



**Management Accounting Techniques and the Creation & Sustenance of
Competitive Advantage among Zimbabwe's Petroleum Companies**

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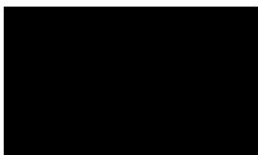
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2024

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C. Vutuzah

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ABSTRACT

This study investigates the extent to which the implementation of management accounting techniques contributes to the creation and sustenance of competitive advantage among petroleum companies in Zimbabwe. The research aims to identify the management accounting practices employed within the sector, assess whether these practices lead to competitive advantage, and evaluate their overall effect on competitiveness. This investigation is particularly significant within Zimbabwe's volatile business environment, which is characterised by political instability, hyperinflation, and regulatory challenges. The research adopts a positivist paradigm, employing descriptive and causal research designs. A cross-sectional design was utilised to collect data from a census of petroleum companies in Zimbabwe, sourced from the Zimbabwe Energy Regulatory Authority (ZERA). Data collection was conducted through a structured survey, with the subsequent analysis performed using multiple regression analysis, hierarchical regression analysis and Pearson's correlation to assess the relationship between management accounting practices and competitive advantage. The findings reveal that budgetary control, performance evaluation (both financial and non-financial), and decision support systems are the most frequently utilised management accounting practices within the sector. The study highlights that companies demonstrating higher engagement with these practices exhibit improved relative competitiveness and non-financial performance. Long-term decision support systems emerged as the most influential factor in enhancing competitiveness. The research makes significant theoretical contributions by contextualising the impact of management accounting within Zimbabwe's petroleum industry. A key outcome of the study is the development of the Competitive Advantage through Management Accounting Framework (CAMAF), which illustrates how implementing management accounting practices can strengthen competitive advantage. The study recommends that policymakers and industry stakeholders establish supportive frameworks to promote robust management accounting practices. It highlights the need for petroleum companies in Zimbabwe to integrate management accounting practices and invest in long-term decision-support systems to navigate economic volatility and sustain competitive advantage. It also emphasises prioritising non-financial performance metrics, such as operational efficiency and customer satisfaction. Additionally, the study calls for clear regulations that promote transparency, efficiency, and public-private collaboration.

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DEDICATION

I dedicate this PhD thesis to my two beautiful daughters, Alexis Mitchell and Axelle Talia, whose constant inspiration and love have driven me to achieve more.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

The petroleum industry in Zimbabwe has been competitive. One of the main factors in the increase of competition amongst the players in the industry was the deregulation of the petroleum industry in August 2003. To remain competitive, petroleum companies have been adopting new management approaches, such as effective accounting practices. As shown by Obara and Nangih (2017), management accounting practices are fundamental in determining the success of petroleum companies. However, little has been done on the use of management accounting practices in Zimbabwe's petroleum industry. This chapter introduces the study of management accounting practices and their competitive advantage in Zimbabwe's petroleum industry. The chapter is organised into seven sections. The first section discusses the background of the study, the research problem, and the global and Zimbabwean petroleum industries. The second section discusses the importance of management accounting and the changing role of management accounting, reviewing its potential for creating and sustaining competitive advantage for organisations. The third section establishes the research problem, while the fourth section presents the primary objective of the study and research questions. The fifth section discusses the research rationale, the sixth discusses the research methodology and, finally, the structure of the thesis.

1.2 Background of the Study

The petroleum industry plays a pivotal role in the global economy, encompassing various activities from exploration and extraction to refining, transportation, and marketing of petroleum products. The global petroleum industry is complex, demonstrated by the diversity of its outputs, including fuel oil, gasoline, and many other products and by-products essential to modern life. These products include diesel, kerosene, jet fuel, lubricants, asphalt, bitumen, and petrochemicals, as well as chemical by-products like pharmaceuticals, solvents, fertilisers, pesticides, synthetic fragrances and plastics (Clews, 2016; Ejededawe, 2014). The understanding of the intricate processes and products of the petroleum industry provides a foundation for examining the specific challenges and dynamics that shape its competitive landscape, particularly within the context of Zimbabwe.

The petroleum industry has existed for around a century (Clews, 2016; Ejededawe, 2014). Initially, petroleum products were used for heating and lighting. However, the development of diesel and petrol and the invention of the internal combustion engine increased the demand for petroleum products. The growth of the petroleum industry largely mirrors the growth in the automotive industry and the increased use of vehicles (Clews, 2016). In addition, turbine technology development increased the demand for other petroleum products. The first exploration of crude oil occurred in Russia in 1846 (Ejededawe, 2014). New sources of crude oil supply were found and developed in many regions of the world, particularly in North America, the Middle East and North Africa (Ejededawe, 2014). Despite the development of alternative fuel sources, petroleum fuel remains the most popular. Thus, the consumption of oil globally is 30 billion barrels per annum. Oil remains a significant source of energy in Europe and Asia, with oil contributing 32%, North America at 40%, Africa at 41%, South America at 44%, and the Middle East at 53% (Muspratt, 2019). Despite the importance of oil, there is a tendency to oversupply due to market volatility (Fattouh and Sen, 2016). This has led to major oil-producing countries forming the OPEC group to monitor the stability and prices of the petroleum market.

The global landscape of the petroleum industry, marked by technological advancements and significant consumption patterns, sets the stage for understanding regional dynamics. While the industry's international footprint is dominated by major players and regions like North America, the Middle East, and North Africa, the impact of petroleum is also deeply felt in smaller economies, such as Zimbabwe. Global supply, demand, and technological innovation trends influence the petroleum industry's operational and regulatory frameworks in Zimbabwe. This interplay between international and local factors shapes Zimbabwe's petroleum sector's unique characteristics and challenges. In this regard, it becomes necessary to closely examine the regulatory environment, economic contribution, and import dependency.

The petroleum industry in Zimbabwe is regulated by the Zimbabwe Energy Regulatory Authority (ZERA). ZERA is responsible for licencing, issuing product licences, setting service standards, and promoting investment in the industry (ZERA, 2024a). As part of the energy sector, the petroleum industry plays a crucial role in the country's economy, contributing about 9% of the country's Gross Domestic Product (GDP) (Mashange, 2002). The sector also contributes to the economy by employing thousands of people (Mashange, 2002). This sector is almost wholly dependent on imports because the country imports more than 80% of its petroleum needs (ZERA, 2015). In 2022 alone, the country imported

more than 1.7 billion litres of petroleum products, comprised of 1,041 billion litres of diesel and 614 million litres of petrol in 2022 (ZERA, 2022). In the same year, Zimbabwe also imported 1,062,000 litres of paraffin, 59,898,546 kgs of Liquid Petroleum Gas (LPG) and 78,552,133 of Jet A1 (ZERA, 2023b). The industry comprises 1004 licensed petroleum companies, with 905 in retail, 69 in procurement, 18 in wholesaling, 11 in blending and 1 in production (ZERA, 2023a). Through its Agricultural and Rural Development Authority (ARDA) arm, the government of Zimbabwe entered into a joint venture with Green Fuel to form a bio-ethanol manufacturing company to reduce fuel import bills (Thondhlana, 2014). At the onset, Green Fuel was the sole manufacturer of ethanol used for fuel blending (Thondhlana, 2014). Hippo and Triangle were then later licensed to produce ethanol for fuel blending. However, Green Fuel remained the leading ethanol producer, producing 75.4 million litres of ethanol, and Triangle and Hippo jointly produced 20.3 million litres (ZERA, 2022).

This study examines the use of management accounting practices and their contribution to competitive advantage in Zimbabwe's petroleum industry. One of the seminal authors on competitive advantage, Ansoff (1965: 10), defines the concept of competitive advantage as seeking "to identify particular properties of individual products and markets which give the firm a strong competitive position". More recently, Besanko et al. (2000: 389) define competitive advantage as "when a firm earns a higher rate of economic profit than the average rate of economic profit of other firms competing within the same market, the firm has a competitive advantage in that market". Peteraf (1993), however, emphasises that a higher rate of economic profit must be for a sustained period if it is to be regarded as an indication of competitive advantage. Porter (1985), on the other hand, focuses on the value that the firm can create instead of the economic profit by outlining that competitive advantage grows out of the value a firm creates for its buyers that exceeds the firm's cost of creating such value.

The theoretical frameworks provided by scholars such as Ansoff (1965), Besanko et al. (2000) and Peteraf (1993) lay the groundwork for understanding competitive advantage. The practical implications of these theories can be observed in various industries, including the petroleum sector (Al-Hanshi et al., 2022; Gichuhi, 2023; Muthiani, 2008; Mwangi, 2007; Nyauncho and Nyamweya, 2015). The dynamics of competitive advantage manifest uniquely within each industry, shaped by regulatory environments, market structures, and economic conditions. In Zimbabwe, the petroleum industry's competitiveness has evolved significantly and is influenced by global trends and the local environment. The transition

from a monopolistic market dominated by a few key players to a more deregulated and competitive landscape provides a compelling case study of how competitive advantage can be created and sustained.

Before the industry's deregulation, the petroleum sector in Zimbabwe was dominated by six players: Noczim, Total, Shell, BP, Mobil and Caltex (The Herald, 2013). These six showed traits of being highly competitive. Noczim was a monopolistic state-owned oil company responsible for procuring the nation's fuel requirements (Ministry of Energy and Labour Development, 2012). Noczim was also involved in the transportation, storage and distribution of fuel. The other five companies were involved in retail operations. However, after the deregulation of the industry, the private players became responsible for fuel procurement, and Noczim was mandated to provide fuel to government departments only (Brycesson, 2002). In addition to the increase of players, the petroleum industry in Zimbabwe faced different challenges, such as world economic recessions, resulting in fluctuations in oil prices and oil supply in the world market (Brycesson, 2002). The petroleum sector of Zimbabwe has also been experiencing high tax levies, ranked second after Malawi in the region, leading to high product costs even in times of weakened global fuel prices (Mhlanga, 2015b).

The heightened competition within the petroleum sector in Zimbabwe, coupled with economic fluctuations and high tax levies, has necessitated a shift in how companies operate and manage their resources. As a result, there has been a significant transformation in organisational roles and responsibilities. Chooper and Chew (1996) posit that competitiveness has led to redefining organisational job responsibilities, including management accountants. Management accountants are no longer seen as agents of collecting, processing and communicating cost data to help management plan, control, and evaluate the business process. However, they now assume a significant role in improving the organisation's competitiveness. CIMA (2018) defines management accounting as the sourcing, analysing, and communicating of financial and non-financial information that can be used for decision-making to generate and preserve organisational value. Therefore, management accounting involves management information, financial and accounting information, and techniques that can be used to drive the success of a business. Accordingly, scholars such as Bouquin (2004: 11-12) focus more on how management accounting can influence decision-makers by proposing that management accounting is "a system of accounting information that intends to help managers and

influence behaviours by shaping the relations between the consumed allocated resources and aimed finality".

There is, however, strong evidence of a change in the role of the management accounting function. This change is reflected in the Institute of Management Accountants's (IMA) (2008) definition, which defines management accounting as a tool that can be used to help in decision-making, planning and performance management. IMA (2008) states that management accounting is also valuable for financial reporting and control, which are helpful to management in implementing the organisation's strategy. Therefore, management accountants have moved from an information provider who gathers, summarises, analyses and reports information to management decision-makers in more strategic roles (IMA 2008). Similarly, Cooper and Dart (2009) state that the roles of management accountants should be business-oriented and involve strategy formulation, information system implementation, and change management.

In regard to the petroleum industry, Sokolov and Giniatullin (2015) outline that management accounting has been used mainly in the petroleum industry as a tool for cost measurement and control. Management accounting has also been very useful in guiding the management's financial decisions (Alimoradi and Borzoupour, 2017; Obara and Nangih, 2017). In addition, management accounting is employed to support senior management in evaluating their subordinates' decisions (Alimoradi and Borzoupour, 2017). Management accounting can also be seen as a significant contributor to petroleum companies' performance and competitiveness as management tools such as benchmarking, competitive position monitoring, competitors' performance appraisal, customers' profitability analysis, and strategic costing are more compatible with the competitive environment experienced by in the industry today (Alimoradi and Borzoupour, 2017).

Most of the research on management accounting and its role in creating and sustaining competitive advantage has been done in developed countries (Alimoradi and Borzoupour, 2017). In addition, Zimbabwe's petroleum industry has been identified for many years as highly politicised, with some scholars indicating that the success of companies within this industry is wholly attributable to the political connections of the owners (Karombo, 2018). Due to political interference, international fuel companies such as BP are now considered as deserting the industry despite the fact that they have operated for decades in the country (Muronzi, 2015). As a driver of competitive advantage, it is therefore important to

analyse how management accounting has been contributing to competitive advantages for the companies operating and dominating in Zimbabwe. As indicated earlier, Zimbabwe's petroleum industry plays a significant role in the country's economy. Therefore, it becomes imperative to study the factors that influence companies' competitive performance in the industry. This research will generate knowledge that will encourage new players to join the sector, particularly international companies, as they will better understand the industry.

1.3 Statement of the Research Problem

The Zimbabwean fuel industry has been highly competitive, with high excise duties and handover prices (Mhlanga, 2015a). This has resulted in high operations costs and companies fighting to maintain or increase their market share to offset these costs. The industry has also been characterised by high operational risks, which continue to characterise the industry. Therefore, fuel companies have learnt to adjust by adopting effective management practices to remain in business. Scholars such as Cooper and Dart (2009) acknowledge the evolving role of management accountants in addressing strategic challenges, yet there remains a notable lack of research on how management accounting practices are employed in Zimbabwe's petroleum sector to address these emerging issues. Prior research has predominantly focused on developed economies, overlooking the context-specific dynamics of developing countries like Zimbabwe. Therefore, there is a need to investigate the specific management accounting practices used by petroleum companies in this context.

Structural inefficiencies, including over-reliance on imports for more than 80% of fuel needs, further exacerbate the sector's challenges, threatening its competitiveness. While studies in other economies demonstrate how competitive advantage can be achieved, there is a noticeable lack of empirical evidence on whether and how Zimbabwean petroleum companies derive and sustain such advantages. This highlights a critical knowledge gap that warrants focused investigation.

Moreover, the extent to which management accounting practices influence competitive advantage in Zimbabwe's petroleum industry remains underexplored. In an environment shaped by high tax levies, politicisation, and regulatory challenges, management accounting could be instrumental in creating and sustaining competitive advantage. Addressing this knowledge gap requires a focused examination of how these practices can be utilised to enhance competitiveness.

To address these gaps, this study aims to develop a framework that addresses how management accounting can contribute to creating and sustaining an advantage. This framework would outline how management accounting practices can contribute to creating and sustaining competitive advantage in Zimbabwe's petroleum industry. By providing actionable insights, the research will guide local petroleum companies in leveraging management accounting as a strategic tool to navigate the complexities of their operating environment.

1.4 Objectives of the Study

The primary objective of this research is to investigate the extent to which the implementation of management accounting techniques by Zimbabwe's petroleum companies has led to the creation and sustaining of competitive advantage.

To achieve this primary objective, the study focuses on the following specific objectives:

- i. To determine the management accounting practices used in selected petroleum companies.
- ii. To determine whether selected petroleum companies are benefiting from competitive advantage in the industry.
- iii. To determine the effect that management accounting practices have on competitive advantage in selected petroleum companies.
- iv. To develop a framework that elucidates how management accounting can contribute to creating and sustaining competitive advantage in Zimbabwe's petroleum industry.

