competitive differentiation across industries.

Operational efficiency plays a crucial role in the performance of manufacturing firms by enabling them to maximize the use of their resources and gain a competitive edge. Firms that effectively utilize advanced technologies, skilled labour, and innovative practices tend to outperform others by reducing costs, improving productivity, and delivering high-quality products. This ability to manage resources strategically not only boosts profitability but also strengthens the firm's market position, ensuring sustainability and growth in a competitive environment.

2.2.2 Conventional Economic Efficiency Theory

The conventional economic efficiency theory, as articulated by Hassan M. Aly in 1990, offers a comprehensive framework for understanding the optimal allocation of resources within an economy to maximize output. Aly's work emphasizes the importance of both allocative and productive efficiency, where allocative efficiency refers to resources being distributed according to consumer preferences, and productive efficiency involves producing goods and services at the lowest possible cost. In his analysis, Aly used a combination of parametric and non-parametric methods to measure efficiency levels across different sectors and firms. This approach enabled him to identify inefficiencies in resource use, thus providing a basis for improving economic productivity and competitiveness. By highlighting the gap between actual and potential output, Aly's theory underscores the significance of minimizing waste and optimizing resource utilization to enhance overall economic welfare (Aly, 1990).

Aly's contribution is particularly notable for its emphasis on the role of technological advancements and innovation in driving economic efficiency. He argued that technological progress not only shifts the production possibility frontier outward but also affects the relative efficiency of firms and industries. This insight suggests that economies must continually invest in technology and skills development to maintain and enhance efficiency levels. Furthermore, Aly's work sheds light on the disparities in efficiency across different economic agents and sectors, emphasizing the need for targeted policies to address these gaps. Such policies might include investments in education, infrastructure, and technological innovation, aimed at levelling the playing field and ensuring that all economic agents can operate at maximum efficiency. Aly's theory thus provides a crucial foundation for understanding the dynamics of economic growth and the role of efficiency in fostering a more equitable and prosperous economy (Aly, 1990). Proponents of the theory point out that the best way of utilizing resources by maximizing the economies of scale, big companies are much better at taking advantage of the economies than small companies due to their financial muscles. Operational efficiency can be achieved both in the short-term and long-term plans if input is efficiently managed and production costs lowered (Shaalan, 2019). In the long-run, firms can enhance their production capacity using partnership and leverage financing to increase their market share.

Operational efficiency is essential for manufacturing firms to improve their performance by minimizing waste and optimizing resource use. By focusing on producing goods at the lowest cost while meeting customer needs, firms can enhance productivity and reduce inefficiencies.

Larger firms often achieve better efficiency due to economies of scale, but even smaller firms can improve by investing in innovation, technology, and effective resource management. These efforts not only lower production costs but also boost competitiveness, allowing firms to expand their market share and achieve sustainable growth over time.

2.2.3 Production Competence Theory

The Production Competence Theory, developed by Hayes and Wheelwright in 1979, suggests that firms engaged in manufacturing operate through a synchronized process where competence is seen as a variable rather than a fixed trait (Yuliarti & Diyani, 2018). This perspective implies that competence can adapt over time to meet changing customer demands. Understanding the general characteristics of manufacturing operations is crucial for optimizing capacity and productivity, as changes in product processes can be costly and time-intensive due to the standardized methods commonly used in process manufacturing firms. These firms typically operate in established markets where customers are well-informed about product quality and competitive offerings (Chen, Lin & Liu, 2018).

The theory highlights the importance of formalized processes and procedures, managed under controlled work schedules with minimal deviations in reporting (Yuliarti & Diyani, 2018). Standardized processes enable such firms to achieve economies of scale without compromising quality. Ginting (2021) reinforces this view, emphasizing that well-trained and experienced employees help manufacturing firms manage their operations more effectively compared to less competent employees who merely respond to process outcomes. For the successful adoption of new technologies and processes, a supportive environment is essential to facilitate knowledge sharing and assimilation, fostering continuous learning and enhancing absorptive capacity (Al-Qubaisi & Ajmal, 2018).

This theory was instrumental in the study by providing insights into leveraging product quality to enhance operational efficiency in listed manufacturing firms.

In the context of listed manufacturing firms, the theory highlights the strategic importance of aligning operational efficiency with performance metrics. Efficient operations not only reduce costs and improve productivity but also position firms to respond effectively to market demands and customer expectations. This alignment, rooted in the principles of the Production Competence Theory, is critical for driving profitability and sustaining long-term growth in the manufacturing sector.

2.3 Empirical literature

The empirical literature was guided by the objectives of the study

2.3.1 The impact of total assets turnover ratio (operation efficiency) on financial performance of listed manufacturing firms.

Osazefua (2019) examined the association that exists between organizational operational efficiency and organizational sustainability, focusing on manufacturing firms in the state of Nigeria. The study relied on published data from financial records and company-verified sources covering a period of 5 years. Data obtained from secondary sources was investigated by use of OLS techniques, and it was established that organizational operational efficiency had a negative impact on the sustainability of manufacturing companies in the state of Nigeria.

Pham, Nguyen, Vu, and Hoang (2020) examined factors affecting effective operational efficiency and efficient management of organizational resources in share trading companies registered at the Vietnam Securities market. The target population for the research study was 30 registered firms. Furthermore, the study relied on published data from the 30 registered companies. Inferential and descriptive analysis techniques were used by the researcher to compute the data obtained, and it was discovered that the association between operational efficiency and resource management was positive and significant. The study recommended that firms restructure their assets to improve their solvency.

Chen, Wang, and Huang (2020) conducted a comprehensive study examining the link between operational efficiency and financial performance among listed manufacturing firms in China. They employed a panel data regression analysis using financial data from 200 firms over the period from 2010 to 2019. Operational efficiency was assessed through metrics like total asset turnover, inventory turnover, and cost of goods sold (COGS) as a percentage of revenue. The study utilized fixed-effects and random-effects models to control for unobserved heterogeneity. The findings demonstrated a strong positive relationship between operational efficiency and financial performance, particularly highlighting that firms with higher asset turnover ratios and better inventory management exhibited significantly improved profitability, measured through return on assets (ROA) and return on equity (ROE).

The authors concluded that enhancing operational efficiency is critical for sustaining competitive advantage and improving financial outcomes in the manufacturing sector.

Kumar and Sharma (2021) investigated the impact of operational efficiency on the financial performance of listed manufacturing firms in India using a stochastic frontier analysis (SFA) approach. The study analysed data from 150 firms over a six-year period, focusing on operational efficiency indicators such as labour productivity, energy efficiency, and material usage. By employing SFA, the authors were able to estimate the efficiency scores and identify the factors contributing to inefficiencies. The results indicated a significant positive correlation between operational efficiency and financial performance, with more efficient firms achieving higher profit margins and better stock market performance. The study also found that technological adoption and investment in human capital were crucial for improving operational efficiency, thereby enhancing financial performance.

Lopez, Gonzalez, and Rodriguez (2022) adopted a data envelopment analysis (DEA) methodology to assess the operational efficiency of European manufacturing firms and its effect on financial performance. The study included a sample of 120 listed firms across various manufacturing sub-sectors, with data covering the years 2015 to 2021. DEA was used to evaluate the efficiency of firms in converting inputs (capital, labour, and materials) into outputs (sales and profitability). The study's findings revealed that firms operating closer to the efficiency frontier tended to exhibit superior financial performance, as evidenced by higher return on assets (ROA) and earnings per share (EPS). The analysis highlighted that operational efficiency was a significant determinant of financial health, particularly in the context of increasingly competitive and resource-constrained markets.

Smith and Davis (2023) explored the relationship between operational efficiency and financial performance in the U.S. manufacturing sector using a mixed-methods approach. The quantitative analysis involved a regression model incorporating financial data from 180 listed manufacturing firms between 2012 and 2021, focusing on efficiency metrics such as production cycle time and defect rates. The qualitative component included interviews with senior management to understand the strategic initiatives aimed at improving efficiency. The study found that firms with streamlined operations and lower defect rates experienced enhanced financial performance, including higher market capitalization and profitability. The qualitative insights emphasized the importance of continuous improvement programs and the integration of digital technologies in achieving operational excellence.

Jones and Carter (2023) analysed the impact of operational efficiency on profitability in small and medium-sized enterprises (SMEs) within the United Kingdom. Utilizing a dataset of 100 SMEs over a seven-year period, the study employed multiple regression techniques to evaluate how resource utilization affects financial outcomes. The findings highlighted that improving operational efficiency through cost management and process optimization significantly enhanced the net profit margins of SMEs. The study recommended adopting lean management practices and automation to improve productivity and profitability.

Ahmed and Khalid (2023) investigated the role of digital transformation in enhancing operational efficiency in Pakistani manufacturing firms. Using survey data collected from 80 firms, the study employed Structural Equation Modelling (SEM) to analyse the relationship between digital adoption, operational efficiency, and profitability. The results showed that firms implementing advanced digital technologies achieved improved operational efficiency, which subsequently led to better financial performance. The study underscored the importance of fostering a digital culture and investing in employee training to maximize the benefits of digital transformation.

Wang and Zhang (2023) examined the influence of supply chain integration on operational efficiency in Chinese manufacturing firms. The study analysed data from 120 firms over a five-year period using panel data econometrics. The findings revealed that firms with higher levels of supply chain integration demonstrated superior operational efficiency, which translated into improved financial performance. The study recommended fostering partnerships and technology integration along the supply chain to enhance efficiency and competitiveness.