1.5 Research Questions and Hypotheses

This study seeks to answer the following key research questions:

1. What management accounting practices are used in selected petroleum companies in Zimbabwe?
2. Are selected petroleum companies in Zimbabwe benefiting from a competitive advantage in the industry?
3. How do management accounting practices influence competitive advantage in selected petroleum companies in Zimbabwe?
4. Can a framework be developed that elucidates how management accounting contributes to the creation and sustaining of competitive advantage in Zimbabwe's petroleum industry?

Research Hypotheses

Based on the research questions, the following hypotheses are proposed:

H₀₁: Selected petroleum companies in Zimbabwe do not significantly benefit from a competitive advantage in the industry.

H₀₂: Management accounting practices have no significant effect on competitive advantage among selected petroleum companies in Zimbabwe.

1.6 Research Rationale and Importance of the Study

This study is motivated by the need to address critical gaps in understanding how management accounting practices contribute to competitive advantage within the context of Zimbabwe's petroleum industry. The petroleum sector is pivotal to Zimbabwe's economy, contributing significantly to GDP and employment, yet it faces unique challenges, including high politicisation, regulatory instability, and economic volatility. Addressing these challenges requires a deeper understanding of management accounting's role in enhancing competitiveness. The research is particularly important because:

- i. It highlights the under-researched Zimbabwean petroleum sector, providing a much-needed analysis of management accounting practices within a highly regulated and politicised environment.
- ii. It addresses the industry's dependence on imports and volatile global oil prices, offering insights that may support more effective decision-making and resource allocation.

The findings of this study will inform both practitioners and policymakers, fostering awareness of management accounting's strategic role and contributing to the development of policies that enhance the industry's competitiveness.

1.7 Synopsis of Research Methodology

The study adopted a positivist philosophical approach in determining the role of management accounting in creating competitive advantage within the selected organisations and determining the organisation's competitiveness. The positivist research approach was chosen as it allows for objectiveness and independence by giving preeminence to "factual" knowledge obtained from observation and other objective means, such as measurement, as these findings are usually observable and objective. In this

regard, under the positivist approach, the role of the researcher is limited to objective data collection (Saunders et al., 2019). The study was also cross-sectional and deductive.

A quantitative research methodology that aligned with the emphasis on objectivity was used (Naoum, 2012). A descriptive research design was implemented using a survey technique. The descriptive research design was chosen mainly due to its usefulness in describing the characteristics of a population or phenomena (Robson, 2002; Zikmund, 2003). In addition, the descriptive research design was chosen as it provided information on contingent factors that affect the extent of management accounting techniques and the relationship between the extent of the use of management accounting techniques and variables such as firm performance and competitiveness.

The survey technique was chosen as it allowed the researcher to "systematically ask a large number of people the same questions and then record their answers" (Neuman, 2006: 43). The survey technique was also chosen due to its cost-effectiveness. The researcher sent emails to respondents with questionnaire links to the sample population. The LimeSurvey platform was used to collect questionnaire responses from the sample drawn from the target population. The targeted population for the study were petroleum companies in Zimbabwe. The population members were obtained from the petroleum companies' directory on the ZERA website. Although not comprehensive, this source provided detailed information about petroleum companies in Zimbabwe.

According to ZERA (2024b), there are 75 procurement companies, 24 wholesale petroleum companies, and 938 retail outlets in Zimbabwe. This study focused on the 99 procurement and wholesale companies because these entities own most retail outlets in Zimbabwe, and these companies are more likely to have established management accounting techniques. The information obtained from the ZERA website was verified using the companies' official websites and through direct telephone calls to confirm details such as physical and email addresses. Given the relatively small population of petroleum companies involved in wholesale and distribution, a census approach was used to select participants. Participants were chosen based on their job descriptions, explicitly targeting senior finance personnel and management, as they were most likely to possess information concerning management accounting practices.

The data was analysed using SPSS version 28. Descriptive statistics, including frequency distributions, measures of central tendency, and measures of dispersion, were used to summarise the dataset. Cronbach's alpha was employed to ensure reliability. Pearson

correlation analysis established relationships between management accounting practices and competitive advantage measures. Composite scores for constructs like costing systems and competitive advantage were calculated by averaging relevant survey items, and their reliability was confirmed using Cronbach's alpha. Multiple regression analysis assessed the influence of management accounting practices on competitive advantage, while hierarchical regression provided insights into the incremental contribution of different predictors. ANOVA/Welch tests were also conducted to examine variations in competitive advantage based on management accounting practices.

1.8 Structure of the thesis

This thesis comprises seven chapters, each contributing to the overall understanding of the role of management accounting in creating and sustaining competitive advantage within Zimbabwe's petroleum industry.

Chapter One introduces the study by providing the background and context for the research, with a particular focus on the concepts of management accounting and competitive advantage. It discusses Zimbabwe's competitiveness in the petroleum industry and outlines the study's scope, rationale, aims, objectives, and significance. The chapter also presents the research problem and highlights the study's intended contributions.

Chapter Two provides a comprehensive review of the literature on management accounting. It explores the definitions, concepts, and application of management accounting techniques globally and within the petroleum industry. The chapter lays the theoretical foundation for understanding management accounting practices in this sector.

Chapter Three focuses on the literature related to competitive advantage. It examines definitions, concepts, and the factors contributing to competitive advantage globally and within Zimbabwe's petroleum industry. The chapter also discusses the relationship between management accounting practices and the creation and sustainability of competitive advantage.

Chapter Four details the research methodology used in the study. It describes the research design, data collection techniques, sampling methods, and data analysis strategies. The chapter also explains the questionnaire's design and the rationale for the chosen methodological approach, ensuring transparency and replicability.

Chapter Five presents the research results and analysis. It provides a detailed account of the study's results, linking them to the research objectives and the literature reviewed in

earlier chapters. This chapter identifies key themes, trends, and insights from the data collected.

Chapter Six discusses the research findings in greater depth, connecting them with theoretical frameworks and prior studies. This chapter critically analyses the implications of the results for theory, practice, and policy, offering a nuanced interpretation of the data.

Chapter Seven concludes the thesis by summarising the key findings and addressing the research objectives. It highlights the study's contributions to knowledge and provides recommendations for practice, policy, and further research. The chapter also reflects on the study's limitations and suggests areas for future investigation.

1.9 Operational Definition of Terms

This section defines key terms used throughout the study to ensure clarity, precision, and consistency in communication.

Management Accounting: Refers to the process of sourcing, analysing, and communicating financial and non-financial information to assist decision-making, planning, and performance management within organisations (CIMA, 2018). In this study, management accounting encompasses practices such as costing systems, budgeting systems, and performance evaluation systems used in Zimbabwe's petroleum industry.

Competitive Advantage: Defined as the ability of a firm to achieve a higher rate of economic profit or deliver greater value to its customers compared to its competitors over a sustained period (Porter, 1985).

Petroleum Industry: Encompasses all activities involved in the exploration, extraction, refining, transportation, and marketing of petroleum products, including diesel, gasoline, and liquefied petroleum gas (Clews, 2016). The study focuses on Zimbabwe's petroleum industry's wholesale and procurement segments.

Costing Systems: Refers to the methods and techniques used to allocate costs to products or services, including activity-based costing, standard costing, and marginal costing, as applied in the petroleum industry.

Budgeting Systems: Defined as financial planning tools used to estimate revenue and expenses over a specified period, including traditional, zero-based, and activity-based budgeting methods.

Performance Evaluation Systems: Denotes frameworks and tools for assessing and monitoring organisational performance, such as the Balanced Scorecard and brand evaluation techniques.

Strategic Management Accounting: Focuses on outward-looking perspectives, including competitor analysis and value chain costing, to comprehensively understand and provide financial and non-financial information to assist decision-making, planning and performance management within organisations. This approach incorporates tools such as the balanced scorecard, target costing, lifecycle costing, and benchmarking to align accounting practices with an organisation's strategic objectives. (Cadez and Guilding, 2008; Roslender and Hart, 2003).

Competitive Advantage through Management Accounting Framework (CAMAF): A conceptual framework developed in this study to explore the role of management accounting practices in creating and sustaining competitive advantage in Zimbabwe's petroleum industry.

1.10 Chapter Summary

In conclusion, this chapter provided a foundational understanding of the importance and scope of management accounting in business environments, particularly within the dynamic context of the petroleum industry. The next chapters explore the intricacies of management accounting practices, focusing on their application and impact within the petroleum industry. The chapters also examine how these practices are tailored to meet the unique demands of the global and Zimbabwean petroleum markets, highlighting key techniques and their effectiveness in enhancing operational efficiency and financial performance. Ultimately, this study aims to uncover empirical evidence linking management accounting practices to competitive advantage in selected petroleum companies in Zimbabwe. By doing so, it seeks to contribute valuable insights to both academic literature and industry practice, offering practical recommendations on how management accounting can be used to improve managerial decision-making and organisational performance.

CHAPTER TWO

MANAGEMENT ACCOUNTING: CONCEPT, THE CHANGING ROLE, AND TECHNIQUES & TOOLS

2.1 Introduction

The study seeks to investigate the extent to which management accounting techniques have been used in selected petroleum companies in Zimbabwe and how useful they were in creating and sustaining competitive advantage. This chapter discusses management accounting, the changing role of management accounting, and management accounting tools and techniques. The chapter also provides an overview of the petroleum industry, its economic importance globally and within Zimbabwe, challenges and opportunities and how management accounting can help solve these challenges. The following section discusses the use of management accounting techniques in Zimbabwe's petroleum industry, focusing on the use of management accounting techniques to create and sustain competitive advantage.

2.2 Management Accounting and the Changing Role of Management Accounting

This section reviews management accounting as a discipline and examines its evolving role. While existing literature highlights the growing importance of management accounting in strategic decision-making, many studies fail to account for its contextual application in industries like petroleum, where competitive pressures create unique challenges. The section also explores the history and development of management accounting. Critically discussing its historical evolution contextualises contemporary techniques and highlights gaps in their adoption and adaptation in under-researched sectors, such as Zimbabwe's petroleum industry. Understanding management accounting and its application in business is necessary to evaluate how it contributes to creating and sustaining competitive advantage.

In the section discussing the definition of management account, the following was added to critique the existing management definitions. The existing definition of management accounting fails to incorporate new developments such as AI and how it influences management accounting.

2.2.1 Definition of Management Accounting

Ansari et al. (2004) define management accounting as the process of measuring and delivering operational and financial information to assist management in motivating, supporting, and fostering the cultural values needed to achieve the organisation's strategic goals. This early definition highlights the foundational role of management accounting in supporting strategic objectives but does not delve into the evolving technologies that now shape the profession. Institute of Management Accountants (2008) further defines management accounting as a profession that supports management in formulating and implementing organisational strategy through managerial decision-making, planning and performance management frameworks, financial reporting, and control expertise. This definition expands the scope of management accounting by explicitly linking it to strategy formulation and organisational control.

In a more elaborate definition, Davis (2012: 3) describes management accounting as “the process of identification, measurement, accumulation, analysis, preparation, interpretation, and communication of financial information used by management to plan, evaluate, and control within the organisation and to assure appropriate use of and accountability for its resources.” Complementing this, Chartered Global Management Accountant (CGMA (2020: 1) asserts that management accounting is essential to management as it involves the “identification, presentation, and interpretation of information to facilitate strategy formulation, planning, and control activities”. CGMA (2020) further outlines that management accounting seeks to ensure that the resources within an organisation are used optimally and that assets are safeguarded. The management accounting function is also integral to analysing the business' competitive environment, emphasising its increasingly strategic role within the business environment.

While it has been established that management accounting is crucial in providing financial information for decision-making and ensuring optimal resource utilization, the definitions do not fully capture the transformative potential of emerging technologies, such as AI, in reshaping the role of management accounting. The integration of AI into management accounting represents a key development that is improving efficiencies, automating routine tasks, and enabling deep data-driven insights that are crucial for strategic decision-making (Fotache and Bucsa, 2024). AI aspects such as machine learning, which allows analysis of large datasets, have improved forecasting (Chowdhury, 2023). Robotic process

automation now automates repetitive tasks, thus reducing errors and freeing management accountants to focus on strategic analysis (Chowdhury, 2023).

2.2.2 History and Development of Management Accounting

Management accounting dates back to ancient times and is one of the oldest professions (Edwards and Boyns, 2012; Ovunda, 2015). However, before its formalisation, accounting predominantly focused on cost management, which focused on recording production costs rather than management functions (Ovunda, 2015). In many countries, the term “cost accounting” is still relevant (Edwards and Boyns, 2012). This has deep historical roots, with evidence from as far back as Mesopotamia (3500 BC – 2000 BC) showing the establishment of banks, the use of standard value measures of gold and silver, and the extension of credit. These tasks required financial recordings, which were done by scribes (Alexander, 2002). In ancient history, management accounting was used to determine the amount of tax due (Ambashe and Alurawi, 2013). In ancient China, Egypt, and Arab traders had accountants in the service of the royal courts, some of whom were experts in determining costs (Ovunda, 2015).

In most of the history of accounting, management accounting was part of financial accounting, and the term accounting was usually used to encompass both management and financial accounting (Boyns and Edwards, 2013). This reflects a significant gap in the literature regarding the separation and distinct roles of financial and management accounting functions over time. Contemporary scholars often overlook the gradual shift from financial reporting to strategic decision support within management accounting (Boyns and Edwards, 2013). The use and relevance of accounting increased during periods such as the Medieval Period (1130 AD - 1485 AD) with the publication of the Domesday Book. The Domesday Book documented real estate and taxes due to property owners during that period (Alexander, 2002). However, modern accounting started during the Renaissance period (from the 14th to the 16th centuries). The double-entry system was introduced (Ovunda, 2015). During that era, the advancement of writing, commerce, and production, coupled with capital accumulation, influenced the creation of an economic record-keeping system. The double entry system was developed by Luca Pacioli, who is referred to as the “Accounting Father” (Ovunda, 2015). In his book *Sum of Arithmetic, Geometry, Proportion, and Proportionality*, he outlines the concept of double-entry. The double-entry accounting system was created to ensure that every economic transaction record comprises two components, impacting at least two accounts.

After the initial development of the double-entry system, further refinements led to the birth of modern accounting, which can be traced back to Scotland in the late 1800s (Alexander, 2002). Chartered Accountancy was first introduced in Scotland (Alexander, 2002). During the birth of accounting, most accounting work was closely linked to the discipline of law. The Glasgow-based Institute of Accountants petitioned Queen Victoria on July 6, 1854, requesting a Royal Charter. Forty-nine Glasgow-based accountants signed a petition to see accounting recognised as a separate profession with well-defined standards of behaviour. Their description of the profession's duties included actuarial work, arithmetical calculation, investigation into figures and acting within the law of Scotland (Alexander, 2002).

The Institute of Chartered Accountants in England and Wales was founded in 1880 with 587 members, and an additional 606 members were enrolled using their experience in the profession as the basis of acceptance. Examinations for Institute entrance were developed, and professional designations were established to guarantee that the accountants have the requisite knowledge and moral principles (Alexander, 2002). These designations include the Fellow Chartered Accountant (FCA), a partner or owner in a practice, and the Associate Chartered Accountant (ACA), a qualified member but not actively engaged in practice. The Institute of Chartered Accountants in England and Wales established other accounting societies in many European countries, such as Scotland, Ireland, France and the United States of America. The financial accounting double-entry system and recording of financial transactions took precedence over cost and management accounting before the 1700s (Antonelli et al., 2009). However, the introduction of factories in the 18th and 19th centuries resulted in the emergence of cost and management accounting, as the factory owners wanted to determine the cost of production (Carmona, 2006).