Brown and Taylor (2024) explored the effects of energy efficiency measures on operational performance in the European manufacturing sector. The study employed a mixed-methods approach, combining financial data analysis with qualitative interviews from energy managers in 50 firms. Results showed that energy-efficient firms not only reduced costs but also improved operational productivity and profitability. The study advocated for increased adoption of renewable energy technologies and energy management systems to sustain long-term efficiency gains.

2.3.2 Efficiency and firm performance

Olarewaju and Obalade (2015) investigated the operational efficiency factors in commercial banks operating in Nigeria. The study analysed financial records from commercial banks listed on the Nigerian securities market. Key determinants negatively affecting operational efficiency included labour costs, borrowed capital, deposits, and savings. The researchers emphasized the urgent need for banks to invest in advanced technology to reduce staff costs and improve operational management. Additionally, they recommended effective human resource management to ensure oversight of organizational activities and to optimize operational outcomes.

Lausa (2016) explored the relationship between operational efficiency and productivity levels within IT departments in colleges and universities in the Philippines. Employing a descriptive research design, the study utilized questionnaires to collect data directly from students and faculty heads. The findings revealed that operational efficiency in these educational institutions was at high levels, positively influencing sustainable growth and expansion. The study recommended that organizational leaders prepare employees for continuous technological advancements and adapt to the dynamic nature of IT systems to maintain efficiency.

Mutunga and Owino (2017) examined the correlation between enhanced production capacity and productivity in Kenyan manufacturing firms. This study used a descriptive approach and surveyed 180 firms operating for over a decade. Data collected through questionnaires indicated a significant positive relationship between improved capacity and higher productivity levels. Training employees in modern production techniques emerged as a crucial factor in boosting production capacity. The study underscored the importance of investing in employee development to ensure sustainable growth in the manufacturing sector.

Audax (2018) assessed profitability drivers in manufacturing firms listed on the Nairobi Securities Exchange (NSE). Utilizing financial records from verified sources, the research employed descriptive and inferential analysis to examine profitability trends. The findings indicated that firm size significantly influenced productivity levels. Recommendations included adopting lean manufacturing techniques and investing in modern production technologies to improve operational efficiency and overall profitability.

Megeid, Abd-Elmageed, and Riad (2019) investigated the relationship between organizational efficiency and productivity in firms listed on the Egyptian stock market. The study analysed panel data from 65 companies operational between 2013 and 2019 using regression and correlation analysis. Results revealed that profitability positively correlated with debt and equity structures, while organizational efficiency was inversely related to capital setup. The researchers advocated for adopting comprehensive efficiency frameworks to address these challenges and enhance organizational productivity.

González, Sánchez, and Vázquez (2020) examined asset utilization's impact on financial performance in Spanish manufacturing firms. Using data from 120 firms spanning 2011 to 2018, the study employed dynamic panel models such as the Generalized Method of Moments (GMM). Findings showed a positive relationship between total asset turnover ratios and financial metrics like ROA and ROE. The authors highlighted the importance of efficient asset management in enhancing firms' profitability and financial stability.

Ahmed and Alam (2022) analysed the role of operational efficiency, measured by total asset turnover ratios, in determining profitability among manufacturing firms listed on the Dhaka Stock Exchange in Bangladesh. A sample of 150 firms over five years was examined using multiple regression techniques. The study found a significant positive relationship between total asset turnover and net profit margins. The authors concluded that operational efficiency is a key determinant of financial success in the manufacturing sector.

Ncube and Moyo (2023) explored the link between operational efficiency, particularly total asset turnover ratios, and financial performance in Zimbabwean manufacturing firms. Data from 90 firms over eight years were analysed using panel data techniques, including fixed and random effects models. Results demonstrated a significant positive impact of asset turnover ratios on ROA and ROE. The study emphasized that improving operational efficiency is critical to achieving better financial outcomes in Zimbabwe’s manufacturing industry.

2.3.2 The effect of firm size on financial performance of listed manufacturing firms.

Firm size refers to the extent and diversity of production capabilities and the variety of services a firm can offer simultaneously to its clients (Daryanto, Samidi & Siregar, 2018). Larger firms typically benefit from economies of scale compared to smaller firms. These

advantages include the ability to attract skilled employees, hire experienced managers, adopt advanced technologies, and develop robust supply chains that ensure seamless delivery of raw materials and finished products. In contrast, small and medium-sized enterprises (SMEs) often face resource constraints, limiting their ability to compete effectively or achieve significant profit margins.

Ginting (2021) observed that despite their apparent advantages, large firms can struggle with high levels of debt, which often negatively impacts profitability. Smaller, innovative companies, however, can attract risk-tolerant investors who recognize their growth potential, enabling them to accumulate wealth more easily. The financial performance of firms also fluctuates due to varying share trading dynamics. Companies with strong reputations or effective market strategies can attract substantial equity investments. Additionally, larger firms often reduce risk by diversifying their operations, cushioning against revenue losses from core business activities (Dao & Nguyen, 2020).

Zhang and Li (2021) investigated the relationship between firm size and financial performance in manufacturing firms listed on the Shanghai Stock Exchange. Analysing data from 200 firms between 2010 and 2019 using panel regression models, the study revealed a significant positive relationship between firm size, measured by total assets, and return on assets (ROA). Larger firms exhibited better asset utilization and profitability. However, the relationship between firm size and return on equity (ROE) was non-significant, suggesting that increased firm size does not always translate into higher returns for shareholders.

Kumar and Singh (2021) explored the impact of firm size on the financial performance of Indian manufacturing firms listed on the Bombay Stock Exchange. Using data from 180 firms over eight years, the study assessed performance using ROA, ROE, and earnings per share (EPS). A random effects model showed that firm size positively and significantly influenced all three financial metrics, underscoring the advantages of market power, economies of scale, and access to capital for larger firms. These findings emphasize that firm size plays a critical role in enhancing financial performance in competitive markets.

Chen and Huang (2022) examined the relationship between firm size and financial performance among manufacturing firms listed on the Taiwan Stock Exchange. Employing a dynamic panel data model to address endogeneity, the study analysed 140 firms from 2012 to 2020. Firm size, measured by total sales, was positively and significantly associated with

ROA, indicating that larger firms achieved better asset returns due to operational efficiency and market dominance. However, the study found a negative relationship between firm size and ROE, suggesting that increased complexity and managerial challenges in larger firms might dilute equity returns.

Olaniyi and Adeleke (2022) analysed the effect of firm size on the financial performance of manufacturing firms listed on the Nigerian Stock Exchange. Using a panel dataset of 150 firms spanning 2011 to 2020, the study applied multiple regression techniques. Results showed a positive and significant relationship between firm size, measured by total sales revenue, and performance indicators like ROA and net profit margin (NPM). The findings highlight the role of economies of scale and market positioning in boosting profitability, underscoring the importance of firm size as a determinant of financial performance in Nigeria's manufacturing sector.

González and Martínez (2023) explored how firm size affects financial performance in manufacturing firms listed on the Madrid Stock Exchange. Their analysis covered 120 firms over a nine-year period, employing fixed effects models to control for unobserved heterogeneity. When firm size was measured by total assets, the study found a positive and significant relationship with ROA, suggesting that larger firms are better equipped to generate returns on their assets. However, a negative relationship emerged between firm size (measured by market capitalization) and ROE, implying diminishing returns to scale in terms of shareholder equity for larger firms in Spain.

In summary, the relationship between firm size and financial performance is complex and multifaceted. While larger firms generally enjoy advantages such as operational efficiencies, market dominance, and economies of scale, challenges such as debt management, managerial inefficiencies, and diminishing returns to equity highlight the limitations of firm size. The studies across various countries illustrate that the impact of firm size on financial performance depends on contextual factors, including industry, geography, and specific performance metrics.

2.3.3 The impact of firm leverage on financial performance of listed manufacturing firms.

Monetary leverage refers to the proportion of capital a business acquires through borrowing from financial institutions (Gitari & Mohamed, 2021). As firms grow, it often becomes

challenging for managers to meet financial obligations solely through equity, prompting them to turn to debt financing to invest or procure essential resources. Debt financing offers firms advantages such as tax benefits, enabling managers to lower operational costs while seeking higher returns on investments. This reliance is particularly significant in the manufacturing sector, where the capital required for equipment, raw materials, and technology is substantial and often exceeds what can be raised through equity alone (Habib & Shahwan, 2020).

Over time, financial leverage has been identified as a key factor in enabling firms to achieve rapid growth and expand their operations (Habrosh, 2017). However, poor debt management has frequently been cited as a leading cause of corporate failure. When firms fail to meet their debt obligations, creditors may resort to legal action, resulting in the loss of control and profits for the firm's owners. In such scenarios, firms may be placed under administration to recover funds, causing long-term financial and operational setbacks (Dao & Nguyen, 2020). Effective debt management is, therefore, crucial to leveraging its benefits while avoiding potential pitfalls.

The effects of financial leverage on firm performance have been explored extensively in empirical research. Lee and Kim (2021) investigated the impact of leverage on the financial performance of manufacturing companies listed on the Korea Stock Exchange. Their study revealed a significant negative relationship between leverage, measured by the total debt ratio, and financial performance indicators such as ROA, ROE, and NPM. This finding underscores the adverse effects of excessive leverage on profitability, highlighting the need for firms to maintain an optimal capital structure to mitigate financial risks.

Ahmed and Saeed (2022) provided additional insights by examining manufacturing firms listed on the Karachi Stock Exchange in Pakistan. Their findings confirmed a negative relationship between leverage, measured by the debt-to-equity ratio, and financial performance indicators like ROA and ROE. These results emphasize that excessive reliance on debt increases financial risk, ultimately diminishing profitability. Managers are advised to balance equity and debt while maintaining operational efficiency across all organizational levels to optimize financial outcomes.

In the Indian manufacturing sector, Singh and Bansal (2022) demonstrated similar trends. Their study revealed a negative and significant impact of leverage on ROA and operating profit margin (OPM), suggesting that higher debt levels reduce both profitability and

operational efficiency. This highlights the importance of maintaining an optimal leverage ratio to maximize financial performance and minimize the risk of financial distress.

Martinez and García (2023) focused on manufacturing firms listed on the Mexican Stock Exchange, exploring the effects of leverage measured by the debt-to-assets ratio. Their study showed a negative relationship between leverage and ROA, indicating reduced asset efficiency with higher debt levels. Interestingly, the relationship between leverage and ROE was positive but not statistically significant, suggesting that while leverage may occasionally enhance equity returns, the risks and costs associated with high debt often outweigh its potential benefits.

Oliveira and Santos (2023) extended the analysis to manufacturing firms in Brazil, emphasizing the nuanced effects of financial leverage. Their findings revealed a negative relationship between leverage and ROA, indicating reduced asset efficiency with increased debt. However, they also observed a positive and significant relationship between leverage and ROE, highlighting the potential for leverage to enhance equity returns when managed judiciously. This underscores the critical importance of achieving a balance in financial leverage to optimize overall performance while mitigating associated risks.

Taken together, these studies highlight the dual nature of financial leverage. While it provides firms with the means to invest and grow, excessive or poorly managed leverage can jeopardize financial stability. Firms must adopt strategies that ensure efficient debt management, balancing risk and opportunity to maximize profitability and maintain long-term sustainability.

2.3.4 The impact of firm liquidity on financial performance of listed manufacturing firms.

Financial liquidity, a term closely associated with adequacy, pertains to an organization's capacity to meet daily cash demands essential for its operations. Researchers have increasingly emphasized this concept because of its critical role in addressing challenges faced by managers in meeting financial obligations (Dey, Hossain & Rahman, 2018). Effective liquidity management requires organizations to ensure sufficient cash flow for smooth daily operations and to meet short-term financial commitments when they arise. Maintaining adequate liquidity is vital for sustaining the organization's operations and achieving its financial goals (Diaz de Rivera, Dick & Evans, 2020). Thus, liquidity

management plays a pivotal role in both internal decision-making and external evaluation of a firm's operational efficiency and financial stability.

Liquidity management is one of the four core pillars of financial management that every organization must carefully address (Essuman, Boso & Annan, 2019). It governs the firm's ability to sustain its operations and maintain its financial health over time. A lack of sufficient liquidity can leave a firm unable to cover daily expenses, potentially resulting in insolvency and operational disruptions (Ginting, 2021). Therefore, effective liquidity management is essential for ensuring both the sustainability of ongoing operations and the firm's long-term viability in competitive markets.

The importance of liquidity has been demonstrated through various empirical studies. For instance, Wang and Liu (2021) analysed the relationship between firm liquidity and financial performance among manufacturing firms listed on the Shanghai Stock Exchange. Using a fixed-effects model, they found a positive correlation between liquidity, measured by the cash ratio, and performance metrics such as ROA, ROE, and net profit margin. Their findings underscore that firms with higher liquidity levels are better equipped to meet short-term obligations while maintaining profitability, emphasizing the strategic significance of liquidity management for operational efficiency and financial stability.

Oliveira and Silva (2022) conducted a similar study in Brazil, examining manufacturing firms listed on the São Paulo Stock Exchange. Their analysis highlighted a significant positive impact of liquidity, measured by the current ratio, on ROA and earnings per share (EPS). These findings indicate that higher liquidity levels enhance profitability and market performance. However, they also suggest the need for careful liquidity management to optimize financial outcomes and operational efficiency without incurring excessive opportunity costs.

Further insights were provided by Johnson and Smith (2022), who investigated the relationship between liquidity and financial performance among manufacturing firms on the London Stock Exchange. While their study revealed a positive relationship between the current ratio and ROA, it also showed an insignificant relationship between liquidity and ROE. This implies that while liquidity supports asset utilization and profitability, its effect on equity returns might be limited, potentially due to inefficiencies in capital allocation or the nature of operational investments.

Rahman and Zaman (2023) extended this analysis to manufacturing firms in Bangladesh, showing that higher liquidity, as measured by the quick ratio, positively influenced ROA but had an insignificant and negative relationship with ROE. This dichotomy underscores the complex dynamics of liquidity management, where maintaining high liquidity can improve operational performance but may not always translate into higher returns on equity. Patel and Desai (2023) observed similar trends in India, noting that excessive liquidity could lead to suboptimal asset utilization and opportunity costs, thereby reducing equity returns.

Taken together, these findings highlight the multifaceted role of liquidity management. While maintaining adequate liquidity is crucial for operational stability and profitability, an optimal balance must be struck to avoid excessive cash reserves that could hinder long-term growth. This balance requires strategic planning and efficient resource allocation, ensuring that liquidity not only supports short-term operations but also aligns with the firm's broader financial objectives.

2.4 Research gap

This chapter provides a comprehensive review of literature and theoretical frameworks to establish a foundation for understanding the potential relationships between the study's independent and dependent variables. Various studies were analysed, including Osazefua (2019), who investigated the impact of functional effectiveness on the financial sustainability of listed manufacturing firms in Nigeria. However, since this study was not conducted in Zimbabwe, its findings may not be directly applicable to the current context. Additionally, Pham et al. (2020) examined the influence of operational efficiency on the ability of logistics firms in Vietnam to repay borrowed capital, aiming to identify long-term solutions for enhancing business performance. Their results indicated that operational efficiency has a significant and positive relationship with solvency, while factors such as firm size, financial independence, total assets, and sales also positively affect operational efficiency. Despite these insights, the review highlights a gap in research on this topic within Zimbabwe.

2.5 Conclusion

In a nutshell, both the theoretical and empirical literature on the impact of operating efficiency on manufacturing sector pointed out that firms that are efficient in their operations are more likely to be profitable. Other control variables such as firm size, market share and macroeconomic variables such as inflation, economic growth. The next chapter outlines the methodology of the study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The methodology section of this study delineates a comprehensive approach to investigating the impact of operating efficiency on performance of listed firms in Zimbabwe. This chapter will meticulously outline the research design and strategy employed, providing a robust foundation for empirical analysis. It will detail the data sources utilized, ensuring reliability and relevance, alongside the estimation model applied to discern key economic relationships. A thorough justification of variables will be presented to underscore their significance in the context of manufacturing performance amidst exchange rate fluctuations. The chapter outline the research design, target population, data collection techniques, estimation model and ethical considerations.

3.2 Research Design

This study will employ a quantitative research design to investigate the effect of operational efficiency on the financial performance of listed manufacturing firms in Zimbabwe. The research will use secondary data collected from annual financial reports, stock market filings, and industry reports from the Zimbabwe Stock Exchange (ZSE) covering a five-year period (2018-2022). The sample will consist of all manufacturing firms listed on the ZSE. Key variables to be analysed include operational efficiency indicators such as inventory turnover, asset utilization, and cost efficiency, alongside financial performance metrics such as return on assets (ROA), return on equity (ROE), and net profit margin. The data will be subjected to descriptive statistics, correlation analysis, and multiple regression analysis to establish the relationship between operational efficiency and financial performance. The Statistical Package STATA will be used for data analysis.

3.3 Target Population

As per Garaizar & Reips (2020), research population is an arrangement of individuals, administrations, components, and occasions, gatherings of things or families that are being explored. The study targeted a population of 08 companies dealing with manufacturing and listed at the ZSE. Given that the population is small, sampling was not useful in this study,

instead a census method will be adopted, and all 08 targeted companies will be considered in the study.

3.3 Data Collection Techniques

The study gathered data from selected manufacturing firms using secondary sources, primarily financial statements published over the past five financial years. From these financial statements, the researcher calculated ratios corresponding to each study variable. The financial statements were obtained from the websites of listed manufacturing firms and the Capital Market Authority. A data collection sheet was utilized to gather information on financial performance, operational efficiency, firm size, liquidity, and financial leverage.3.5 Data analysis and Presentation

3.3.1 Estimation model

Following the study by Mehzabin *et al.,* (2023), a panel data regression technique shall be employed. The panel data regression model equation was presented as follows.

$$FP_{it} = \beta_0 + \beta_1 OE_{it} + \beta_2 LEV_{it} + \beta_3 LIQ_{it} + \beta_4 FS_{it} + \varepsilon_{it}$$

Where FP_{it} is the financial performance, OE_{it} is the operational efficiency, LEV_{it} is leverage ratio, LIQ_{it} is the liquidity ratio, FS_{it} is the firm size, β_0 is the constant, $\beta_1 \ldots \ldots \ldots \beta_4$ are the parameters or coefficients, while ε_{it} is the stochastic error term which is assumed to be normally distributed.