In the 20th century, there was a growing demand for accounting information from various users, accompanied by advancements in accounting theory and practices (Rayan, 2012). The accounting discipline experienced an improvement in information retention due to the development and use of accounting software (Rayan, 2012). By the mid-20th century, international accounting standards were introduced to ensure that financial information was sustainable and comparable globally (Asllanaj, 2010; Hossain et al., 2015; Lagassé, 2010). The International Accounting Standards Committee (IASC) was founded in 1973 by professional accounting organisations from various nations such as Australia, Canada, France, Germany, Japan, Mexico, the Netherlands, the United States of America (USA),

the United Kingdom (UK), and Ireland, developed important international standards (Asllanaj, 2010). Its secretariat was based in London.

Proceeding from the formation of IASC, the International Federation of Accountants (IFAC) was established in Munich, Germany, in 1977 to strengthen the accounting profession further. This involved creating and issuing International Accounting Standards (IAS) that offer financial reporting directives, establish quality auditing standards, and address public sector and management accounting. Additionally, IFAC sought to promote collaboration with other international organisations and to act as a worldwide representative for the accounting profession (Asllanaj, 2010). More recently, the Institute of Accounting Standards Committee (IASB) was formed as a successor to IASC to establish international accounting standards (Asllanaj, 2010). The primary duties of the IASB include creating and releasing global financial standards and endorsing the interpretations provided by the International Financial Reporting Interpretations Committee (Asllanaj, 2010).

2.2.3 Development of Management Accounting

The emergence of management accounting can be attributable to the “watch in hand” type of production of Daniel Tyler in 1832, in which each production task became accounted for separately (Hoskin and Macve, 2000). The factory production of products resulted in the need for the separate reporting of costs for each activity. The Industrial Revolution necessitated tools to facilitate decision-making and coordinate manufacturing activities in a more complex operating environment. The industrial revolution resulted in high levels of capitalisation and fixed costs. A closer analysis of costs was required to allow optimal allocation of resources. In addition, factory owners started hiring workers on a shift basis to gain maximum efficiency from capital invested. This necessitated the need to have a system of assigning costs to each product rather than to its workers (Johnson and Kaplan, 1987). This growing emphasis on precise cost measurement created a parallel need for robust cost control mechanisms, laying the groundwork for the modern management accounting function (Boyns and Edwards, 2006).

The term “management accounting” was not used in Anglo-Saxon before the first management accounting revolution, between 1950 and 1980 (Boyns and Edwards, 2013). Before the 1950s, the term “cost accounting” was used instead. Before the first management accounting revolution, the management accounting discipline focused on computation costs for financial control. Management accounting aimed to address the challenge of poor cost computation earlier in the 19th century. During that period,

monopolists would halt production when the expenses exceeded the receipts (Boyns and Edwards, 2013). Cost accounting became a necessary technical activity to ensure that the organisation pursued its goals and objectives. However, the popularity of monopolistic business practices during the 19th century led scholars such as Pollard (1965) to argue that management accounting during the 19th century was less popular. Pollard (1965) posits that firms could easily make profits during this period as the monopolistic environment allowed substantial profit margins without needing advanced management accounting systems. However, this scenario changed as the business environment became more competitive during the early 1900s (Boyns and Edwards, 2006; Kaplan, 1983).

In the early 1900s, management accounting rapidly developed (Boyns and Edwards, 2006; Harnani, 2022; Kaplan, 1983). Boyns and Edwards (2006) describe this period as one in which there was a change in focus from identifying and classifying costs to aiding management in their decision-making process. During the 1900s, standards were developed, and the measurement and allocation of overhead costs to products were established (Kaplan, 1983). In addition to this, management tools such as break-even analysis emerged (Boyns and Edwards, 2006). Statistical methods were used to estimate cost behaviour. This led to an increase in financial and cost accounting separation. Concepts such as avoidable, differential, and sunk costs emerged (Boyns and Edwards, 2006). This cost information was used for strategic pricing and operating efficiency decisions.

Johnson and Kaplan (1987) suggest that most modern management accounting practices were established by 1925. They assert a period of stagnation in innovations within management accounting during the early 20th century. As a result, the management accounting function failing to provide timely and detailed information on business processes was perceived as subservient to financial accounting practices. The high costs and operational challenges of maintaining dual accounting systems led many businesses to prioritise financial accounting. However, standard costing and other management accounting practices remained widely adopted due to their utility in internal decision-making (Anita, 2000). Throughout the 20th century, cost variances, net profit, and return on investment were leading financial indicators used to assess managerial performance (Boyns and Edwards, 2013).

The International Federation of Accountants Committee (1998) categorised various stages of management accounting into four phases. These stages are as follows:

- **Stage 1** – Before 1950, management accounting primarily concentrated on cost determination and financial control, utilising budgeting and cost accounting methods. Techniques such as Last In First Out (LIFO) and First In First Out (FIFO) were developed for cost estimation (Prakash, 2007).
- **Stage 2** – By 1965, the main goal of management accounting was to supply data for control and planning in management. During this time, decision analysis and responsibility accounting were developed, and managers were assisted in choosing between various courses of action by the use of marginal costing and responsibility accounting approaches (Prakash, 2007).
- **Stage 3** – By 1985, improving efficiency through the reduction of waste was the primary strategy. During this phase, businesses began to use process analysis and cost management technologies as management accounting tools, such as Just in Time (JIT) and Activity-Based Costing (ABC) (Prakash, 2007).
- **Stage 4** – By 1995, management accounting had changed to concentrate on generating value through the application of tools and resources that investigate the factors that influence shareholder value, customer value, and organisational innovation. During this phase, methodologies like Reengineering, Activity-Based Management (ABM), Total Quality Management (TQM), and Benchmarking gained prominence (Prakash, 2007).

It is essential to recognise that the four stages of development overlap, even though they are categorised separately (Waweru, 2010). Each phase of management accounting evolution integrates previous and current practices, with older methods adapted to meet the new conditions and challenges in the management environment.

Waweru (2010) characterises the first stage as a period when management accounting was seen primarily as a technical function essential for achieving organisational goals. The second stage is when management accounting is more supportive by supplying information for planning and control (Waweru, 2010). In the third and fourth stages, management accounting is integral to the management process. The fourth stage was facilitated by an improvement in technology and an increase in access to real-time information. This information became available to all levels of management. The fourth stage of management accounting focuses on using resources to create value for

stakeholders (Waweru, 2010). The shift from relying on historical data to processing real-time information illustrates the evolving role of management accounting over time. The following section explores in detail the change in the role of management accounting.

2.2.4 The Changing Role of Management Accounting

The role of management accounting has been changing more rapidly due to changes in the business environment (Alsharari et al., 2015; Burns and Scapens, 2000; Goretzki et al., 2013a; Rautiainen et al., 2024). This is supported by studies done by scholars such as Chenhall and Langfield-Smith (1998) and Dixon (1998) that show that there have been significant changes in the role of management accountants and the tools and techniques they use. However, these studies primarily focus on incremental changes and lack comprehensive consideration of the pace and breadth of these transformations across industries and regions.

Cooper and Dart (2009) agree that management accounting is no longer a separate discipline that can develop strategy, procedures and management systems that can be applied universally to all firms. While this underscores the shift toward firm-specific applications, it does not adequately address how contextual factors such as firm size, industry, or market dynamics influence the role of management accounting. A deeper investigation into how contextual elements shape management accounting's strategic contributions would enrich the discourse and provide practical insights for managers. Management accounting now focuses on serving the specific strategic objectives of the particular firm. Many factors have led to this change in the management accounting discipline. Factors such as increased competition, technological advancement, changes in organisational design, and new management practices are among the main drivers for change in management accounting (Burns and Scapens, 2000).

The change in management accounting is two-fold: introducing new management accounting techniques (Busco et al., 2007; Busco and Scapens, 2011). Secondly, management accounting has changed in how management accountants use the information generated by traditional accounting techniques (Hopwood and Miller, 1994; Scapens, 1994). There is consensus that information and communication technologies such as the Internet have become the medium for information exchange between the firm and its stakeholders (Alsharari et al., 2015). In addition, information and communication technologies have affected how the business markets its products and processes business

transactions (Fink and Laupase, 2000). This change has led to significant changes in the role of management accounting (Alsharari et al., 2015).

The new business environment requires the management accountant to understand business broadly (O'Mahony and Doran, 2008). It is now crucial for management accountants to participate as team players while bringing financial expertise to the management process. This participation usually involves the management accountant taking decision-making roles in cross-functional teams, operations, and strategic control (Jackling and Spraakman, 2006; O'Mahony and Doran, 2008). In agreement with this, Burns and Baldvinsdottir (2005) outline that management accountants now spend more time on business-integrated roles that incorporate strategy formulation, systems development, organisational (re-)design, and change management. In this regard, management accounting plays a more strategic role in organisations.

Furthermore, the changes in management information systems have led to changes in the management accounting function (Bose et al., 2023). Management information systems have become increasingly integrated, with more information available to more people within the organisation through Enterprise Resource Planning (ERP) (Jackling and Spraakman, 2006; Weerasekara and Gooneratne, 2023). ERP is a general software application category that unifies all business processes and data into a single system (Caglio, 2003; Waxer, 2006). The popularity of ERP systems such as SAP and Baan, initially in large companies and more recently in smaller organisations, has resulted in a change in business functions, including the management accounting function within these organisations (De Loo et al., 2013; O'Mahony and Doran, 2008; Weerasekara and Gooneratne, 2023). The implementation of ERP has led to more accessible and faster access to standardised operational data, an enhancement in forecasting, as the shifting of the work of management accountants towards more analysis and fewer routine tasks (Granlund and Malmi, 2002; Sánchez-Rodríguez and Spraakman, 2012; Scapens and Jazayeri, 2003). In this regard, Sánchez-Rodríguez and Spraakman (2012) argue that ERP systems have improved management accounting efficiency and effectiveness.

An emerging transformation in the role of management accounting is the integration of real-time data analytics and automation (Dai and Vasarhelyi, 2023). This has further emphasised the strategic role of management accounting as a tool to aid strategic decisions. The preparation of financial reports for decision-makers has expanded to interpreting big data and providing strategic insights (Yutong, 2022). Robotic process

automation (RPA) has significantly reduced human intervention in routine accounting tasks, allowing management accountants to focus on higher-level strategic analysis (Bhimani and Willcocks, 2014). However, to fully understand these advancements, it is essential to first identify traditional management accounting practices as a foundation for addressing the research questions.

2.3 Management Accounting Tools and Techniques

Management accountants use numerous tools and techniques to fulfil their role of providing information to aid decision-making. These tools and techniques can be grouped into two main categories: traditional management accounting tools and contemporary management tools (Guilding et al., 2000). Traditional management accounting practices focus on cost reporting and fixed asset utilisation to reflect trends and patterns. While these tools are well-established, their limitations in addressing the complexities of modern business environments, such as sustainability and technological disruption, are underrepresented in the literature (Elhossade et al., 2022). On the other hand, contemporary practices provide financial and non-financial information, focusing on a more strategic orientation (Guilding et al., 2000). The most popular traditional management accounting tools organisations use to remain competitive are standard costing and budgeting (Ahmad, 2012; Angelakis et al., 2015; Bastl et al., 2010; Horngren et al., 2007; Sulaiman et al., 2002). However, much of the existing literature lacks a critical assessment of how these classifications evolve within different organisational or cultural contexts. For instance, the degree to which firms adopt traditional versus contemporary tools may differ significantly across industries and regions, yet these variations remain underexplored. An example of such, Sulaiman et al. (2002), found that contemporary accounting tools and techniques such as balanced scorecards, activity-based costing and target costing were the most popular in selected Asian countries.

CIMA (2006) discusses that brand management is an integral part of management accounting, with many organisations now engaged in brand evaluation. Several studies examine the prevalence of brand evaluation as a tool for competitive advantage (Cadez and Guilding, 2008; Juras, 2014; Roslender and Hart, 2002; Vu et al., 2011). In a study conducted by Zeithaml (2000a), customer profitability accounting was increasing in popularity, especially among firms in the service industry. In a survey by Cinquini and Tenucci (2010) and Ojra (2014), life cycle and value chain costing were identified as two

popular management accounting techniques. The following section discusses these popular management accounting techniques.

2.3.1 Costing Techniques

Several costing methods can be found in literature as defined by academics and practitioners. Calculating costs for outputs, services, and activities is known as costing (Hojna and Stryckova, 2018). Costing is assigning costs, margin, profit, price or other value quantity to an individual product, service, activity, operation or other naturally articulated output of an enterprise, that is, cost unit (Popesko, 2009). This section discusses some of the popular costing techniques

2.3.1.1 Absorption Costing

According to Datar and Rajan (2021), the absorption costing system considers all production expenses as product costs. Accordingly, direct materials, direct labour, and variable and fixed overhead comprise a product unit (Hojna and Stryckova, 2018). Absorption costing treats production overheads as product costs (Hojna and Stryckova, 2018). Absorption costing is a traditional costing system introduced over a hundred years ago. During that time, direct costs were predominant in total costs compared to overhead costs. Traditional costing systems, such as absorption costing, have been criticised (Abdel-Kader and Luther, 2006). One of the identified issues is the subjectiveness of the overhead recovery rates, with some opting for a plant-wide and others choosing a more specific absorption rate (Abdel-Kader and Luther, 2006). The other issue has been the controversy about the need to recover and allocate overheads (Abdel-Kader and Luther, 2006). In addition, absorption costing has been criticised for combining different cost drivers into unit costs, thus leading to misleading cost figures (Vercio, 2008). These shortcomings raise questions about the suitability of absorption costing for providing accurate and relevant information for strategic decisions (Abdel-Kader and Luther, 2006; Vercio, 2008).

Despite these criticisms, absorption costing remains popular in many regions, as it is used as one of the primary analysis tools for determining costs (Abdel-Kader and Luther, 2006; Ahmad, 2012; Shields et al., 1991). One of the reasons why absorption costing remains popular is that it allows the reconciliation of the ledger and source system, thus providing a foundation that is meaningful to managers (Král, 2010). Most businesses adjust the costing model to their requirements and needs (Král, 2010). Both the structure and scope of the costing could be adapted, including cost items covered, their sequencing, the level

of detail and the structure of subtotals (Hojna and Stryckova, 2018). While absorption costing has its merits, it falls short in addressing modern business complexities, such as sustainability and technological disruption which are increasingly important to strategic decision-making. The following section discusses standard costing as a widely adopted cost control approach.

2.3.1.2 Standard Costing

The Chartered Institute of Management Accountants (2008) defined standard costing as preparing standard costs and comparing them with actual costs to analyse the variances and ascertain their possible causes. This management accounting technique was introduced in 1908 by Strachan and Nicholson. These scholars engineered ideas of standards and used them to compare expected costs and actual costs, as well as analyse the variances (Mattessich, 2007). While this early innovation laid the groundwork for cost control, it primarily addressed manufacturing environments with stable production conditions, offering limited adaptability to service sectors or industries with fluctuating input costs. Drury (1992b) notes that other scientific management engineers created standards to determine the most efficient methods for utilising labour and material resources in manufacturing. These standards offered crucial insights for planning work processes to reduce material and labour wastage (Drury, 1992b). In this regard, the engineers did not consider standard costing primarily as a control tool. However, standard costing has gained dominance in many organisations and is regarded as beneficial in planning and control, product costing, and performance evaluation (De Zoysa and Kanthi Herath, 2007).

A standard is typically an established norm for measuring something like quantity, weight, extent, value, or quality. The target material or financial inputs needed for each output unit are referred to as standards in standard costing (Morelli and Wiberg, 2002). Standards are based on the physical inputs that should be used during the manufacturing process, such as labour, materials, and machine hours (Drury, 1992b). The standard cost comprises two main elements: a price standard and a quantity standard (Encyclopedia of Production and Manufacturing Management, 2000). The price standards include the standard price of the materials and the standard rate for labour. On the other hand, quantity standards are the physical units of measure for the task or activity identified.

There has been much discussion on the relevance of standard costing due to the rapidly changing, increasingly competitive business environment (De Zoysa and Kanthi Herath, 2007; Edwards et al., 2002; Fleischman et al., 2008; Sulaiman et al., 2005). In a dynamic

business environment, cost variance reports usually prepared monthly in standard costing are deemed less helpful as the information will usually become outdated by the time it is released or reported (Sulaiman et al., 2005). Hence, the information will frequently be considered inaccurate and misleading for decision-making (Guilding et al., 1998).

Despite the above criticism, studies between 2000 and 2012 reported that standard costing is still widely used for planning and control purposes (Ahmad, 2012; De Zoysa and Kanthi Herath, 2007; Fleischman et al., 2008; Sulaiman et al., 2005) and in a study undertaken by Joshi (2001), 68% of Indian firms surveyed indicated they were still using standard costing. In a similar study involving Malaysian companies, 70% used standard costing as a planning and control tool (Sulaiman et al., 2002). Most companies still use standard costs to compute cost standards, aid in budgeting, and evaluate cost and performance (Sulaiman et al., 2005). According to Marie et al. (2010), standards are set based on projected physical inputs such as labour, materials, and machine hours that are anticipated to be used in the production of a good. However, there is a need for more recent empirical evidence to assess its current application, particularly in emerging economies like Zimbabwe, where industries face unique cost structures and external pressures.

Horngren et al. (2007) note that standards can motivate employees when attainable and achievable standards are set, especially when an incentive is given for continual improvements. They also add that standard costing is useful in formulating production planning and policies. Evidence suggests that integrating standard costing with advanced methods like lifecycle cost analysis and activity-based costing enhances decision-making effectiveness (Marie et al., 2010). Nonetheless, such integrations remain underexplored in resource-intensive industries, such as petroleum, where external factors like regulatory costs and market volatility significantly impact decision-making. The following section discusses budgeting as a management accounting technique.

2.3.1.3 Activity-Based Costing

Activity-based costing (ABC) is a methodology where resources are assigned to activities before being transferred to cost objects based on their usage of the resources (Cagwin and Bouwman, 2002; Institute of Management Accounting, 1998). Some researchers and practitioners use the term activity-based management (ABM) to use activity information in aiding operational decision-making (Cagwin and Bouwman, 2002). To differentiate between the two, ABC is what the product or services cost, while ABM is what factors cause costs and the management of these factors. ABC recognises a causal relationship

between cost drivers and activities (Institute of Management Accounting, 1998). Therefore, this implies that changes in activities will result in changes in cost drivers. Traditional costing approaches for products assume that resource consumption is directly related to production volumes (Drury, 1992a). In this regard, traditional costing systems were useful in measuring volume-related resources consumed in proportion to the number of individual units produced. However, traditional product costing systems distorted product costs as they needed to correctly calculate the organisational resources consumed by activities unrelated to physical volume (Drury, 1992a). These activities encompass support functions such as material handling, procurement, setup procedures, production scheduling, and initial item inspections. The inaccuracies of traditional product costing systems are most evident in organisations that manufacture various products with varying volumes and complexities.

The emergence of ABC was motivated by the need to meet the increased demand for accurate costing information on products, services, and customer costs (CIMA, 2008; Kaplan and Anderson, 2004). CIMA (2008) further asserts that ABC enables indirect and support expenses to be assigned to the relevant products, services, and customers. This resulted in one of ABC's main advantages because it gives management a comprehensive understanding of overheads and identifies non-value-adding activities (Sarapriya, 2012). In addition to this advantage, the ABC approach shifts the focus of the management accounting function from allocating costs to the flow of costs by allowing the identification of cost flows (Kaplan, 1994a). In doing so, the ABC approach helps identify value-adding activities and the activities that consume costs while not adding much value. Thus, ABC can support major decisions on product lines, market segments, and customer relationships and support the simulation of the impact of process improvements (BBP Publishing, 2000; Krumwiede and Charles, 2014).

In the late 1990s, ABC gained popularity in large organisations and organisations in a highly competitive environment (Cagwin and Bouwman, 2002; Chong and Cable, 2002). ABC is now considered a crucial tool in firms' decision-making in complex processes. It places relatively high importance on costs, as it helps them assess continuous improvement and monitor process performance (Cagwin and Bouwman, 2002; Krumwiede and Charles, 2014). The importance of costs is particularly pertinent in modern manufacturing systems where overhead costs comprise a significant proportion of non-factory floor activities. The modern firm now incurs high costs in product design, quality control, production planning, sales processing, and customer service (BBP Publishing,

2000). Scholars such as Cagwin and Bouwman (2002) and Al-Omiri and Drury (2007) argue that for an organisation to use ABC effectively, there is a need to have sophisticated information technology systems. This requirement has, however, raised concerns about the feasibility of ABC in less technologically advanced industries or regions where reliance on manual processes or outdated systems persists (ElGammal et al., 2016). ElGammal et al. (2016) also argue that the controller's lack of experience and the absence of specialised background and knowledge have limited the adoption of ABC in most developing countries. Despite these limitations and being initially prevalent in the manufacturing industry only, ABC is now becoming popular in service industries such as the banking and medical sectors (Alves et al., 2018; Liyanage et al., 2014; Sartorius et al., 2007). The following section discusses brand evaluation management accounting techniques.

2.3.1.4 Marginal Costing

The words "variable" and "fixed cost," often known as indirect and direct expenses, describe how costs change in response to changes in activity levels. Conversely, this conventional distinction has been criticized for oversimplifying cost behaviour, particularly in industries where semi-variable or step-fixed costs play a significant role in operational decision-making (Horngren et al., 2014). The conventional principle holds that while fixed costs stay the same overall for a certain amount of time, regardless of large fluctuations in activity levels or volume, short-term variable costs vary immediately with activity levels (Horngren et al., 2014). Since marginal costing and variable costing are related, they are frequently used synonymously. Variable costing is a subset of the larger idea of marginal costing (Horngren et al., 2014). Marginal costing and variable costing are related concepts, and the terms are often used interchangeably. Marginal costing is a broader concept that includes variable costing as a subset.

In marginal costing, operational activity costs are categorised based on how they respond to changes in the level of enterprise activity (Dyhdalewicz, 2015). Only costs of direct materials, direct labour, and variable factory overheads are included in the inventory (Hasan, 2015). In this regard, fixed factory overhead is not included in the inventory, as these are considered period costs (Garrison and Noreen, 2005). The variable and fixed costs are differentiated in internal reports and cost accounts (Dyhdalewicz, 2015). Variable costing became prominent when variable costs constituted a more significant portion of total production costs (Horngren et al., 2007). It also became pervasive when there was slight product variation. While the increase in automation resulted in more fixed

costs and fixed labour costs, it also resulted in the automatic differentiation of the two (Dyhdalewicz, 2015).

Variable costing has remained popular (Abdel-Kader and Luther, 2006; Shields et al., 1991; Wijewardena and De Zoysa, 1999), as it is a valuable technique when businesses want to consider short-period income statements without the entire production and sales cycle (Dyhdalewicz, 2015). Variable costing meets this need even in small companies with limited costs (Dyhdalewicz, 2015). The variable costing approach integrates the benefits of break-even analysis, profit planning, generally accepted accounting principles, and tax regulations into an overhead costing process (Dyhdalewicz, 2015). Due to complexities associated with costing systems, such as absorption costing, variable costing has become more intuitive and useful for internal purposes (Dyhdalewicz, 2015). Using variable costing also improved the reports prepared and the decision-making process (Dyhdalewicz, 2015). Variable costing allowed for determining the contribution of margin for the various ranges of fixed costs and the scope of enterprise activity (Dyhdalewicz, 2015). The contribution margin, calculated as the revenue less variable cost, is not affected by imperfect fixed cost accounting methods and can also be calculated per business segment (Padoveze, 2015).

2.3.1.5 Target Costing

Target costing is defined by Sakurai (1989: 40) as “a cost management tool for reducing the overall cost of a product over its entire life cycle with the help of production, engineering, R&D, marketing and accounting departments.” Atrill and McLaney (2015) have stated that target costing can be a strategic tool businesses use to design a product or service that matches the price the market is willing to pay. This means that target costing is usually undertaken to strategically position the business within its market (Joshi, 2001).

Target costing's primary driver for reducing costs is minimising a product's lifecycle time (Sakurai, 1989). The reduction of the product lifecycle means the elimination of unnecessary steps and non-value-adding activities. This can increase competitive advantage as the company's products will be introduced to the market sooner, even perhaps as the first mover (Cooper and Chew, 1996). However, the effectiveness of target costing in reducing lifecycle time remains underexplored in service-oriented industries, where the product lifecycle is often intangible or dependent on customer engagement (Ahn et al., 2018). Research by Adler et al. (2000), Carr and Ng (1995), Dekker and Smidt (2003), Joshi (2001), and Shank and Fisher (1999) have shown that target costing has become very popular globally as a management accounting tool to increase

competitiveness and preserve the organisations' existence in an increasingly competitive environment.

2.3.1.6 Value Chain Analysis

Value chain analysis is an activity-based cost model that encompasses all of the activities in the organisation, such as designing, procurement, production, marketing, distribution and post-servicing of a product or service (IMA, 1996). Porter (1985) argues that the capability to execute specific activities and manage their connections could provide a competitive advantage. Porter (1985) states that primary, secondary, and support activities are identified during value chain analysis. He further notes that there is a need to find out how these activities add value to the final product and analyse these activities to find ways of reducing costs or increasing differentiation (Porter, 1985). The focus on classifying activities in the organisation has subsequently led to the value chain analysis being criticised for not sufficiently addressing the blurred lines between primary and support activities in highly integrated supply chains (PWC, 2016).

Management accountants can play a pivotal role in using value chain analysis to enhance the firm's value, growth and survival (IMA, 1996). IMA (1996) further outlines that the value chain can provide helpful information about market segments, distribution channels, product differentiation, product pricing, selling propositions and value chain configurations, yielding the highest competitive advantage. Therefore, while the management accounting function initially focused on matching actual results against the budget and resource accountability, management accounting has evolved into more strategic roles. Adapting new management techniques may give an organisation a competitive edge and allow it to gain a competitive advantage (Thompson et al., 2010).

2.3.1.7 Life Cycle Costing

Life Cycle Costing (LCC) is another management accounting tool defined as all the costs incurred throughout an asset's life, including planning, designing, acquisition, and support costs (Gluch and Baumann, 2004; Knauer, 2018). In addition to these costs, any other costs directly attributable to owning or using the asset will constitute part of the life cycle costs of the asset (Gluch and Baumann, 2004). Therefore, lifecycle costing involves determining all costs associated with an asset rather than appraising costs annually. The main aim of the LCC is to comprehend the interaction of the cost items that accumulate during the different asset's life cycle stages. While LCC offers a comprehensive view of costs, its practical implementation is often constrained by the difficulty of obtaining reliable

data on long-term costs and the uncertainty of future economic conditions (Seal et al., 2006).

LCC is a powerful management accounting tool for choosing between competing projects or assets (Gluch and Baumann, 2004). Gluch and Baumann (2004) argue that the main strength of life cycle cost is that it incorporates qualitative and quantitative information related to the project's entire life cycle rather than just the initial costs, which are usually a small subset of all costs. Seal et al. (2006) highlight that lifecycle costing acknowledges managers' ability to impact costs during the product's design phase. LCC analysis in the oil and chemical industries tends to focus on predicting and considering the likely costs caused by disruptions due to component failures, maintenance, and emergency shutdowns during the life of projects (Kawauchi Y. and Rausand, 1999). The following section discusses target costing.

2.3.2 Budgeting

Budgets have been a critical management control tool (Bistriceanu, 2001b; Sonjaya, 2024). Budgets were initially primarily concerned with estimating future income and expenditure (CIMA, 2007). Bistriceanu (2001) defines a budget as a financial plan that estimates the revenues and expenses of a government entity or a social or economic organisation over a specified period. Thus, budgets are a quantitative expression of the plan framed by the administration for a specified period and provide the necessary support for coordinating the essential activities in implementing that plan (Lasyoud et al., 2018; Nicolae and Anca, 2010; Sonjaya, 2024; Sulaiman et al., 2004). However, the rigidity of traditional budgeting processes has been criticized for stifling innovation and flexibility, particularly in a rapidly evolving business environment (Arnold and Gillenkirch, 2015). Budgets can be based on financial and non-financial items for the forthcoming periods (Nicolae and Anca, 2010). The budget can also be a valuable tool in optimising the relationship between revenues and expenses within an entity (Ahmad et al., 2003). In addition, budgets help distribute resources among the various business units (Barrios Álvarez et al., 2021; Sulaiman et al., 2002). Budgets may also be used to evaluate divisional or managerial performance. Budgets are one of the firm's crucial coordination and control tools (Arnold and Gillenkirch, 2015; Merchant and Van der Stede, 2011). Budgets perform operational planning and coordination functions, motivation and performance evaluation, and goal communication (Atkinson et al., 2011).

CIMA (2007), however, outlined that budgets are becoming key drivers and evaluators for management. While budgets still play an essential role in the planning and control of the business, budgets are now increasingly being used to assist in implementing the company's strategies (Richards, 2006). Richards (2006) further outlined that budgets are valuable for coordinating financial activities, communicating financial expectations, and motivating managers to ensure they act in the company's interests. Budgets can be capital or operational (Ayensu, 2018). Capital budgets focus on the proposed expenditures for projects, whereas operational budgets are aimed at planning and controlling program activities (Ayensu, 2018). Operational budgets are the basis for preparing other budgets, including the contract, production, and procurement budgets (Jia, 2023). Other notable budget types are sales, purchasing, production, and cash flow (Lasyoud et al., 2018). Saputra and Putrayasa (2018) discuss the sales budget as a key budget, as it serves as the foundation for preparing other types of budgets. Its strategic importance lies in its ability to guide decision-making across multiple functional areas. A sales budget outlines detailed plans for company sales over a future period, including the type of product to be sold, the number of products, the price, and the timing and location of sales and hence has strategic importance in planning, coordinating, supervising, and controlling sales activities. Additionally, the accuracy and thoroughness of the sales budget are paramount, as errors can lead to inaccuracies in other budgets, ultimately impacting the company's profitability (Saputra and Putrayasa, 2018).

There are various budgeting techniques, including incremental budgeting based on historical costs, rolling budgeting involving continuous adjustment, and zero-based budgeting involving annually reviewing each expenditure's necessity (Jia, 2023). These techniques ensure that organisations can adapt to changing circumstances while maintaining financial discipline. The next section discusses performance evaluation.

2.3.3 Performance Evaluation

This section discusses performance evaluation. Performance evaluation uses quantitative and qualitative indicators to measure, evaluate, and report an organisation's activity level, inputs, outputs, and outcomes (Farazmand, 2019). Performance evaluation is crucial in an organisation's management control, as it incorporates critical performance indicators in performance measurement systems (Al Sawalqa, 2011). Performance measurement helps keep track of changes in an organisation's competitiveness (Epstein, 2018). The

balanced scorecard, brand evaluation, and other performance measurement tools are discussed below.