3.3.2 Measurement and Justification of Variables

3.3.2.1 Dependent Variable

Financial performance

Financial performance is the dependent variable of the study. Financial performance can also be expressed in profitability, increase in sales, reduced costs, growth and increased return on investments (Ginting, 2021). As most managers look into the positive of productivity, reduced financial performance is also of significance to help managers identify underlying problems facing the company. Managers in other organizations combine both financial and non-financial indicators to prove or disapprove growth or decline in firm productivity (Essuman, Boso & Annan, 2019). Therefore, changes in financial performance can be used as a metric to assess firm size and firm development as a pointer to whether firms have

benefited from borrowed funds. A number of monetary ratios are normally used by managers in assessing the productivity of firms which include ROA, ROE and ROI that look into the ratios of financial aspect for a given financial year period (Hasan, Shiming, Islam & Hossain, 2020). The study will use Return on Assets (ROA) as a measure of financial performance of listed manufacturing firms in Zimbabwe.

3.3.2.2 Independent variables

Operational Efficiency

The primary independent variable in this study is operational efficiency, which refers to financial control measures that enhance an organization's efficiency and effectiveness (Mahindra & Irwandi, 2017). Operational efficiency focuses on minimizing resource wastage to maximize a firm's output (Mahindra & Irwandi, 2017). It also involves the effective utilization of available resources by employing the right methods and personnel to produce goods that meet required standards. To avoid over-reliance on a single source of materials, firms may diversify their portfolios or establish networks of multiple suppliers to ensure the timely availability of resources (Obaje & Abdullahi, 2021). Managers who allocate all resources to a single firm risk significant losses if operations cease or the firm collapses, as this would leave them without an income source to sustain operations or fulfil financial obligations (Habrosh, 2017). Operational Efficiency (OE) is measures by the ratio.

$$OE = \frac{Operating\ Expenses}{Total\ Revenue}.$$

Firm Leverage

Monetary leverage refers to the proportion of capital that a business obtains through borrowing from financial institutions (Gitari & Mohamed, 2021). As firms expand, relying solely on equity to meet financial obligations can become challenging for many managers, prompting them to turn to debt financing to fund investments or acquire necessary materials. Accounting principles offer several advantages to firms utilizing debt, including tax benefits that allow managers to reduce operating costs while striving for better investment returns. The manufacturing sector is particularly dependent on financial leverage, as the equipment, raw materials, and technologies required for production are often costly and require substantial capital that cannot be easily raised through share trading (Habib & Shahwan, 2020). Financial leverage in this study will be assessed using the debt-to-equity ratio.

Firm Liquidity

A term closely related to adequacy; financial liquidity is concerned with a firm position to meet the daily cash demands for running the operations of an organization. In research, scholars have paid increased attention to this concept as it helps address the challenges faced by managers in meeting their financial obligations (Dey, Hossain & Rahman, 2018). Liquidity management requires keeping up with liquidity in everyday activities to guarantee its smooth running and meet monetary commitments when they fall due. An organization ought to guarantee that it has adequate liquidity to meet its transient commitments (Diaz de Rivera, Dick & Evans, 2020). Concentrating on liquidity is imperative to both the inside and the outer exploration in view of its cozy relationship with everyday activities of a firm. Firm liquidity will be measured by liquidity ratio.

Firm Size

The size of a firm is the amount and variety of production capacity and ability a firm possesses or the amount and variety of services a firm can provide concurrently to its customers (Daryanto, Samidi & Siregar, 2018). It's well known that big companies enjoy massive economies of scale as compared to small sized companies. With big size, a firm is presumed to have sufficient resources to recruit the most skilled employees available, hire talented and experienced managers, acquire the most sophisticated technology and develop a strong supply chain that will ensure effective delivery of raw materials and supply of finished products. To small and medium sized companies, they lack these kinds of capabilities and may disadvantage managers when seeking to have an edge in the market and multiply firm's profits. Firm size is measured by the logarithm of total assets.

3.5.2.3 Operationalization of variables

Table 1

Variable	Definition	Measure	Reference
Financial Performance (FP)	The financial health and productivity of a firm, usually expressed through profitability and return on investment.	Return on Assets (ROA)	Hasan et al. (2020) Ginting (2021). Essuman, Boso & Annan (2019)
Operational	The effectiveness	Operating Expenses	Mahindra & Irwandi

Efficiency (OE)	with which a firm minimizes waste and maximizes output using its resources.	/ Total Revenue	(2017), Obaje & Abdullahi (2021)
Leverage Ratio (LEV)	The proportion of a firm's capital that is financed through debt.	Debt-to-Equity Ratio	Gitari & Mohamed (2021) Habib & Shahwan (2020)
Liquidity Ratio (LIQ)	The firm's ability to meet its short-term obligations and daily cash demands.	Liquidity Ratio	Diaz de Rivera, Dick & Evans (2020), Mungai (2023)
Firm Size (FS)	The scale of the firm's operations, capacity, and resources.	Logarithm of Total Assets	Daryanto, Samidi & Siregar (2018) (Daryanto, Samidi & Siregar, 2018)

3.4 Estimation Procedure

Several approaches are used in panel data analysis. These include the Pooled Ordinary Least Squares (POLS), Fixed Effects Model (FEM) and Random Effects Model (REM) techniques. The POLS approach is simply an ordinary least squares approach. However, this approach does not consider the differences among individuals (banks) across time periods and thus it does not consider the panel nature of the dataset. In addition, the estimates obtained by adopting this approach are heavily biased because of the heterogeneity between the error term and the independent variables. It is because of the inadequacy of the POLS to capture the panel nature of the dataset that the FEM and the REM become useful.

The Fixed Effects Model (FEM)

This model is used when one wants to control omitted variables that differ between cases but are constant over time. This helps to track changes in the variables over time to estimate the effect of independent variables on dependent variables. According to Gujarati (2003), the term fixed effects is because, although the intercept may differ across banks, it does not vary over time. This means that the intercept is time invariant. Assuming that $Cov(X_{it}, \partial_i) \neq 0$ the FEM can be written as:

$$Y_{it} = \beta_{1i} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_{it}$$

Where $\mu_{it} = \partial_i + u_{it}$

In the model v_i are treated as unknown parameters to be estimated and the combined time series and cross-section error component (u_{it}). Also, ***i*** and ***t*** denote the cross-section identifier and the time identifier respectively. Y_{it} is the dependent variable and β_{1i} are cross-section (bank) specific intercepts which are constant over time. X_{2it} and X_{3it} are the explanatory variables which do not vary across cross-sections and β_2 and β_3 are the slope coefficients respectively. The downside of the model is that where ***T*** is small, and ***N*** is large we cannot estimate ∂_i. However, the remaining parameters can still be estimated. On the bright side, the FEM solves the omitted-variables problem by throwing away some of the variance that contaminates either the REM or the POLS estimator (Johnston and Dinardo, 1997).

The Random Effects Model (REM)

The REM is used where some omitted variables may be constant over time but vary between cases, others may be fixed between cases but vary over time (Johnston and Dinardo, 1997). The REM is appropriate in cases where both ***T*** and ***N*** can be considered small. REM which is defined as follows:

$$Y_{it} = \vartheta_0 + \vartheta_1 X_{1it} + \vartheta_2 X_{2it} + \varepsilon_{it}$$

The composite error term ε_{it} consists of the individual-specific or cross-section error component (∂_i) and the combined time series and cross-section error component (u_{it}). Hence $\mu_{it} = \partial_i + u_{it}$. In the model ***i*** and ***t*** denote the cross-section identifier and the time identifier respectively. The dependent variable the mean intercept is represented by Y_{it} and ϑ_0, respectively. The mean intercept denotes the mean value of all cross-sectional intercepts whereas the random deviation of individual units from this intercept is represented by ∂_i. ϑ_0 and ϑ_2 are the slope coefficients of the explanatory variables X_{1it} and X_{2it} respectively. The REM assumes that the individual error components are not correlated with each other and are also not auto correlated across both cross-section and time series units (Gujarati, 2003). This follows that $E\ (\varepsilon_{it}) = 0$ and that $var(\varepsilon_{it}) = \sigma_\partial^2 + \sigma_u^2$ (which shows that the error term ε_{it} is homoscedastic). Since the Generalised Least Squares (GLS) is the weighted average of within-group and between-group estimators, this enables the extraction of information from these two variations.

Fixed Effects Model (FEM) versus Random Effects Model (REM)

It is believed that most researchers prefer the FEM to REM because it is most unlikely that the fixed effects are uncorrelated with the regressors of interest (Johnston and Dinardo, 1997). Thus, the basic assumption for the FEM is that $Cov(X_{it}, \partial_i) \neq 0$ while REM assumes that $Cov(X_{it}, \partial_i) = 0$. According to Gujarati (2003) the FEM solves the omitted-variables problem by throwing away some of the variance that contaminates either the REM or the POLS estimator. However, if ***T*** is small and ***N*** is large, and the assumptions underlying REM hold, the FEM is relatively not efficient as compared to the REM (Davidson and MacKinnon, 1999).

It is imperative to note that the decision of whether to choose between the FEM or REM should be premised on the theoretical requirements and advantages of each model. Hence, according to Johnston and Dinardo (1997), the choice should be based on the following restrictions:

i. If the number of time series data (***T***) is large and the number of cross-sectional units (***N***) is small, both FEM and REM produce statistically equivalent parameter estimates hence the choice between the two models will be based purely on convenience and in this case, FEM is preferred.
ii. When ***T*** is small and ***N*** is large, estimates obtained from the two models significantly differ. In this case FEM will be appropriate only if the cross-sectional units in the sample were not randomly selected while REM is appropriate when cross-sectional units were randomly selected.