2.3.3.1 The Balanced Scorecard

The Balanced Scorecard (BSC) is a strategic planning and management tool used to measure financial and non-financial strategic performance (Kumar et al., 2024). Robert Kaplan and David Norton created the balanced scorecard as a tool used to translate a business's vision and strategy into four notional quadrants: (1) financial perspective; (2) customer perspective, (3) internal processes perspective and (4) learning and growth perspective (Caude, 2015; Kaplan, 2010a; Kaplan and Norton, 1992). These four quadrants reflect the perspectives and implications of a business's strategy. The balanced scorecard, through integrating financial measures and other key performance indicators, allows for assessing an organisation's overall performance. Niven (2014) notes that the balanced scorecard created a framework for discussing and evaluating an organisation's strategy. Rather than depending solely on generic financial and non-financial indicators, organisations could now assess their unique strategic direction and develop specific performance metrics aligned with their selected strategy. Niven (2014) argues that this was the "breakthrough" aspect of the balanced scorecard, as many executives needed help identifying and developing performance measures aligned closely to the organisation's overall strategy.

The balanced scorecard seeks to identify and measure both financial and non-financial performance. While, traditionally, most of the performance measures focused on financial performance indicators such as Return on Capital Employed and Return on Assets, the balanced scorecard, along with the financial measures, also considers aspects such as quality of service, intellectual capital and reliability of services (Perkins et al., 2014). These non-financial performance measures were previously not considered as they are separate from financial reporting, such as the statement of financial position and the statement of comprehensive income (Chavan, 2009; Kaplan and Norton, 2004). The four quadrants are discussed in more detail below.

2.3.3.1.1 Financial Perspective

The balanced scorecard model maintains the financial perspective because it provides a useful summary of the measurable economic outcomes resulting from actions that have already been implemented (Kaplan and Norton, 1992). Financial measures usually need to catch up as they are based on past performance; however, they are useful to find out if

the implementation and execution of the organisation's strategy are effective and producing the desired results (Niven, 2014). Similarly, the financial measures can also act as guidelines for the organisation's strategic direction, as they help determine the execution of future strategy. Metrics of financial success show a company's strategy, both in terms of execution and implementation. Return on Capital Employed (ROCE), Return on Assets (ROA), and shareholder value are among the financial perspective metrics that are connected to the success of the company (Chavan, 2009).

The financial measurements allow for assessing whether the organisation's strategic actions, such as establishing a new venture, quality management systems and supply chain management, have increased shareholder value (Chavan, 2009; Niven, 2014). Financial performance results from operational actions, and financial success is the logical consequence of doing the fundamentals well. An improvement in an organisation's operations is likely to impact the organisation's financial performance positively. In this regard, the financial perspectives help identify if attempts being made by the organisation to improve operational efficiency are being effective. Despite this, financial measures are often criticised for failing to capture intangible assets such as intellectual capital and employee engagement, which are critical drivers of value creation in modern economies (Chavan, 2009).

2.3.1.1.2 Customer Perspective

All organisations aim to offer services to a specific set of customers, whether they are public or private. Every business wants to attract and retain clients (Drucker, 2007). The customer perspective is one of the key perspectives on the balanced scorecard since it recognises the significance of the client (Niven, 2014). The customer perspective explains how the organisation will produce distinctive and sustainable value to satisfy chosen client segments, whereas the previously described financial viewpoint concentrates on growing shareholder value (Kaplan, 2010b; Kaplan and Norton, 1992; Niven, 2014).

Three questions are attempted to be answered from the Balanced Scorecard's consumer perspective: who are the company's intended customers? what do customers want or expect from the company? what is the company's distinctive value proposition for client service? The company may set goals and KPIs for its value offer after determining its target customer (Kaplan and Norton, 1992). The value proposition outlines a company's strategy towards its customers by detailing the distinctive combination of product, price, service, relationship, and image the company provides to the targeted customer group (Kaplan and

Norton, 2004). This value proposition should effectively communicate how the organisation can differentiate itself from its competitors and thus create value. To achieve this, the customer perspective typically involves metrics such as customer satisfaction, retention, acquisition, profitability, market share, and account share (Niven, 2014). Improvements in these metrics often impact financial performance indicators; for instance, customer satisfaction measures usually serve as leading indicators of purchasing behaviour that can affect the business's financial results.

2.3.1.1.3 Internal Business Process Perspective

The internal business processes perspective analyses the organisation's internal processes (Kaplan and Norton, 1992). The effectiveness and efficiency of internal processes and how they contribute to the organisation fulfilling its goals and objectives are analysed (Kaplan and Norton, 1992). An organisation's internal processes are procedures, practices, and rules that contribute to achieving organisational objectives (Melo and Ribeiro, 2008). The internal process perspective of the scorecard highlights the essential processes where the firm needs to excel to create value for both customers and shareholders (Niven, 2014). To achieve this, the organisation needs to address the following questions: what business processes do we need to engage in to satisfy our shareholders and customers? what business processes must we excel in? Examples of measures that can be used as part of the internal perspective are the development of products and services, the delivery of products and services, and the provision of after-sale services.

Through its focus on internal processes, the internal perspective allows an organisation to explore a means of delivering a differentiated value proposition based on its strategy (Ling Sim and Chye Koh, 2001). Internal processes create and execute the value proposition for consumers and lower production and service delivery costs, making them critical to the strategy's successful implementation. This allows customer performance data to be analysed both quantitatively and qualitatively. The organisation must identify those crucial internal processes to create the most value (Niven, 2014). This identification may help the organisation to achieve competitive advantages by building on these processes.

2.3.1.1.4 Learning and Growth Perspective

The intense competition within the business environment has led to technology and employee skills becoming rapidly obsolete, and in a bid to keep track, organisations are training their employees frequently (Ling Sim and Chye Koh, 2001). The learning and

growth perspective becomes a valuable performance management tool to monitor the learning process and ensure long-term value creation (Ling Sim and Chye Koh, 2001). Emphasising its importance, Niven (2014) argues that the learning and growth perspective is the ‘foundation’ of the Balanced Scorecard. Niven (2014) outlines that a strategy can only be executed with people, regardless of its brilliance.

The learning and growth perspective tackles issues like how an organisation can maintain its capacity for change and improvement while achieving its goals in the face of changes in the business environment. A few metrics include information system capabilities, employee empowerment, motivation, and alignment with the company's strategic goals. Transactional data processing to support strategic decision-making, learning and development is essential as organisations depend on technological systems (Niven, 2014). Thus, modern corporations must ensure their growth and change are persistent or continual for enduring success.

2.3.3.2 Brand Evaluation

Brand evaluation is defined as “a method used to determine the tangible and intangible assets of a corporate or product brand. The goal is to quantify the overall impact of a brand and – partly – to convert it to monetary terms” (Communication Controlling, 2018: 1). Seetharaman et al. (2001) define a brand as an intangible asset whose value becomes apparent during a sale or acquisition of a business. The primary goal of brand evaluation is to measure the brand’s effect on the company's performance in financial terms (Sahaf, 2013). Thus, brand evaluation helps organisations understand the value of their brands in the market, which allows them to formulate future marketing strategies. According to Interbrand and JP Morgan (2002), brands constitute up to one-third of shareholders’ value, and as a result, brand evaluation is increasingly becoming relevant to management accountants.

Millward Brown Optimor (MBO) further support the importance of brands as they conclude that a strong brand gives a business power to create value (Millward Brown, 2018). They argue that a strong brand can be a source of competitive advantage as it allows the business to charge a price premium and makes it easier to penetrate new markets. In addition to these benefits, strong brands also help reduce business risk and attract and retain talented staff (Brand Finance, 2017; Slaughter et al., 2004). A strong brand also mitigates business risk by encouraging future engagements from clients (Millward Brown,

2018). Similarly, brands can help create customer satisfaction by emphasising what customers can expect when purchasing a particular product or service (Wirtz, 2003).

While it is established that brands are valuable, questions have been raised about how brands can be evaluated (Sahaf, 2013; Sharma, 2016). Various methods can be used to value brands, including financial-based, behavioural-based, and composite (Sahaf, 2013). The financial-based methods focus on financial measures such as cost-oriented measures, market-oriented, license-based and price premium-oriented methods. The behavioural-based method focuses on the qualitative dimensions of the brand. The composite method measures combine both the financial and behavioural-oriented approaches. Sharma (2016) explains that brand evaluation employs technical valuation methods for various purposes, including financial position reporting, tax planning, litigation, securitisation, licensing, mergers and acquisitions, and investor relations. Commercial valuations of a brand include brand architecture, portfolio management, market strategy, budget allocation and brand scorecards (Sharma, 2016). The players within the petroleum industry, which is a commodity-based sector, are likely to be significantly affected by the value of their brands (Brand Finance, 2019).

2.3.3.3 Other Performance Evaluation Techniques

In addition to the balanced scorecard and brand evaluation, other performance measures are discussed in this section. Performance measures can be grouped into two main categories: financial and non-financial. Financial performance measurements have remained popular (Ahmad, 2012; Al Sawalqa, 2011; Geng et al., 2021). Traditional financial metrics aim to pinpoint the primary financial drivers that generate wealth for shareholders. (Al Sawalqa, 2011). However, these metrics are often criticized for their inability to account for long-term sustainability and environmental, social, and governance (ESG) considerations, which are increasingly important in modern business practices (Abdel-Maksoud et al., 2005b). Despite their limitations, financial performance measurements, such as operating income, remain widely used due to their ability to reflect a firm's current and potential cash-generating capacity (Ratnatunga and Montali, 2008). However, these measurements fail to consider the resources and capital required to produce that revenue (Litman and Welling, 2002). To solve this problem, businesses started computing Return on Investment (ROI), which links the Income Statement and the Balance Sheet by comparing operating income to invested capital.

Botchkarev (2015a) states that Return on Investment (ROI) is a widely used metric for performance measurement and evaluation in organisations. ROI is defined as the "net gain" (return, profit, or benefit) obtained from a project (activity or system operation) relative to the "cost" (investment) incurred to achieve that outcome (Botchkarev, 2015a). ROI is a tool used to analyse the effectiveness of many investments or to assess how efficient an investment is (Botchkarev, 2015a). However, ROI's application has been criticised. Ramezani et al. (2002) claim that ROI lacks a framework for determining whether its operations provide shareholder returns. Furthermore, regardless of an investment's potential long-term worth, many managers prioritise making investments that match or surpass their present return on investment (Ratnatunga and Montali, 2008). Organisations now use additional performance metrics, such as revenue growth, to supplement it.

Most businesses use sales growth as a performance measure (Mohd et al., 2013; Neely, 2004). Sales growth offers information on factors such as promotion, employee motivation, employee retention, and investments in new technologies and equipment that have impacted the business (Mohd et al., 2013). In addition, sales growth also provides information about the learning curve and opportunities for economies of scale (Mohd et al., 2013). Businesses focusing on sales growth as a performance measure are more likely to identify favourable exploitation of opportunities as sales growth is more responsive to decisions made (Tudose et al., 2021). In addition to sales growth, cash flow is another popular financial measurement (Ferri et al., 2020).

The importance of cash flows for the corporate existence of the firm must be considered. Tron and Greco (2012) argue that cash flow is a useful performance measure as it is more objective and shows the actual business situation. Amuzu (2010) argues that using cash flow as a performance measure is more reliable than information from an income statement or a balance sheet. This results from data on the balance sheet measuring only one point at a time. The income statement is characterised by many random non-cash allowances such as amortisation and depreciation. Park (2017) discusses that cash flow is an essential measure as it influences a business's investments. For instance, firms with cash flow shortfalls may be able to invest in profitable projects if they can obtain liquid assets internally.

Previous research in management accounting has critiqued the reliance solely on financial control systems, advocating instead for the integration of both financial and non-financial metrics (Al Sawalqa, 2011; Gunday et al., 2011; Van der Stede et al., 2006; Xiong et al.,

2008). This approach is believed to be more effective and insightful for evaluating organisational performance (Kaplan and Norton, 2001). Non-financial measures, including customer satisfaction, provide performance insights beyond monetary values (Verbeeten and Boons, 2009).

Abdel-Maksoud et al. (2008) argue that financial reports often need to be more explicit, more accurate and relevant to the daily operations of a business. These financial reports must cover various aspects of a company's operations, including quality, employee involvement, production coordination, timely deliveries, and customer satisfaction. This agrees with Barsky and Marchant (2012), who argue that "day-to-day" control of operations is better handled with non-financial measures. Traditional financial performance evaluation systems have not adequately assessed efforts to improve organisational competitiveness (Al Sawalqa, 2011; Bento and Ferreira, 2006; Kaplan and Norton, 2001; Taylor et al., 2001). It becomes essential to have both financial and non-financial performance measures to assess the business's performance better.

Organisations use the number of customer complaints to measure customer satisfaction (Abdel-Maksoud et al., 2008). Other measures used for customer satisfaction include the number of returns and the number of warranty claims (Abdel-Maksoud et al., 2005a). In addition to customer complaints, other non-financial measures most firms use are the number of on-time deliveries, customer complaints, and absenteeism rates (Ahmad, 2012; Maduekwe and Kamala, 2016; Micheli and Mari, 2014). Customer satisfaction is the most commonly used non-financial performance evaluation measure (Ismail, 2007b).

2.3.4 Decision Support Systems

One of the most important tasks in an organisation is making decisions. Allocating limited resources requires decision-making to achieve the organisation's goals (Ada and Ghaffarzadeh, 2015; Rumman et al., 2024). Effective decision-making is the most crucial component in today's rapidly changing competitive market (Azadnia et al., 2015; Garrison et al., 2021). A decision is the outcome of a process, a selection made at a certain moment in a particular setting from options to encourage activities of varying length and scope (Butterfield, 2016). There are two categories of decision support analysis: short-term and long-term (McLean et al., 2015). This section discusses some of the most widely used management accounting techniques for supporting decision-making.

2.3.4.1 Break-Even Analysis

Break-even analysis examines the link between costs, profits, and sales volume (Adedeji and Ituma, 2020; Ahmad, 2012; Horngren et al., 2014). It is also known as Cost Volume Profit analysis. The break-even threshold is reached when revenue and total cost are equal (Gubio et al., 2022). The point at which the business is neither profitable nor losing money is known as the break-even point. Break-even analysis can be used when making decisions about selling prices, what product mix to offer, whether to accept special orders, what marketing tactics to use, and how cost increases or decreases will affect an organisation's profitability. (Adedeji and Ituma, 2020). In this regard, break-even analysis is a common tool for decision-making.

Numerous studies have shown a relationship between break-even analysis and successful planning, control and decision-making (Adedeji and Ituma, 2020; Alnasser et al., 2014; Gubio et al., 2022; Jamaludin). Using break-even analysis usually results in management having a better understanding of the costs that the business is incurring (Persaud, 2020). To calculate the break-even point, costs must be classified into variable and fixed costs. Break-even analysis also leads to a better understanding of cost drivers, behaviour, and structure since these issues are all central to optimising profits (Persaud, 2020). The cost driver is a factor that causes or drives an activity's costs (Sievänen et al., 2004). The cost driver and other cost elements mentioned are all important factors to consider when making decisions.

2.3.4.2 Stock Control

In business management, the terms "stock control" and "inventory management" are synonymous (Jay and Barry, 2006). The science-based art of inventory management involves regulating the amount of stock—in whatever form—held by a company to economically meet its demands (Jay and Barry, 2006). The goal of stock storage as a buffer against business swings is to maintain customer satisfaction at the lowest possible cost to the company. Stock control is crucial to business operations in this sense.

Inventory is among many businesses' most significant and tangible investments, particularly in manufacturing and retail (Handfield et al., 2011). Inventory control aims to keep supplies for everyday operations objectively continuous while maintaining inventory at the lowest feasible cost. Management must compromise on a number of cost factors when deciding what to stock, including the cost of supplying inventory, the cost of storing inventory, and the cost of having enough inventory (Mogorosi, 2016). To meet marketing

needs, this typically calls for the coordination of manufacturing, distribution, and procurement processes. As a performance indicator, inventory management is useful because it demonstrates how well a company uses people and resources, coordinates internal activities, manages the flow of materials, and interacts with consumers (Narain and Subramanian, 2008).

2.3.4.3 Product Profitability Analysis

Information on product costs and product profitability is essential for decision-making. Product profitability is the relationship between a product's selling price and cost (Sievänen et al., 2004). Products include services, software and physical elements (Mustonen et al., 2019). The higher the price or the lower the cost, the better the product's profitability. Information about product profitability analysis can guide decisions such as cost reductions, outsourcing and redesigning of products and services (Brierley, 2016). Product profitability analysis gives insights into each product's costs, which may have been overlooked (Sievänen et al., 2004). For instance, after-sales-related costs could constitute a significant part of the costs of the product. The length of the service period and the services provided may impact the product's profitability. For instance, the same product might be unprofitable in production but profitable after sales.

Koskinen et al. (2020) discuss the importance of product profitability analysis in product portfolio analysis. Product profitability analysis allows for value maximisation and strategic fit (Koskinen et al., 2020). When a company's product portfolio generates the highest profit margin, its value is maximised. Products can be categorised as profitable but non-strategic, profitable but strategic, unprofitable and strategic, and unprofitable and non-strategic (Verrollot et al., 2020). Product profitability analysis guides management's product classification process.

2.3.4.4 Customer Profitability Analysis

To increase business performance, businesses manage customer relationships and analyse customer profitability (Albalaki, 2018; Atkinson et al., 2012; CIMA, 2009; Institute of Chartered Accountants, 2002). CIMA Official Terminology (2005: 5) defines customer profitability analysis as the "analysis of the revenue streams and service costs associated with specific customers or customer groups". They argue that each rand of revenue contributes differently to profit as some customers incur more relationship costs than others, resulting in different customer profitability. The relationship costs include contacting the customer, making the sale and satisfying the customer's requirements (Atkinson et al.,

2012). This is evidenced by a study by Cooper and Kaplan (1991), which shows that the customer segment, constituting 38.1% of total company revenues, contributed 67.3% of the total operating income. This indicates that this customer segment is more profitable for the business.

Companies focus on customer service to increase profits (Albalaki, 2018). However, Zeithaml (2000a) argues that in some companies and industries that focus on 'heavy users', the anticipated profitability of these customers is reduced as these customers will usually require high servicing and deep discounting. In addition to this, customer profitability analysis often overlooks the intangible benefits of customer loyalty and brand advocacy, which can drive long-term value creation but are difficult to quantify (Zeithaml, 2000a). Cooper and Kaplan (1991) assert that customer profitability analysis helps businesses identify opportunities for targeted cost management and profit improvements. In addition, customer profitability analysis is a valuable tool for making pricing decisions, making bonus plans, and giving discounts to customers (Shapiro et al., 1987). Customer profitability analysis helps the organisation identify customer categories that have long-term value to the company (Atkinson et al., 2012). This facilitates enhanced strategic decision-making regarding marketing activities. Scholars such as Noone and Griffin (1999) and Storbacka (1997) argue that manufacturing firms such as Green Fuel can also achieve profitability based on market segmentation due to the availability of customer profitability information.

2.3.4.5 Project Appraisal Techniques

Organisations engage in new projects or investments from time to time. Projects are appraised to check the feasibility of the project and its adherence to the firm's goals (Gitman et al., 2015). Project appraisal techniques are also capital budgeting (Gitman et al., 2015). Capital budgeting involves allocating the firm's capital resources between competing projects and investments (Stamalevi, 2015). Estimating the project's scope and the time of each incremental cash flow is typically necessary for this valuation. This illustrates how risky the investment is. The financing mix and cash flow volatility serve as indicators of riskiness (Stamalevi, 2015). There are numerous project appraisal techniques; however, this section focuses on the payback period, accounting rate of return, net present value and internal rate of return. These are the most commonly used appraisal techniques.

The payback period is the most basic and straightforward decision tool for project appraisal. According to Lucey (2009), the payback period is typically stated as the number of years it will take the project's net cash inflows to recover the initial investment. Liquidity is, therefore, the main focus of the payback period project appraisal technique. Using the payback period, the project with the lowest payback time is regarded as the most desirable.

However, the payback method has been criticised for not measuring the overall project worth because it does not consider cash flows after the payback period. Lucey (2009) argues that the payback period provides only a crude measure of the timing of project cash flows. In addition, the payback project appraisal does not consider the time value of money (Gitman et al., 2015). A discounted payback model was developed to overcome the timing of the returns issue of the conventional payback model (Hynek et al., 2015). Despite little academic support, the payback technique remains popular among organisations, using it as the preliminary project appraisal technique (Hynek et al., 2015).

The Accounting Rate of Return (ARR) is the next project appraisal method to be covered. According to Hynek et al. (2015), the ARR model makes an effort to compare a capital project's financial data to the accrual idea of traditional accounting. ARR aims to calculate profit and capital cost using the same methodology as the organisation's financial records. The average return on investment (ARR) is expressed as a percentage of the investment. The project's original capital cost or, if the project's cost is assumed to decrease to zero or a set residual or scrap value over the project's life, can be considered the "investment" (Hynek et al., 2015). Alternatively, the investment may be predicated on half of the capital cost (Hynek et al., 2015). This is called the average capital model or return on average investment.

According to Hynek et al. (2015), the ARR is simple to calculate and straightforward for consumers to grasp because it is based on book values. However, ARR does not account for the possibility that profits could change from year to year. This variation will display an uneven pattern. ARR is particularly inappropriate for comparing projects with varying life durations since it disregards the time value of funds flow (Hynek et al., 2015). Moreover, accounting profits—which are impacted by non-cash issues like bad debts—are used in calculating the average rate of return. Additionally, it can be easily manipulated by changing depreciation techniques. Most managers typically use project appraisal approaches like the Net Present Value (NPV) because of these difficulties.

The Net Present Value (NPV) method, used for investment appraisal or capital budgeting, evaluates how a project impacts shareholders' wealth in terms of present value (Jory et al., 2016). Because the NPV rule only considers cash flows and takes the time value of money into account, it is consistent with the financial objective of maximising shareholder wealth (Stamalevi, 2015). A positive net present value (NPV) of the project indicates an increase in the company's wealth of that amount. A negative net present value (NPV), on the other hand, denotes a decline in the company's net worth, whilst a zero NPV implies no change (Stamalevi, 2015).

According to Wnuk-Pel (2014), the NPV method is the most popular. NPV is a conquering tool that supposedly solves several financial uncertainties (Mcsweeney, 2006). In their view, NPV reduces uncertainty by providing a skeletal analysis framework and encouraging thoughtful anticipation. In addition, NPV is favoured by most organisations since it is relatively easy to use; it incorporates all the investment's cash flows and the time value of money (Daunfeldt and Hartwig, 2014). However, NPV also has some limitations. One of the drawbacks is that NPV is not very suitable for long-term projects with high costs. For example, the company must restore the site to an environmentally acceptable condition in a mining project. If a high discount factor is applied, there may be concerns that the associated costs must be estimated cautiously. The internal rate of return (IRR) is a project appraisal method closely related to NPV.

The internal rate of return (IRR), or discounted cash flow rate of return (DCFROR), gauges a project's return rate. The term "internal" indicates that the calculation excludes external factors such as inflation, capital costs, or financial risks (Imegi and Nwokoye, 2015). The IRR on an investment is the "annualised effective compounded return rate" or the discount rate, which equates the present value of its expected cash flow stream to its initial outlay. As a result, the internal rate of return (IRR) is the discount rate at which the total present value of costs matches the sum of positive cash flows (rewards). The project is chosen if its internal rate of return (IRR) is higher than the financing cost. The IRR is defined as the point at which the net present value (NPV) equals zero (Stamalevi, 2015). The project is more attractive the larger the difference between the financing cost and the IRR.

IRR offers several benefits. One of the main advantages is that IRR capitalises on all cash flows linked to the overall project life cycle (Stamalevi, 2015). IRR has also been seen as most appropriate in an organisation with a divisionalised structure (Welkazi and Shapiro, 2000). IRR has been described as more convenient in making decisions such as choosing

or ignoring an investment by comparing the rate of return with the cost of capital (Welkazi and Shapiro, 2000). However, IRR has some drawbacks. One of the main drawbacks is that IRR involves complex calculations. Additionally, IRR can be deceptive when selecting between mutually exclusive projects due to multiple rates of return (Welkazi and Shapiro, 2000).

2.3.5 Strategic Management Accounting

Simmonds (1981: 26) introduced and defined strategic management accounting (SMA) as “the provision and analysis of management accounting data about a business and its competitors, for use in developing and monitoring business strategy”. Roslender and Hart (2003: 272), in a more straightforward definition, described SMA as “making management accounting more strategic”. Juras (2014) describes SMA as a discipline at the crossroads of strategic management and accounting. SMA connects management accounting and the organisation's strategic positioning (Juras, 2014). There has been a growing emphasis on the need for organisations to adopt strategic management accounting theory to enhance strategic decision-making and improve organisational performance (Abdullah et al., 2022; Cinquini and Tenucci, 2010; Mohammed et al., 2019; Ojra, 2014). SMA is being seen as a necessary tool to enhance competitiveness and performance in an increasingly competitive business environment (Turner et al., 2017). According to Alamri (2019b), SMA can be a source of competitive advantage by focusing on outward perspectives, such as external and market-oriented information.

SMA is increasingly becoming a well-published area. However, Guilding et al. (2000) can be credited with the first comprehensive list of SMA tools and techniques. These practices include attribute costing, brand value budgeting and monitoring, competitor cost assessment, competitive position monitoring, evaluation of competitors based on published financial statements, life cycle costing, quality costing, strategic pricing, target costing, and value chain costing. Among these, competitor accounting and strategic pricing were identified as the most widely used strategic management accounting practices (Guilding et al., 2000). While their classification is foundational, it has been critiqued for its limited consideration of sector-specific needs, particularly in industries with unique operational challenges, such as petroleum (Ojra, 2014).

Cadez and Guilding (2008) suggest that strategic management accounting (SMA) is a subset of management accounting that emphasises techniques oriented towards strategic management. Costing (such as attribute costing), planning, control, and performance

measurement (such as balanced scorecard), strategic decision-making (such as strategic costing and pricing), competitor accounting (such as competitor analysis and positioning), and customer accounting (such as customer profitability) are the five main categories into which these techniques fall (Cadez and Guilding, 2008). While many of these methods—like customer profitability and the balanced scorecard—have already been discussed, this section examines strategic management as a group of methods. It offers insights into how these methods are used in organisations.

According to Abdel-Kader and Luther (2006), the SMA tools and techniques that the firm adopts usually depend on the environmental uncertainty of the industry. Firms in high environmental uncertainty emphasise their management accounting information and use more sophisticated SMA techniques. In the same way, companies with more decentralised management employ more advanced SMA methods to give managers better access to relevant information for planning, controlling, and making decisions. However, using SMA techniques within the organisation was not influenced by the competitive strategy, processing system complexity and product perishability (Abdel-Kader and Luther, 2006). While it is established that SMA is still a relatively emerging field of management accounting, its use is increasing, with many firms using SMA tools and techniques to enhance performance and increase competitiveness.

Lifecycle costing and target costing are two of the most popular strategic management accounting techniques (Ansari et al., 2006; Hilton and Platt, 2020; Korpi and Ala-Risku, 2008). Lifecycle costing involves evaluating the total cost of ownership of a product or asset over its entire lifecycle, from acquisition to disposal (Korpi and Ala-Risku, 2008; Rödger et al., 2018). This technique provides a comprehensive view of all costs associated with a product, including initial costs, operating costs, maintenance, and disposal costs. Target costing is a pricing strategy that involves setting a desired profit margin and determining the allowable cost for a product based on market conditions (Ansari et al., 2006). This technique emphasises cost management and strategic pricing decisions throughout the product development process.

The petroleum industry, with its complex operations and significant capital investments, provides a fertile ground for applying advanced management accounting techniques. Management accounting techniques such as SMA, focusing on external and market-oriented information, become particularly relevant in this context. The following section

sets the stage for a detailed examination of the industry's dynamics in the subsequent sections.

2.4 The Petroleum Industry: An Overview

This section presents an overview of the petroleum industry. Understanding the industry's dynamics is crucial for contextualising the application of management accounting techniques. The global petroleum industry encompasses the exploration, extraction, refining, transportation, and marketing of petroleum products like fuel oil, gasoline, diesel, and petrochemicals (Clews, 2016; Ejededawe, 2014). Major oil-producing regions include North America, the Middle East, and North Africa, with significant contributions from OPEC and OPEC+ members (Fattouh and Sen, 2016; Quint and Venditti, 2020). Despite the recent development and advocacy for renewable energy, petroleum remains a crucial energy source despite the rise of alternative fuels, with global consumption at 30 billion barrels annually (Muspratt, 2019). The global oil industry remains a large contributor to the worldwide economy, estimated to be 3.8% of the estimated \$86 trillion global GDP (Arezki et al., 2017). The oil value chain comprises various players, including mining and extracting oil from shale or sands and others involved in recovering hydrocarbon liquids, specialising in crude petroleum production (Ejededawe, 2014). Amid these operations, the rise of sustainability policies and carbon reduction initiatives has placed additional pressure on oil companies to integrate cost-efficient and environmentally sustainable management practices (KPMG, 2021). The oil industry is divided into three major components: upstream, midstream, and downstream (Clews, 2016; Ejededawe, 2014), as discussed in more detail below.

2.4.1 Upstream: Exploration and Production

The upstream stage involves prospectus activities, exploration, acquiring a mineral interest in properties, and exploration, development, and production of crude oil and gas (Clews, 2016). Exploration is the initial activity carried out when there is a belief that there is a potential for oil discovery. This phase is critical, yet it is increasingly challenged by stringent environmental regulations and the necessity to mitigate ecological impact. In this regard, integrating environmental, social, and governance (ESG) accounting has become crucial in upstream operations, as firms seek to balance profitability with regulatory compliance and stakeholder expectations (Bandeira et al., 2023). This stage proceeds to a process of appraisal in which the discovered site is assessed for commercial value and quantity. The next stage is the acquisition stage. During this stage, the drilling rights and other production

rights are rights. The ground is prepared for actual oil and gas production to remove the oil from the ground.

2.4.2 Midstream: Transportation and Storage

The oil value chain's midstream stage entails transporting extracted raw materials for further processing, then on to the end user. The midstream usually involves transporting products long distances, often crossing borders and oceans. Transportation through haulage trucks and freight ships is required, and pipeline and storage infrastructure are essential. Therefore, the midstream is characterised by a complex logistics structure (Clews, 2016). This complex system requires enormous capital investment from the oil and gas midstream sector companies. The value of capital investments can create barriers to new entrants, leading to monopolistic tendencies. Consequently, the value chain sector of the oil and gas industry is often subject to stringent antitrust regulations to mitigate the risk of monopolistic practices. Additionally, governments enforce price regulations on the pipeline and storage sectors and limit operators' freedom to set prices for oil products (Mulder and Zwart, 2006; Oberholzer, 2020). Given the costly nature of oil transportation, companies rely on management accounting tools such as cost allocation models, transfer pricing mechanisms, and efficiency variance analysis to optimise supply chain performance (McLean et al., 2021). The adoption of digital technologies, such as blockchain for real-time transaction tracking has also enhanced cost transparency in the midstream sector (EY, 2021).