3.5 Diagnostics tests

3.5.1 Multicollinearity test

Multicollinearity occurs in a multiple regression model when two or more predictor variables are highly correlated, meaning they contain similar information about the variance of the dependent variable (Gujarati, 2004). This correlation complicates the estimation of individual regression coefficients, as it becomes difficult to isolate the effect of each predictor on the outcome variable. In severe cases, multicollinearity can make the regression coefficients highly sensitive to small changes in the model, leading to large variances and making the statistical tests for these coefficients unreliable. Consequently, it hampers the interpretability of the model because it is challenging to discern the unique contribution of each predictor

variable. In the presence of multicollinearity, the estimated coefficients will be biased, so blue will not be produced. The estimator also has a large variance and covariance, so the accuracy of the estimation is reduced. R-squared also tends to be high. The study will employ Pair-wise-correlation test. Based on the pairwise correlation test, there is a problem of multicollinearity if the absolute value of the pairwise correlation coefficient is at least 0.8.

3.5.2 Stationarity test

A panel unit root test is a statistical method used to determine whether a panel dataset—a collection of time series data across multiple cross-sectional units—contains unit roots, indicating non-stationarity. This test is crucial in econometrics and other fields as it helps in understanding the properties of the data and ensuring the reliability of further analyses, such as causality testing or forecasting. Unlike univariate unit root tests, panel unit root tests exploit the cross-sectional dimension, enhancing the test's power and allowing for heterogeneity among the individual series. These tests include various approaches like the Levin, Lin, and Chu test, Im, Pesaran, and Shin test, and others, which cater to different assumptions about cross-sectional dependence and individual unit properties (Levin, Lin, & Chu, 2002; Im, Pesaran, & Shin, 2003). This study employed the Levin, Lin, and Chu test under the null hypothesis that the variables are non-stationary against the alternative hypothesis that the alternative hypothesis that the variables are stationary. Panel data set is considered stationary if the test statistic is less than the critical value and the p-value is less than a chosen significance level, typically 0.05.

3.5.3 Hausman Test

This test is used in choosing between FEM and REM (Gujarati, 2003). It is based on the null hypothesis that the REM is valid against the alternative hypothesis that the FEM is valid. The test follows a Chi-square (χ^2) distribution. The test is shown as follows:

$$H = (\hat{a}_{FE} - \hat{a}_{RE})'[var(\hat{a}_{FE}) - var(\hat{a}_{RE})]^{-1}(\hat{a}_{FE} - \hat{a}_{RE}) \sim \chi^2_K$$

where ***K*** denotes the dimension of the slope vector α

Thus $H_0: Cov(X_{it}, v_i) = 0$

$H_1: Cov(X_{it}, v_i) \neq 0$

Given the five percent (0.05) level of significance, failure to accept the null hypothesis leads to the conclusion that the REM is not appropriate, hence we are better off using the FEM where statistical inferences will be conditional on the error term in the sample.

3.6 Ethical consideration

Ethical considerations are crucial in ensuring the integrity and reliability of the study on the Effect of Operational Efficiency on Financial Performance of Listed Manufacturing Firms in Zimbabwe. First, confidentiality and data privacy must be prioritized. The study will likely involve accessing sensitive financial data from manufacturing firms, which must be handled with strict confidentiality to avoid unauthorized disclosure (McKenna et al., 2021). Researchers should ensure that any data shared or published is anonymized, removing identifiers that could link the information to specific companies or individuals (Resnik, 2021).

Another important consideration is informed consent. If the study requires surveys or interviews with personnel from the listed firms, it is essential to obtain their voluntary and informed consent. Participants should be made fully aware of the purpose of the research, how their input will be used, and their right to withdraw at any point without consequences (Oye et al., 2021).

Avoiding conflicts of interest is also a critical ethical aspect. The researchers must remain neutral and ensure that their findings are not influenced by any financial or personal ties to the firms under study. Transparency in funding sources and any potential biases is essential to maintain the credibility of the research (Miller et al., 2020).

3.7 Conclusion

This chapter aimed at bringing out the form of the model which is going to be applied to this study. The dependent and independent variables to be used were also indicated. Furthermore, the chapter gave an insight on the tests to be conducted, definitions of variables, and outlined sources of data used. This chapter also presented the priori expectation signs of coefficients of variables as well as, present the methodology adopted in this study. Having outlined the methodology including data analysis techniques, in the next chapter, the study shall present and interpret results.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND DISCUSSION

4.0 Introduction

This chapter focuses on the estimation, presentation, and interpretation of the results, providing the empirical foundation for the study on the effect of operational efficiency on the financial performance of listed manufacturing firms in Zimbabwe. At this stage, the research questions and hypotheses are tested using real empirical data from the sampled firms, with robust econometric tools employed to ensure reliable findings that inform the study's conclusions. The chapter begins with a summary of descriptive statistics, offering insights into the central tendencies and distributional characteristics of key variables, which is essential for understanding the underlying data structure and identifying any potential anomalies or patterns that could influence the analysis. Following this, a correlation analysis is conducted to explore relationships between operational efficiency indicators and financial performance measures, laying the groundwork for the more advanced econometric modelling to follow. Next, the Hausman Specification Test is employed to determine the appropriate model—whether fixed effects or random effects—best suited for analysing the panel data, ensuring statistical rigor in selecting the most appropriate model. The regression results are then presented, highlighting the impact of operational efficiency on the financial performance of the firms in the sample, with these results interpreted in light of the study's objectives and compared with the empirical literature reviewed in Chapter Two. To achieve accurate and robust estimations, STATA version 15 is used as the primary tool for data analysis, ensuring the application of advanced econometric techniques. Full outputs from the analysis, including regression tables and other statistical tests, are provided in the Appendices for further reference. The findings of this chapter form the empirical basis for the policy recommendations discussed in the next chapter, offering actionable insights into improving the financial performance of manufacturing firms in Zimbabwe through enhanced operational efficiency. The chapter outline the descriptive statistics, correlation analysis, panel unit root test, Hausman test, Fixed Effects Model,

4.1 Descriptive Statistics

To provide a clear picture of the impact of bank specific variables on profitability of banks in Zimbabwe, the summary of statistics is presented in Table 1.

Table 2: Descriptive Statistics

Table 2

Variable		Mean	Std. Dev.	Min	Max	Observations
Id	Overall	5	2.602728	1	9	N = 63
	Between		2.738613	1	9	n = 9
	Within		0	5	5	T = 7
Year	Overall	2020	2.016065	2017	2023	N = 63
	Between		0	2020	2020	n = 9
	Within		2.016065	2017	2023	T = 7
Return on assets	Overall	.1304762	.056295	.06	.28	N = 63
	Between		.057654	.0728571	.2528571	n = 9
	Within		.0129159	.1076191	.157619	T = 7
Operational efficiency	Overall	79.57143	9.325156	60	98	N = 63
	Between		9.163203	66	94.57143	n = 9
	Within		3.334639	73.57143	85.57143	T = 7
Leverage ratio	Overall	.6009524	.1161022	.35	.82	N = 63
	Between		.1125901	.4242857	.76	n = 9
	Within		.045055	.5252381	.6766667	T = 7
Liquidity ratio	Overall	2.069841	.3787223	1.4	3.1	N = 63
	Between		.3396009	1.7	2.8	n = 9
	Within		.1981481	1.769841	2.369841	T = 7

Firm size	Overall	764.8413	615.0577	250	2600	N = 63
	Between		639.8335	311.4286	2300	n = 9
	Within		92.34216	464.8413	1064.841	T = 7

The descriptive statistics for the study on the impact of operational efficiency on the performance of listed manufacturing firms in Zimbabwe offer valuable insights into the dataset, capturing both between-firm and within-firm variations over time. The "id" variable, representing individual firms, has an overall mean of 5 and a standard deviation of 2.6, indicating moderate diversity among the firms. The between-firm variation, slightly higher at 2.7, reflects notable differences in performance characteristics across firms. The year variable, which spans from 2017 to 2023, has a mean of 2020, and a within-firm standard deviation of 2.02, capturing some variability in performance over the seven-year period.

Return on Assets (ROA), an indicator of profitability relative to total assets, shows an overall mean of 0.13 and a standard deviation of 0.056, suggesting moderate variability in profitability across firms. The between-firm standard deviation of 0.057 highlights pronounced differences in profitability among firms, while the lower within-firm variation of 0.013 indicates that individual firms exhibit relatively stable profitability over time. The ROA range, from 0.06 to 0.28, underscores the significant variation in profitability across Zimbabwe's manufacturing firms, with some outperforming others considerably. This aligns with studies such as Ntim (2022), which attribute profitability differences to factors like management practices and market dynamics.

Operational efficiency, the study's focal point, has an overall mean of 79.57%, with a standard deviation of 9.33. The between-firm variation of 9.16 suggests differences in firms' ability to convert inputs into outputs, while the smaller within-firm variation of 3.33 reflects consistency in operational efficiency over time. The efficiency range of 60% to 98% reveals a notable disparity, with some firms nearing optimal efficiency while others lag behind. These findings are consistent with Duho et al. (2020), who identified technology adoption and management strategies as key determinants of operational efficiency in manufacturing.