2.4.3 Downstream: Refining and Distribution

The downstream industry is concerned with converting crude oil and natural gas into finished products for sale to end-users (Ejededawe, 2014). The downstream activities encompass refining, processing, marketing and distribution (Ejededawe, 2014). These activities aim to increase the value of the product. The downstream industry is capital-intensive and usually highly competitive, resulting in low-profit margins. To remain profitable, companies in the downstream need to be highly efficient. The downstream activities in petroleum refining and gas processing aim to produce fuels. During the conversion of raw materials into fuels, numerous by-products are generated.

Given the complexity and global scale of the petroleum industry, companies within this sector face unique challenges in managing costs, optimising operations, and maintaining competitiveness. Effective management accounting techniques are essential for navigating these challenges, providing critical support in cost control, decision-making, and

strategic planning (Akenbor and Agwor, 2015; Alawadi et al., 2019; Petrenko et al., 2022). Through the use of management accounting techniques, petroleum companies can enhance their operational efficiency, adapt to market volatility, and sustain competitive advantage (Alawadi et al., 2019; Alkababji, 2023; Álvarez et al., 2018; Cruz et al., 2019; Elkamel et al., 2008). The following section examines the specific management accounting practices prevalent in the petroleum industry.

2.5 Management Accounting Practices in the Global Petroleum Industry

To remain competitive, petroleum companies are adopting new management approaches (Akenbor and Agwor, 2015; Alawadi et al., 2019; Petrenko et al., 2022). This is in agreement with Chooper and Chew (1996), who posit that competitiveness has led to the redefining of job responsibilities within organisations, including that of management accountants, as they are no longer seen as agents of collecting, processing and communicating cost data to help management plan, control and evaluate the business process but instead, they now assume a significant role in improving the competitiveness of the organisation. (CIMA, 2018) defines management accounting as the sourcing, analysis, and communication of financial and non-financial information that can be used for decision-making to generate and preserve value for organisations. Management accounting, therefore, involves management information along with financial and accounting information with techniques that can be used to drive the success of a business.

According to Obara and Nangih (2017) and Sokolov and Giniatullin (2015), management accounting practices in the petroleum industry are prevalent. Sokolov and Giniatullin (2015) state that management accounting has been used in the petroleum industry mainly for cost measurement and cost control. Management accounting is employed in the petroleum industry to support senior management in evaluating their subordinates' decisions (Alimoradi and Borzoupour, 2017). Management accounting can also be a significant contributor to petroleum companies' performance. Management accounting motivates behaviours and supports necessary cultural values, improving business performance (Kalifa et al., 2020). Management accounting tools such as attribute costing, benchmarking, competitive position monitoring, competitors' performance appraisal, customers' profitability analysis and strategic costing are more compatible with the competitive environment experienced in the industry today (Alimoradi and Borzoupour, 2017). However, there is limited empirical evidence on the effectiveness of these tools in

addressing the industry's unique challenges, such as fluctuating commodity prices, geopolitical risks, and increasing environmental regulations (Obara and Nangih, 2017).

2.5.1 Costing Systems in the Petroleum Industry

In the dynamic and capital-intensive global petroleum industry, effective costing systems ensure operational efficiency, informed decision-making, and sustainable competitive advantage (Akenbor and Agwor, 2015). Costing systems provide detailed insights into the costs associated with various stages of petroleum exploration, extraction, refining, and distribution (Davies et al., 2014). By accurately capturing and allocating costs, these systems enable petroleum companies to streamline operations, optimise resource utilisation, and enhance profitability (CEPR, 2023; Harahap et al., 2023). This section presents the various costing systems employed in the petroleum industry.

2.5.1.1 Absorption Costing in the Petroleum Industry

Absorption costing is beneficial in the petroleum industry because it provides quality assurance to data users. Reconciling data with ledgers and source systems establishes a meaningful foundation for managers in customer profitability management, product profitability management, and operational decisions (Davies et al., 2014). Companies that engage in oil and gas exploration, development, and production should specify in their financial statements how they will account for incurred expenditures and capitalise costs related to these operations (Davies et al., 2014; PWC, 2017). There are two main accounting approaches to costing for petroleum companies in the upper stream: the "successful efforts" (SE) method and the "full cost" (FC) method (Davies et al., 2014: 30). The main difference between these two is in the treatment of operating expenses relating to the exploration of new oil and natural gas reserves

The full-cost approach capitalises all costs associated with acquisition, exploration, appraisal and development activities (Bryant, 2003). Under the full-cost approach, all production costs are regarded as expenses as they are incurred (Bryant, 2003). In successful efforts, acquisition and exploration costs are expenses and only capitalised after proven reserves are discovered (Obara and Nangih, 2017). Costs such as geological and geophysical costs are recorded as expenses, even when drilling eventually leads to a proven reserve (Bryant, 2003). In this regard, the cost of exploratory dry holes is expensed until the outcome is known, and all production costs are regarded as expenses as they are incurred.

2.5.1.2 Standard Costing in the Petroleum Industry

Standard costing has proven to be an effective instrument in cost control in the petroleum industry, such as Nigeria's petroleum industry (Akenbor and Agwor, 2015). However, standard costing is mainly used in the downstream petroleum sector as its applicability is often constrained in upstream operations where unpredictable geological conditions and fluctuating market dynamics challenges make it difficult to set accurate standards. (Akenbor and Agwor, 2015; Mgbame et al., 2015). While standard costing can be theoretically used for identifying standard costs for all cost elements, it has not been used in the upstream petroleum industry for all cost elements (Rashed, 2013). Standard costing can be employed to track and plan expatriate costs, but implementing a standard costing system for all cost elements at the upstream stage is challenging and impractical (Rashed, 2013).

The costing elements in the upstream usually focus on reserves and resources, depletion and depreciation of upstream assets, exploration and evaluation of reserves, borrowing costs and revenue recognition (PWC, 2017). Thus, the focus is on financial accounting rather than management accounting. In addition, setting standards is challenging as the upstream has high project risks, such as geological risks, and individual costs would differ with each exploration. The World Bank (2019) outlines a significant chance that the investments may not yield any return. The use of standard costing helps monitor the performance of workers (Akenbor and Agwor, 2015). In addition to this, the usefulness of standard costing has helped create a cost-conscious environment. This aids management when they reappraise operating activities to ascertain cost-effectiveness. Standard costing also helps motivate employees to achieve the set standards and be the basis of control for purchasing and using materials and work levels (Akenbor and Agwor, 2015).

2.5.1.3 Activity-Based Costing in the Petroleum Industry

Activity-Based Costing (ABC) has frequently been used in the petroleum industry (Alawadi et al., 2019; Emami et al., 2013). According to Chong and Cable (2002), one of the main objectives for petroleum companies implementing ABC was to have a more effective cost management system. In addition, some of the other objectives of ABC, for example, better cost control, more accurate cost information, better allocation of overheads, and better customer focus, are also achieved. Chong and Cable (2002) found that better allocation of overheads was the most successful of these objectives. In addition, improvement of

customer focus was ranked second, while having more accurate costing information was ranked as the third most successful objective.

ABC is efficacious in improving continuous processes and identifying cost inefficiencies. ABC in the petroleum industry helps standardise fuel pricing (Muras et al., 2000) and allows for correct and transparent pricing (Barton and Macarthur, 2003). The success of ABC is influenced by factors such as the employees' understanding of the ABC methodology and the anticipation of additional volume of work and managerial support (Chong and Cable, 2002).

Activity-Based Costing (ABC) has proven valuable in the petroleum industry for various functions, including costing non-value-added activities, setting long-term prices, and managing capacity (Barton and Macarthur, 2003). Moreover, ABC has helped tackle the issue of high-volume products subsidising the costs of low-volume products, a problem that arises when unit-level cost assignment bases are used. ABC has also been found to create a causal relationship between the creation of expenses and the necessary activities for producing the product or providing services, which have economic value for the company (Emami et al., 2013). In the petroleum industry, these activities include measuring and distribution of petroleum as well as transportation of petroleum. Emami et al. (2013) found that ABC was a very effective system for petroleum companies' internal decision-making processes as it provided more accurate information about operations costs.

2.5.1.4 Marginal Costing in the Petroleum Industry

Marginal costing is prevalent in the petroleum sector as the market is not the only factor determining the supply and demand for energy (Bernstein Research, 2007). Several aspects influence crude oil prices, such as geopolitical risk and weather (Bernstein Research, 2007). Furthermore, the relationship between supply and demand is complex. Pricing and supply are tightly related since the industry often produces just enough to meet demand, with spare capacity and stockpiles compensating for slight production drops. In addition, demand is typically relatively sensitive to sudden changes in price. In the upstream petroleum industry, costs such as exploration remain relatively the same over significant production levels (U.S. Energy Information Administration, 2016). However, costs such as tax are likely to change significantly in response to changes in production and hence will affect substantially costs and profitability (Bernstein Research, 2007). In

this regard, a company that can monitor its marginal costs is expected to enjoy a relative competitive advantage.

In the petroleum industry, marginal costing is particularly relevant due to the sector's unique cost structures (Bernstein Research, 2007). The exploration phase, for example, incurs significant upfront costs that stay consistent with short-term production levels. These include costs associated with geological surveys, drilling, and well development. Once these wells are operational, the variable costs primarily include costs that change with production levels, such as energy, labour, and consumables. Moreover, marginal costing assists petroleum companies in making crucial decisions related to production levels, pricing strategies, and profitability analysis (CEPR, 2023; Harahap et al., 2023). The focus on variable costs helps companies determine the contribution margin for each production unit, which is sales revenue minus variable costs. This information is vital for decision-making, particularly when the company needs to evaluate the impact of producing additional units on overall profitability (Horngren et al., 2014).

2.5.1.5 Target Costing in the Petroleum Industry

In the petroleum industry, target costing is used in the various value chain stages. Basher (2010) states that petroleum companies have adopted target costing to enhance their cost management practices, mainly through activity-based costing systems. This approach has been crucial for managing costs efficiently in a complex and capital-intensive industry. However, the prevalence of target costing can vary significantly by region. Joudeh et al. (2016) found that target costing was uncommon in the petroleum companies that were part of the Jordanian Industrial shareholding companies as these companies did not have adequate information about target costing.

Target costing is applied extensively across various value chain stages in the petroleum industry, including exploration, production, refining, and distribution (Okafor et al., 2021). In the upstream segment, target costing helps manage the high costs of exploration and drilling by setting cost targets focusing on cost-efficient technologies and processes, thereby mitigating financial risks. In the midstream segment, refineries use target costing to manage refining costs, optimise processes, and improve operational efficiency, which is crucial given the narrow profit margins of this segment. In the downstream segment, target costing aids in managing distribution costs by setting targets for logistics and supply chain activities, thus reducing transportation costs and enhancing delivery efficiency. In

this regard, target costing allows petroleum companies to maintain cost-effectiveness throughout their operations.

2.5.1.6 Value Chain Analysis in the Petroleum Industry

Value chain analysis has become increasingly prevalent in the petroleum industry, with significant evidence highlighting its benefits (Alawadi et al., 2019; Berisha, 2017). Value chain analysis has been found to positively affect the competitiveness of businesses in an industry characterised by a slowing down of its revenue and a decline in sales (Alawadi et al., 2019). While the petroleum industry has faced several booms recently, the industry has been generally sluggish (Mohaddes and Pesaran, 2016). According to Alawadi et al. (2019), applying value chain analysis has helped petroleum companies manage costs more effectively, improve product quality, and maximise value. The use of value chain analysis has helped petroleum companies to enhance their management development, improve short-term performance, improve financial performance, improve their evaluation of alternatives, improve their avoidance of mistakes, as well as gain a better return than their competitors in other countries (Alawadi et al., 2019). Value chain analysis thus serves as a crucial tool for petroleum companies aiming to navigate the complexities of their industry and maintain a competitive edge.

2.5.2 Budgeting Systems in the Petroleum Industry

Budgeting in the petroleum industry is a popular management accounting tool (Rashed, 2013; Silva et al., 2016). A budget is a valuable tool for measuring the organisation's performance against the projected sales, capital expenditure and production costs (Rashed, 2013). Budgeting is beneficial in quantitative estimation and when making precise projections, especially in capital-intensive operations such as the petroleum industry (Rashed, 2013). According to Rashed (2013), petroleum companies use comprehensive Master budgets to compare the organisation's overall performance against its targets. Petroleum companies use various budgeting methods to prepare these budgets, such as traditional budgeting, zero-based budgets (ZBB), and activity-based budgets (ABB) to measure the performance of management's effectiveness (Rashed, 2013). The traditional budget is used for utility expenses, sales budgets and specific production cost items. However, traditional budgeting has been criticized for its short-term focus, which may inadequately account for long-term capital investments and environmental sustainability which are key considerations in the petroleum industry (Jia, 2023).

According to Jia (2023), the budgeting process in the petroleum industry is highly structured, starting with profit analysis and future forecasts, followed by top-down and bottom-up budget preparation. Implementation usually involves departments executing assigned targets, with regular assessments to ensure alignment with budget objectives. This structured and inclusive approach ensures effective financial management, operational efficiency, and strategic alignment in the oil industry. Jia (2023) further discusses the several types of budgets used in the petroleum industry to manage financial and operational activities effectively. These include business budgets, financial budgets (encompassing production, operation, and investment activities), capital budgets (focusing on fixed asset investments), and particular budgets for non-productive activities like energy conservation and safety. According to Jia (2023), budgeting techniques prevalent in the petroleum industry are incremental, rolling, zero-based, and comprehensive budgets, which integrate various budgets aligning with the overall strategy. However, incremental budgeting, often used due to its simplicity, has been criticized for perpetuating inefficiencies by relying on historical costs (Ouassini, 2018).

2.5.3 Performance Evaluation Systems in the Petroleum Industry

In the petroleum industry's highly complex and competitive landscape, effective performance evaluation systems are essential for maintaining operational efficiency and achieving strategic goals (Agostinho and Weijermars, 2017). Performance evaluation encompasses a range of methodologies, each contributing uniquely to how petroleum companies manage resources and measure success (Yazdi et al., 2022). Despite their importance, there is a lack of consensus on the best ways to integrate financial and non-financial performance indicators, particularly when addressing challenges such as market volatility, environmental concerns, and evolving regulatory requirements (Murphy et al., 2017). Traditional financial metrics, non-financial indicators, and comprehensive frameworks like the Balanced Scorecard (BSC) and brand evaluation collectively provide a robust approach to performance management. A discussion of the performance evaluation systems is carried out in this section.

2.5.3.1 The Balanced Scorecard in the Petroleum Industry

The Balanced Scorecard (BSC) has gained significant traction in the petroleum industry due to its comprehensive approach to performance measurement and management (Evangelista de Barros and Wanderley, 2016; Hatami and Navid, 2013; Nortjé et al., 2014; Skjaeveland et al., 2007). Initially developed by Kaplan and Norton, this tool provides a

balanced framework beyond traditional financial metrics, incorporating non-financial indicators to offer a holistic view of organisational performance. Scholars such as Nortjé et al. (2014) have explored the application of the BSC to ensure sustainability reporting, a critical concern in the petroleum industry, which frequently deals with environmental hazards. In the petroleum sector, the BSC supports companies in becoming economically viable, environmentally and socially responsible, reflecting the growing demand for sustainable business practices (Nortjé et al., 2014).