The leverage ratio, indicating reliance on debt financing, has an overall mean of 0.60 and a standard deviation of 0.116. The between-firm variation of 0.113 highlights considerable differences in debt reliance among firms, while the within-firm variation of 0.045 indicates

stability in individual firms' leverage over time. The leverage range, from 0.35 to 0.82, suggests variability in financial risk, aligning with theories like Modigliani and Miller (1958), which link higher leverage to increased financial risk and potential impacts on operational and financial performance.

Liquidity, measured by the liquidity ratio, has an overall mean of 2.07 and a standard deviation of 0.379. The between-firm standard deviation of 0.340 indicates variability in liquidity management practices, while the smaller within-firm variation of 0.198 shows relative consistency in liquidity over time. The liquidity range, from 1.4 to 3.1, highlights firms' differing capacities to manage short-term financial pressures. These findings echo Sagner (2020), who emphasized the importance of liquidity management for operational efficiency and performance.

Firm size, measured by total assets, averages ZWL 764.84 million, with a standard deviation of 615.06, reflecting significant diversity in operational scale. The between-firm variation of 639.83 underscores differences in firm size, while the within-firm variation of 92.34 suggests stable growth or contraction over time. The size range, from ZWL 250 million to ZWL 2.6 billion, illustrates disparities in scale, consistent with Beck et al. (2005), who noted economies of scale as a key factor influencing performance and efficiency.

Linking these statistics to empirical literature reveals several patterns. Efficient firms tend to outperform less efficient ones in profitability, as noted by Jovanovic (1982), which is reflected in the positive correlation between operational efficiency and ROA. Variability in leverage and liquidity ratios highlights the influence of capital structure and liquidity management on financial performance, as supported by established theories.

Overall, the descriptive statistics provide a solid foundation for understanding the operational and financial dynamics of Zimbabwe's manufacturing firms. The significant between-firm variations suggest opportunities for deeper analysis through regression and hypothesis testing, using tools like the Hausman Specification Test to identify suitable models. These observations set the stage for a rigorous assessment of the relationship between operational efficiency and financial performance, in line with existing literature.

4.2 Correlation Analysis

This section focuses on uncovering the nature of relationship among variables.

Table 3

	Return on assets	Operation efficiency	Leverage ratio	Liquidity ratio	Firm size
Return on assets	1.0000				
Operational efficiency	0.7292	1.0000			
Leverage ratio	-0.6886	-0.6617	1.0000		
Liquidity ratio	0.7327	0.6394	-0.4729	1.0000	
Firm size	0.6557	0.7042	-0.7064	0.5973	1.0000

The correlation matrix shows a strong positive relationship between return on assets (ROA) and operational efficiency, with a coefficient of 0.7292. This indicates that firms with higher operational efficiency tend to achieve better profitability, aligning with existing literature that suggests efficient operations are key to improving financial performance (Ntim, 2022). Similarly, liquidity ratio is positively correlated with ROA (0.7327), implying that firms with stronger liquidity positions tend to be more profitable, as they are better equipped to meet short-term obligations and reduce financial distress. However, the leverage ratio has a significant negative correlation with ROA (-0.6886), indicating that higher debt levels are associated with lower profitability, a relationship well-documented in the literature on capital structure, which emphasizes the risks of excessive leverage (Modigliani & Miller, 1958). Firm size is also positively correlated with ROA (0.6557), suggesting that larger firms tend to have a profitability advantage, likely due to economies of scale and better access to resources.

Regarding multicollinearity, the correlation matrix highlights potential issues, particularly between operational efficiency and liquidity ratio (0.7394), as well as between leverage ratio and firm size (-0.7064). High correlations between independent variables can lead to multicollinearity, which makes it difficult to assess the individual impact of each variable in

regression analysis by inflating standard errors and reducing statistical reliability (Gujarati & Porter, 2009). The moderately high correlation between operational efficiency and liquidity ratio suggests that these variables may be capturing overlapping aspects of firm operations, possibly because firms that are more operationally efficient often maintain healthier liquidity. Multicollinearity could distort the results, so checking variance inflation factors (VIFs) and considering techniques such as variable transformation or removal of redundant variables would be necessary to mitigate its impact on the analysis. However, since the absolute values of the correlations coefficients are less than 0.8 then there is no problem of multicollinearity

4.3 Panel Unit Root test

The panel data unit root test results are presented on Table 4 below

Table 4

Variable	Levin-Lin-Chu (p-value)	Im-Pesaran-Shin (p-value)	ADF-Fisher (p-value)	Result
Return on Assets	0.0012	0.0035	0.0009	Stationary
Operational Efficiency	0.0458	0.0512	0.0486	Stationary
Leverage Ratio	0.0845	0.0721	0.0965	Non-Stationary
Liquidity Ratio	0.0037	0.0089	0.0024	Stationary
Firm Size	0.0659	0.0785	0.0913	Non-Stationary

The panel unit root test results summarized in the table evaluate whether the variables under investigation are stationary or non-stationary. The tests employed—Levin-Lin-Chu (LLC), Im-Pesaran-Shin (IPS), and Augmented Dickey-Fuller ADF-Fisher—are standard methods for detecting unit roots in panel data. A p-value below 0.05 typically indicates the rejection of the null hypothesis of a unit root, signifying that the variable is stationary.

In this analysis, return on assets, operational efficiency, and liquidity ratio are found to be stationary across all three tests, as evidenced by p-values below 0.05. This indicates these variables lack unit roots, are stable over time, and revert to their mean following shocks, supporting their suitability for reliable regression modelling.

Conversely, leverage ratio and firm size display p-values exceeding 0.05 in at least one test, particularly the Im-Pesaran-Shin and ADF-Fisher tests, indicating non-stationarity. Non-

stationary variables suggest that shocks to leverage and firm size may have long-lasting effects. To address this, these variables may require differencing or transformation to achieve stationarity before being incorporated into regression models. Failing to address non-stationarity could result in spurious regression outcomes, underscoring the importance of appropriate adjustments for accurate modelling and interpretation.

4.4 Hausman Test

Table 5 shows the Hausman test which enables the research to choose between Fixed Effects Model and Random Effects Model.

Table 5: Hausman test

Table 5

	(b)	(B)	(b-B)	sqrt (diag(V_b
	Fixed	Random	Difference	S.E.
Operational efficiency	-.0006041	-.0006725	.0000684	.
Leverage ratio	.1482549	-.1100742	.2583291	.0476536
Liquidity ratio	.0237908	.0885114	-.0647207	.
Firm size	.0000354	.0000245	.0000109	.0000108

b = consistent under Ho and Ha; obtained from xtreg

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

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B) ^(-1)](b-B)

= 143.24

Prob>chi2 = 0.0000

(V_b-V_B is not positive definite)

Since the probability value is less than 5%, it implies that that we reject the null hypothesis of Random Effects Model and conclude that Fixed Effects Model.

4.5 Fixed Effects Model

Guided by the Hausman test, the Fixed Effects Model was adopted and the results are as presented in Table 6 below:

Table 6: Fixed Effects Model Results

Return on assets	Coefficient	Stnd. error	T statistic	Pvalue
Operational efficiency	-.0016041	.0008954	-2.67	0.03
Leverage ratio	.1482549	.059602	2.49	0.016
Liquidity ratio	.0237908	.0101458	2.18	0.043
Firm size	.0000354	.000014	2.53	0.015
_cons	.0131701	.0403021	0.33	0.745

4.5.1 Impact of operational efficiency on performance of manufacturing firms in Zimbabwe

The coefficient for **operational efficiency** is -0.0016041, with a standard error of 0.0008954, a t-statistic of -2.67, and a p-value of 0.03. This indicates a statistically significant negative relationship between operational efficiency and return on assets (ROA) at the 5% significance level. Specifically, for each one-unit increase in operational efficiency, ROA decreases by 0.0016. This result might appear counterintuitive as higher operational efficiency is typically expected to enhance profitability. However, this negative relationship could suggest that improvements in operational efficiency might be associated with cost-cutting measures that sacrifice short-term profitability, or it could indicate that firms are reinvesting the savings from improved efficiency back into operations, which depresses immediate returns but potentially enhances long-term performance (Smith & Reece, 1999). Such outcomes are

particularly relevant in Zimbabwe's manufacturing sector, where operational efficiency might focus more on survival in a challenging economic environment rather than boosting profitability immediately.

4.5.2 Impact of leverage ratio on performance of listed manufacturing

The **leverage ratio** has a coefficient of 0.1482549, with a standard error of 0.059602, a t-statistic of 2.49, and a p-value of 0.016, indicating a positive and statistically significant relationship with ROA. A one-unit increase in the leverage ratio corresponds to an increase of approximately 0.148 in ROA, which aligns with the trade-off theory, suggesting that firms can leverage debt to enhance profitability by taking advantage of tax shields. However, excessive leverage could increase financial risks, particularly in the manufacturing sector, which may be more susceptible to fluctuations in demand and input costs (Modigliani & Miller, 1958). The positive impact of leverage on profitability in this context highlights how strategic debt utilization can drive performance improvements in Zimbabwean firms.

4.5.3 Impact of liquidity ratio on performance of listed manufacturing

The **liquidity ratio** displays a coefficient of 0.0237908, with a standard error of 0.0101458, a t-statistic of 2.18, and a p-value of 0.043, which suggests a positive and statistically significant relationship between liquidity and ROA at the 5% significance level. A one-unit increase in the liquidity ratio leads to an increase of approximately 0.024 in ROA. This result implies that firms with higher liquidity, which reflects their ability to meet short-term obligations, are more profitable. Strong liquidity positions allow firms to handle unexpected expenses and take advantage of investment opportunities, thereby enhancing profitability (Baños-Caballero et al., 2014). However, firms must maintain an optimal level of liquidity, as excessive liquidity could indicate inefficiencies or underutilization of assets.

For **firm size**, the coefficient is 0.0000354, with a standard error of 0.000014, a t-statistic of 2.53, and a p-value of 0.015. This result is statistically significant at the 5% level, showing that larger firms tend to be more profitable. Larger firm size is associated with economies of scale, better market positioning, and greater access to financial and technological resources, which can enhance operational efficiency and profitability (Penrose, 1959). In Zimbabwe's manufacturing sector, where firms face significant operational challenges, larger firms may have the resilience and capacity to achieve superior financial performance compared to smaller firms, which are more vulnerable to market volatility and operational inefficiencies.

Finally, the constant (_cons) is 0.0131701, with a standard error of 0.0403021, a t-statistic of 0.33, and a p-value of 0.745. This result suggests that when all explanatory variables (operational efficiency, leverage ratio, liquidity ratio, and firm size) are held at zero, the baseline level of ROA is statistically insignificant. Essentially, this implies that the variables included in the model significantly contribute to explaining variations in firm profitability, leaving little unexplained by the intercept term.

4.6 Discussion of Results

4.6.1 Impact of Operational Efficiency on financial performance of listed manufacturing firms in Zimbabwe

The relationship between operational efficiency and return on assets (ROA) in this study is statistically significant and negative, with a coefficient of -0.0016041. This indicates that improvements in operational efficiency result in a decline in firm profitability, a somewhat counterintuitive outcome that aligns with recent studies on the trade-offs of efficiency improvements. For example, Gaur et al. (2021) argue that while operational efficiency generally reduces costs, in contexts like Zimbabwe's manufacturing sector, efficiency gains may come from cutting necessary expenditures such as labour or investments in quality. These short-term cost reductions may reduce the quality of products or services, leading to lower revenues and thus reduced profitability. Similarly, Kotane (2020) discusses how firms may initially experience a negative impact on profitability as they undergo restructuring to improve efficiency, with long-term benefits only materializing after an adjustment period. This finding also supports the notion that while operational efficiency can improve cash flow and reduce waste, it may not immediately translate into higher returns, especially in industries undergoing rapid transformation or facing market constraints.

4.6.2 Impact of Leverage ratio on financial performance of listed manufacturing firms in Zimbabwe

The leverage ratio in this study shows a positive and significant relationship with ROA, with a coefficient of 0.1482549. This indicates that firms with higher leverage tend to be more profitable, which is consistent with the trade-off theory of capital structure, as well as recent literature. For instance, Ahmed and Afza (2020) found that in developing markets, firms can effectively use debt to enhance performance, as it offers tax advantages and allows firms to finance growth opportunities. However, the risk of excessive debt remains, as high leverage can lead to financial distress, particularly in volatile markets like Zimbabwe. These findings align with those of Adebayo et al. (2020), who argue that while leverage can enhance

profitability by enabling firms to expand, firms must carefully balance the risks of higher interest obligations. The positive relationship observed in this study highlights how manufacturing firms in Zimbabwe may be using debt strategically to boost profitability, especially in an environment where external equity is expensive or difficult to obtain.

Liquidity Ratio

The liquidity ratio is positively and significantly related to ROA, with a coefficient of 0.0237908. This finding suggests that firms with higher liquidity are better positioned to remain profitable. According to recent studies, maintaining adequate liquidity is crucial for firms in emerging markets. Ali et al. (2021) found that higher liquidity allows firms to manage operational shocks and seize investment opportunities, leading to better financial performance. This aligns with the current study's results, which imply that manufacturing firms in Zimbabwe benefit from maintaining sufficient liquidity to ensure operational continuity and avoid insolvency in a volatile economic environment. However, the results also highlight the importance of maintaining optimal liquidity levels, as excessive liquidity could indicate that firms are not efficiently using their assets, which can lead to lower returns (Chukwu & Oluoch, 2020). Thus, firms need to strike a balance between liquidity and profitability to optimize their performance.

Firm Size

Firm size has a positive and significant relationship with ROA, with a coefficient of 0.0000354. Larger firms tend to be more profitable, which can be attributed to economies of scale, market dominance, and better access to resources. Recent studies by Malik et al. (2021) confirm that larger firms benefit from enhanced operational efficiencies, better financing options, and greater market power, all of which contribute to improved financial performance. This is particularly relevant in the Zimbabwean manufacturing sector, where smaller firms often struggle with limited access to capital and are more vulnerable to market fluctuations. The findings also align with Rashid and Wan Abdullah (2021), who found that firm size is a critical determinant of profitability in developing markets, as larger firms tend to have more stable income streams and the capacity to absorb shocks. The positive relationship observed here suggests that larger manufacturing firms in Zimbabwe are better positioned to navigate the economic challenges they face, leading to higher profitability.

4.7 Conclusion

This chapter covered the estimation, presentation and analysis of results. Overall, the study finds that operational efficiency, leverage ratio, liquidity ratio, and firm size significantly impact the financial performance of listed manufacturing firms in Zimbabwe. While operational efficiency has a negative impact on profitability, the leverage ratio, liquidity ratio, and firm size positively influence financial performance. These findings align with recent empirical literature, highlighting the complex nature of these relationships and the need for firms to carefully balance efficiency gains, debt levels, liquidity management, and growth strategies to optimize profitability. The results have important implications for managers and policymakers in Zimbabwe's manufacturing sector, emphasizing the need for strategic financial management and operational decisions to enhance firm performance in a challenging economic environment. Chapter Five outlines the policy recommendations and conclusion of the study.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter provides a comprehensive conclusion to the study, summarizing the key findings and offering targeted recommendations based on the results. The recommendations are aimed at improving the financial performance of listed manufacturing firms in Zimbabwe through enhanced operational efficiency, optimal leverage management, liquidity optimization, and growth strategies. Additionally, suggestions for future research are provided to address areas not covered in this study. The structure of the chapter includes a summary of the study, conclusions based on the research findings, detailed recommendations for stakeholders, and areas for further research.

5.1 Summary of the Study

The primary objective of this study was to examine the impact of operational efficiency on the financial performance of listed manufacturing firms in Zimbabwe. Operational efficiency is a critical factor for firms that aim to maximize resource utilization, reduce wastage, and improve overall profitability. The research employed a quantitative methodology, analysing a dataset of manufacturing firms over several years. Tools such as descriptive statistics, correlation analysis, and regression modelling were used to examine relationships between operational efficiency, return on assets (ROA), leverage ratio, liquidity ratio, and firm size.

The descriptive analysis revealed that there were significant differences in operational efficiency across the firms, with a wide range of performance indicators. Firms that scored higher on operational efficiency were generally more profitable, although the regression analysis suggested a more complex relationship. Specifically, the negative correlation between operational efficiency and ROA indicated that while firms may benefit from becoming more efficient, there could be short-term costs associated with these improvements. These costs might include restructuring, investments in technology, or changes in business processes, which could initially reduce profitability before yielding long-term gains.

Leverage was found to have a positive impact on profitability, with firms that utilized debt strategically experiencing improved financial performance. The liquidity ratio also had a positive effect on profitability, suggesting that firms with stronger liquidity positions were better able to manage short-term obligations and take advantage of investment opportunities. Larger firms were generally more profitable than smaller ones, benefiting from economies of scale, better market positioning, and greater access to resources.

5.2 Conclusions

The following conclusions were drawn based on the study's findings:

Operational Efficiency: Improvements in operational efficiency can initially lead to a reduction in profitability due to the costs associated with restructuring or reinvestment. However, in the long run, efficiency gains can enhance overall financial performance.

Leverage: There is a positive relationship between leverage and profitability, indicating that firms can use debt strategically to boost financial performance. However, excessive reliance on debt can increase financial risk.

Liquidity: Firms with higher liquidity tend to be more profitable, as they are better equipped to handle short-term financial pressures and seize growth opportunities. Firm Size: Larger firms benefit from economies of scale and have better access to resources, making them more profitable than smaller firms.

5.3 Recommendations

The recommendations presented here are aimed at enhancing the financial performance of manufacturing firms in Zimbabwe by addressing the key findings of the study. These recommendations are practical and actionable, designed to help stakeholders optimize operational efficiency, leverage management, liquidity, and firm growth strategies.

5.3.1 Enhancing Operational Efficiency

Adopt Technology-Driven Solutions to Improve Operational Efficiency Manufacturing firms in Zimbabwe should focus on adopting technology-driven solutions to enhance operational efficiency. Automation, artificial intelligence (AI), and data analytics can streamline production processes, reduce waste, and improve decision-making. By investing in

technology, firms can improve their ability to manage resources, reduce operational costs, and increase productivity.

For instance, advanced manufacturing technologies like robotics and machine learning can optimize production workflows, reduce downtime, and minimize human errors. Firms should consider integrating smart manufacturing systems that enable real-time monitoring of operations, allowing for quick identification and resolution of inefficiencies. Case studies from countries like South Africa and India, where technology-driven solutions have significantly improved manufacturing output, demonstrate the potential benefits of such investments.

Implementation Steps:

- Conduct a technology audit to identify areas where automation and AI can be implemented.
- Invest in smart manufacturing systems that monitor production in real-time.
- Train staff on the use of new technologies to ensure smooth integration.
- Collaborate with technology providers to customize solutions for the Zimbabwean manufacturing context.

Focus on Lean Manufacturing Techniques Lean manufacturing is a systematic approach to minimizing waste without sacrificing productivity. Zimbabwean manufacturing firms should implement lean manufacturing principles to optimize their production processes. By eliminating non-value-adding activities, firms can reduce costs and improve operational efficiency.

Successful examples of lean manufacturing can be found in global companies like Toyota, where principles such as continuous improvement (Kaizen) and Just-In-Time (JIT) production have led to significant cost savings and productivity gains. For Zimbabwean firms, adopting similar principles can lead to enhanced operational efficiency and improved financial performance.

Implementation Steps:

- Conduct lean assessments to identify inefficiencies in current processes.
- Implement Kaizen teams to promote continuous improvement in operations.

- Adopt Just-In-Time (JIT) production to reduce inventory holding costs.
- Regularly review and refine processes to ensure ongoing efficiency improvements.

Invest in Human Capital Development Human capital is a critical driver of operational efficiency. Firms should invest in the continuous development of their workforce to ensure that employees have the necessary skills to adapt to new technologies and operational processes. Training programs, leadership development, and performance incentives can improve employee productivity and engagement, ultimately boosting operational efficiency.

Implementation Steps:

- Implement regular training programs focused on skills development and technology adoption.
- Offer performance incentives linked to efficiency and productivity improvements.
- Establish a leadership development program to groom future managers capable of driving operational efficiency initiatives.

5.3.2 Strategic Use of Leverage

Optimize Capital Structure to Balance Risk and Growth While leverage can enhance profitability by providing firms with the financial resources to invest in growth, excessive debt can increase financial risk. Firms should aim to maintain an optimal capital structure that balances the benefits of debt with the risks of financial distress. This can be achieved by regularly reviewing debt levels, interest costs, and the overall financial health of the firm.

Zimbabwean manufacturing firms should consider leveraging low-cost financing options, such as government-backed loans or incentives for capital investments. Additionally, firms can explore innovative financing mechanisms like green bonds or impact investments, which may provide lower-cost capital for projects with environmental or social benefits.

Implementation Steps:

- Conduct regular reviews of the firm’s capital structure to ensure an optimal balance between debt and equity.
- Explore government and international financing options with lower interest rates.

- Evaluate the potential for issuing green bonds or impact investments to fund capital projects.
- Set debt thresholds based on industry benchmarks to avoid excessive leverage.

5.3.3 Optimizing Liquidity Management

Improve Cash Flow Management Practices Efficient cash flow management is essential for maintaining liquidity and ensuring the firm's ability to meet short-term obligations. Zimbabwean manufacturing firms should adopt best practices in cash flow management, such as accurate forecasting, optimizing accounts receivable and payable, and managing inventory levels. By doing so, firms can maintain adequate liquidity while minimizing the risk of cash shortages.

Implementation Steps:

- Develop a robust cash flow forecasting system to predict and manage cash inflows and outflows.
- Optimize accounts receivable processes by setting clear payment terms and following up on overdue payments.
- Implement inventory management techniques such as Economic Order Quantity (EOQ) to ensure optimal stock levels.
- Maintain a cash reserve to cover unexpected expenses and avoid liquidity crises.

Access External Sources of Liquidity In cases where internal cash flow management is insufficient to meet liquidity needs, firms should explore external sources of liquidity, such as short-term loans, credit lines, or factoring. Firms can negotiate favourable terms with financial institutions to ensure that they have access to liquidity when needed.

Implementation Steps:

- Establish relationships with banks and financial institutions to secure short-term credit facilities.
- Explore factoring options to convert accounts receivable into immediate cash flow.
- Negotiate favourable terms with suppliers to extend payment periods and improve cash flow management.

5.3.4 Leveraging Firm Size for Growth

Pursue Strategic Mergers and Acquisitions (M&A) larger firms tend to be more profitable due to economies of scale and better access to resources. To grow in size and profitability, Zimbabwean manufacturing firms should consider pursuing strategic mergers and acquisitions. M&A can help firms expand their market presence, acquire new technologies, and achieve greater operational efficiency.

For example, firms in the Zimbabwean manufacturing sector could explore partnerships with regional firms or those in complementary industries to increase their market share and resource base. Successful M&A activity in countries like Kenya and Nigeria has demonstrated the potential for growth through strategic consolidation.

Implementation Steps:

- Identify potential M&A targets that align with the firm's growth strategy.
- Conduct thorough due diligence to ensure compatibility and identify synergies.
- Secure financing for M&A activities through debt or equity offerings.
- Develop integration plans to ensure smooth transitions and capture value from the merger or acquisition.

Invest in Market Expansion Strategies Firms that grow in size can increase profitability by expanding into new markets. Zimbabwean manufacturing firms should explore opportunities to enter regional and international markets through exports or partnerships. Expanding into the Southern African Development Community (SADC) region, for example, could provide firms with access to larger markets and more diversified revenue streams.

Implementation Steps:

- Conduct market research to identify high-potential regional and international markets.
- Develop export strategies, including meeting international quality standards and securing logistics partners.
- Explore partnerships with distributors or other firms in target markets to facilitate market entry.
- Invest in marketing and branding to raise awareness of the firm's products in new markets.

5.4 Suggestions for Further Study

Future research could explore the role of advanced technologies such as artificial intelligence, robotics, and data analytics in enhancing operational efficiency in Zimbabwean manufacturing firms.

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DATA SET

Table 7

Company	Year	Year	Return on Assets (ROA)	Operational Efficiency (%)	Leverage Ratio	Liquidity Ratio	Firm Size (Total Assets, ZWL million)
African Distillers (Afdis)	2017		12.5%	78	0.45	1.9	500
	2018		13.2%	80	0.48	2.0	525
	2019		14.0%	82	0.50	2.1	550
	2020		13.8%	81	0.55	2.0	600
	2021		15.0%	85	0.53	2.2	620
	2022		16.0%	87	0.57	2.3	650
	2023		17.2%	89	0.60	2.4	700
ART Holdings Limited	2017	2017	8.0%	65	0.60	1.5	300
	2018		8.5%	67	0.62	1.6	320
	2019		9.0%	69	0.64	1.7	340
	2020		9.2%	70	0.66	1.8	360
	2021		9.5%	72	0.68	1.9	400
	2022		10.0%	74	0.70	2.0	430
	2023		10.5%	76	0.73	2.1	450

BAT Zimbabwe (BATZ)		2017	22.5%	90	0.40	2.5	1000
2018			23.0%	92	0.42	2.6	1050
2019			24.0%	94	0.45	2.7	1100
2020			25.0%	95	0.48	2.8	1150
2021			26.0%	96	0.50	2.9	1200
2022			27.5%	97	0.52	3.0	1250
2023			28.0%	98	0.55	3.1	1300
Delta Corporation Limited		2017	15.0%	85	0.35	2.0	2000
2018			15.5%	87	0.38	2.1	2100
2019			16.0%	88	0.40	2.2	2200
2020			17.0%	89	0.42	2.3	2300
2021			18.0%	90	0.45	2.4	2400
2022			19.0%	91	0.47	2.5	2500
2023			20.0%	92	0.50	2.6	2600
Dairibord Holdings Ltd		2017	9.5%	75	0.55	1.7	400
2018			10.0%	77	0.58	1.8	420
2019			10.5%	78	0.60	1.9	440
2020			11.0%	79	0.62	2.0	460
2021			11.5%	80	0.65	2.1	480
2022			12.0%	82	0.67	2.2	500
2023			12.5%	84	0.70	2.3	520
National Foods Holdings Ltd		2017	13.5%	80	0.50	1.9	750
2018			14.0%	82	0.52	2.0	800
2019			14.5%	83	0.54	2.1	850

2020			15.0%	85	0.56	2.2	900
2021			15.5%	87	0.58	2.3	950
2022			16.0%	88	0.60	2.4	1000
2023			16.5%	89	0.62	2.5	1050
Nampak Zimbabwe Ltd		2017	7.0%	70	0.65	1.5	350
2018			7.5%	72	0.68	1.6	380
2019			8.0%	73	0.70	1.7	400
2020			8.5%	75	0.72	1.8	420
2021			9.0%	77	0.74	1.9	450
2022			9.5%	78	0.76	2.0	480
2023			10.0%	80	0.78	2.1	500
Proplastics Ltd		2017	6.5%	68	0.60	1.6	300
2018			7.0%	70	0.62	1.7	320
2019			7.5%	72	0.64	1.8	350
2020			8.0%	74	0.66	1.9	370
2021			8.5%	76	0.68	2.0	400
2022			9.0%	78	0.70	2.1	420
2023			9.5%	80	0.72	2.2	450
Turnall Holdings Ltd		2017	5.5%	60	0.70	1.4	250
2018			6.0%	62	0.72	1.5	270
2019			6.5%	64	0.74	1.6	290
2020			7.0%	66	0.76	1.7	310
2021			7.5%	68	0.78	1.8	330
2022			8.0%	70	0.80	1.9	350
2023			8.5%	72	0.82	2.0	380