Companies in the petroleum sector have adapted to the traditional BSC to offer a more comprehensive management system that considers their inevitable role in sustainable development. (Hansen and Schaltegger, 2012; Schaltegger and Lüdeke-Freund, 2011). BSC within the petroleum industry facilitates the establishment of the cause and effect of the various activities within the sector (Hatami and Navid, 2013), providing insights into how operational decisions impact broader organisational goals (Hatami and Navid, 2013). Moreover, the BSC's emphasis on non-financial measures, such as organisational knowledge and capabilities, has proven effective in creating competitive advantages (Al-Qubaisi and Ajmal, 2018). Kaplan and Norton (2001) highlight that intangibles like knowledge, capabilities, and relationships have become valuable sources of competitive advantage, making the BSC a vital tool for strategic management in the petroleum industry.

2.5.3.2 Brand Evaluation in the Petroleum Industry

The petroleum industry has been employing branding strategies to create a positive image of the sector (Ahmadi and Mirabi, 2015). The petroleum industry helps increase domestic and foreign investment in the economy. Governments are investing significantly in the brand management of their petroleum industries to ensure their countries' security, economic prosperity and welfare provision (Ahmadi and Mirabi, 2015). Strong petroleum industry brands create the opportunity for and pave the way to superior technology transfer. Industrial markets like the petroleum industry focus primarily on functionality and performance and typically offer the same products or services (Amoako, 2021). Thus, branding can be a source of differentiation (Ahmadi and Mirabi, 2015; Dugar, 2007). Furthermore, the emergence of sustainability and green issues has resulted in petroleum companies building strong brands to differentiate themselves and gain a competitive advantage (Keller, 2012). Therefore, the suppliers of products and services in industrial markets, such as the petroleum industry, seek to gain a competitive advantage through strategic brand management (Haqiqi-nasab et al., 2011).

Petroleum companies such as BP have invested heavily in branding and boast of their brands as vital business assets. BP has successfully used the slogan "Beyond Petroleum" since July 2000. BP focused on four values: performance, innovation, environmental protection, and an assertive approach as part of its branding campaign. This has led to BP increasing its intangible assets by more than \$7 billion (30%) (Keller, 2012). Seyyed-Javadeyn et al. (2010) outline that brand equity and trust are the most important factors affecting customer loyalty in a commodity industry like petroleum. Thus, brand evaluation is a common management accounting tool in the petroleum industry.

2.5.3.3 Other Performance Evaluations in the Petroleum Industry

Performance management is essential for petroleum companies as the industry is highly complex and competitive. Traditional financial measures, such as Return on Investment (ROI) and sales growth, are critical for assessing the petroleum industry's economic performance and investment efficiency (Guilford et al., 2011; Mohd et al., 2013; Motta et al., 2000). ROI, for instance, is a widely used metric that helps petroleum companies evaluate the profitability of their capital-intensive projects, including exploration, drilling, and infrastructure development (Motta et al., 2000). Studies by Botchkarev (2015a) and Neely (2004) demonstrate that firms employing ROI are better at identifying and capitalising on growth opportunities, thus ensuring that investments align with long-term strategic objectives. Sales growth is another pivotal metric, reflecting a company's ability to generate revenue and sustain market competitiveness. Research by Mohd et al. (2013) and Lazăr (2016) show that sales growth indicates operational efficiency, market acceptance, and the effectiveness of marketing strategies, product innovations, and customer relationship management in the petroleum sector.

However, the limitations of relying solely on financial metrics have led to an increased emphasis on non-financial indicators in the petroleum industry, which offer deeper insights into areas such as operational efficiency, customer satisfaction, and employee engagement (Murphy et al., 2017; Nortjé et al., 2014; Yusuf et al., 2018). Cash flow analysis is particularly crucial in the petroleum sector, providing insights into a firm's liquidity, operational efficiency, and financial health. Weijermars (2011) and Agostinho and Weijermars (2017) highlight the importance of cash flow management for petroleum companies, especially in volatile market conditions, where maintaining positive cash flow and corporate liquidity is vital for funding new projects and sustaining competitive performance. Additionally, studies by Zhang et al. (2013), Hornungová (2017), and Sandu

(2019) emphasise the significance of non-financial performance measures in establishing and maintaining competitive advantage. Akhtar et al. (2013) and Mukuusi (2019) identify organisational learning, employee performance, and customer satisfaction as key non-financial metrics that significantly impact competitive advantage in the petroleum industry. These measures help companies invest in workforce training, maintain high levels of employee satisfaction, and foster innovation, leading to more resilient and competitive organisations capable of sustaining their market position over time.

2.5.4 Decision Support Systems in Petroleum Industry

In the petroleum industry, characterised by its complexity and volatility, decision support systems play a critical role in navigating financial and operational challenges. Given the industry's susceptibility to fluctuating oil prices, geopolitical tensions, and varying regional demands, robust decision-support mechanisms are essential for maintaining competitiveness and financial stability (Guo et al., 2022; Osintseva, 2021). These systems help petroleum companies assess and optimise various aspects of their operations, from investment planning to product profitability and customer management.

This section examines critical decision support systems employed in the petroleum industry, focusing on break-even analysis, product productivity analysis, customer profitability analysis, and project appraisal techniques. These decision support systems provide petroleum companies with the tools needed to navigate market uncertainties and make informed, strategic decisions.

2.5.4.1 Break-even analysis

Oil remains the primary global energy source, necessitating a balance between supply and demand. The global oil market is diverse, with distinct regional characteristics, particularly in Asia-Pacific and North America, which are highly vulnerable to economic shocks. Crisis events in these regions lead to significant oil price volatility, impacting oil companies directly (Osintseva, 2021). When oil prices rise, the industry expands into new territories, making economic assessments crucial for efficiently allocating investments and capital. However, funding these expeditions relies heavily on price expectations closely tied to the break-even point. Understanding the break-even point and how the price fluctuations impact it is essential. The break-even price of oil is when oil must be sold for an oil company to cover its production costs without making a profit (Guo et al., 2022). In many countries, the break-even price of oil is increasing and sometimes surpasses the spot price (Osintseva, 2021). The spot price in the oil industry refers to the current market price at

which a particular grade of crude oil can be bought or sold for immediate delivery (Guo et al., 2022).

Break-even analysis in the petroleum industry informs investment decisions by highlighting the minimum oil price needed for profitability, which is particularly important for high-risk projects like shale oil (Osintseva, 2021). In addition to this, it reveals opportunities for cost optimisation, such as outsourcing drilling rigs to reduce costs. Moreover, the financial break-even point, influenced by tax policies, assists in tax planning and optimising financial strategies (Kleinberg et al., 2018; Volkonskii and Kuzovkin, 2019). In this regard, break-even analysis supports long-term planning, ensuring projects remain viable under changing market conditions and helps companies assess their competitiveness in the global market. Through the provision of clear economic thresholds for project viability, break-even analysis enables petroleum companies to make informed decisions and maintain financial stability. Nevertheless, traditional applications of break-even analysis often fail to account for the high capital intensity and long payback periods associated with petroleum projects (Osintseva, 2021).

2.5.4.2 Product Productivity Analysis

Product profitability analysis is essential for informed decision-making and strategic planning in the petroleum industry. This technique examines the relationship between the selling price of petroleum products, such as gasoline, diesel, LPG, and jet fuel, and their production costs, thereby providing critical insights for enhancing profitability (Harahap et al., 2023). In the petroleum sector, product profitability analysis involves thoroughly evaluating costs across the entire production and supply chain, including exploration, extraction, refining, transportation, and after-sales expenses. This comprehensive analysis highlights opportunities for cost reduction, outsourcing, and product redesign (Brierley, 2016; Koskinen et al., 2020; Sievänen et al., 2004). For instance, in oil refineries, the analysis considers the crack spreads and the price differentials between crude oil and refined products, which are crucial for determining profitability (Shokouhi et al., 2024).

The global upstream petroleum industry has been actively seeking economic diversification and focusing on turning low-value fractions into valuable products to diversify its economic activities (Siddiquee, 2024). The demand for olefins, essential in the plastic industry, is proliferating, with the market expected to rise from USD 23.23 billion in 2023 to USD 35.63 billion by 2030 (Siddiquee, 2024). Heavy petroleum fractions are converted into ethane and propane through catalytic cracking to meet this demand, which

are then turned into olefins. However, this method is expensive and energy-intensive. Product profitability becomes crucial in making decisions that require these substantial capital investments.

Shokouhi et al. (2024) highlight the significance of product profitability analysis in an oil refinery investment project. The study emphasises how various risk factors, including fluctuations in crude oil prices, refinery utilisation rates, and market conditions for different refined products, influence the profitability of individual products. Understanding these dynamics enables petroleum companies to make strategic adjustments, optimise operations, and enhance overall profitability. Using productivity analysis in the petroleum industry helps companies optimise their product portfolios, reduce costs, and make strategic adjustments to improve profitability, ensuring long-term competitiveness and market alignment.

2.5.4.3 Customer Profitability Analysis

Customer Profitability Analysis (CPA) has become increasingly significant in both theory and practice as businesses strive to accurately assess the profitability of their customers (Al-Hibari and Al-Matari, 2019; Ali, 2016; Cardoso and Cardoso, 2014; Veen-Dirks and Molenaar, 2009). CPA involves evaluating the costs and revenues associated with individual customers to determine which segments or customers are the most profitable. This analysis is essential for understanding customer value and making informed strategic decisions. Companies often use Customer Relationship Management (CRM) systems to perform CPA (Ali, 2016; Van Raaij, 2005). These systems help collect and analyse customer data to generate profitability metrics, which are crucial for targeted marketing and effective distribution of products and services (Ali, 2016; Van Raaij, 2005). CPA becomes even more critical for industries with long and complex value chains, such as the petroleum industry. It allows firms to focus not just on isolated operations but on the entire value chain of individual customers, offering a comprehensive view of their profitability (Veen-Dirks and Molenaar, 2009).

By implementing a Customer Profitability Analysis (CPA), businesses, including those in the petroleum industry, can more effectively manage their customer base. CPA facilitates resource allocation optimisation, strengthens customer relationships, and enhances overall profitability by prioritising the most valuable customers while minimising costs associated with less profitable ones. According to Albalaki (2018), CPA could be further improved by integrating lifecycle cost analysis, enabling a better understanding of long-

term profitability drivers. For instance, customer-specific investments in infrastructure or long-term supply agreements often significantly impact profitability but are frequently overlooked in traditional CPA models. Developing a more comprehensive framework incorporating these elements would address this gap, thereby increasing the strategic importance of CPA in the petroleum sector.

2.5.4.4 Project Appraisal Techniques

In the petroleum industry, project appraisal techniques are essential for evaluating the economic feasibility and potential returns of exploration, drilling, and production projects. These techniques help companies make informed investment decisions, manage risks, and optimise resource allocation. One project appraisal technique used widely in the upstream petroleum industry is the Monte Carlo simulation (Antill and Arnott, 2004; Finch et al., 2002). Unlike deterministic analyses, Monte Carlo simulations facilitate probabilistic analyses by incorporating variability and uncertainty into the evaluation process (Finch et al., 2002).

Since the mid-1990s, improvements in computing power and spreadsheet software have allowed oil companies to apply formal simulation techniques to individual investment projects. Monte Carlo simulation integrates the assessments of those involved in proposing and evaluating projects, accommodating user variations. This method helps decision-makers understand variables such as hydrocarbon volumes, technical solutions, production, and economic value, each with its probability distribution (Finch et al., 2002). Monte Carlo simulation enhances traditional investment appraisal methods, such as Internal Rate of Return (IRR), Net Present Value (NPV), and Payback Period, by offering a probabilistic framework that captures the uncertainties and variabilities inherent in oil and gas projects.

Net Present Value (NPV) is a common project appraisal technique used to assess the profitability of petroleum industry projects (Szilágyi et al., 2020). NPV measures the difference between the present value of cash inflows and outflows throughout a project's lifecycle, discounted at a designated rate. A positive NPV suggests that the project is expected to produce more value than its cost, making it a worthwhile investment. For petroleum projects, NPV accounts for factors such as fluctuating oil prices, production costs, and capital expenditures (Mutruc, 2018). According to Szilágyi et al. (2020), it is one of the most frequently used investment appraisal techniques, with capital allocated to projects with the highest net present values.

In the petroleum sector, the Internal Rate of Return (IRR) is a frequently employed project appraisal technique. By contrasting the project's profitability with the company's needed rate of return, IRR aids in assessing the effectiveness of capital investments in the petroleum sector. A chance to invest that is more alluring is indicated by a higher IRR. When comparing projects and allocating resources, it is helpful to use IRR. Antill and Arnott (2004) suggest that oil companies should be willing to undertake investments with lower internal rates of return, especially when the project will result in more long-term strategic gains. Projects with lower IRRs may offer significant long-term strategic benefits that should be immediately reflected in financial metrics. For instance, securing a strategic location or technology can provide a competitive edge in the future.

Project appraisal techniques are vital for assessing the economic viability of petroleum industry projects and potential returns. Monte Carlo simulation enhances traditional methods by incorporating variability and uncertainty, offering a comprehensive risk assessment. This complements traditional techniques like Net Present Value (NPV) and Internal Rate of Return (IRR). NPV prioritises projects generating value beyond costs by accounting for fluctuating factors, while IRR compares project efficiency against required returns. Additionally, companies may pursue projects with lower IRRs for strategic long-term benefits, such as securing strategic locations or technologies. These techniques collectively enable informed investment decisions, effective risk management, and sustainable growth in the petroleum industry.

2.5.5 Strategic Management Techniques in the Petroleum Industry

The petroleum industry is a complex and highly competitive sector where companies continuously seek ways to enhance their strategic positioning and operational effectiveness. Strategic Management Accounting (SMA) techniques play a critical role in helping petroleum companies navigate the industry's competitive landscape (Al-Hanshi et al., 2022; Sunday and Onuoha, 2023). While the application of SMA techniques has been highlighted as critical to this pursuit (Al-Hanshi et al., 2022; Sunday and Onuoha, 2023), there remains limited empirical research examining their effectiveness in addressing sector-specific challenges, such as fluctuating oil prices and environmental regulations, especially in developing economies such as Zimbabwe. This gap warrants further investigation to provide a nuanced understanding of how SMA techniques can be tailored to address these unique pressures in those contexts.

SMA techniques in the petroleum industry often involve integrating financial and non-financial information to support strategic decision-making (Al-Hanshi et al., 2022). Strategic cost management allows firms to gain insights into cost drivers and optimise resource allocation, essential for maintaining profitability in a volatile market (Al-Hanshi et al., 2022). For example, performance measurement systems and benchmarking practices are used to assess and compare performance against industry standards and competitors. This approach helps petroleum companies identify areas for improvement and adapt their strategies accordingly. However, their application is often constrained by a lack of industry-specific performance metrics, which limits their usefulness in addressing unique operational challenges. To enhance the relevance and effectiveness of SMA practices, there is a need for more tailored metrics that align more closely with the complexities of the petroleum sector.

The study by Al-Hanshi et al. (2022) involving petroleum companies in the United Arab Emirates and the Sultanate of Oman emphasises the strategic value of leveraging resources and focusing on human capital. Their research highlights the importance of treating human resources as strategic assets, which involves investing in employee development and aligning human resource strategies with organisational goals. Additionally, Al-Hanshi et al. (2022) discuss that techniques such as strategic benchmarking and competitive analysis are employed in the petroleum industry to gain insights into industry trends and competitor strategies. This allows petroleum companies to adapt their strategy to evolving market conditions and maintain a competitive edge.

Lifecycle costing is used as a strategic management technique in the petroleum industry. According to Blanchard et al. (1995), the cost of system maintenance and support can be as high as 75% of the total lifecycle cost of the system within a production system such as the petroleum production process. As a result of the significance of lifecycle costing, the International Standard ISO 15663-3 covers materials, equipment and offshore structures for petroleum and natural gas industries (ISO, 2001). This standard is dedicated to Life cycle costing within the petroleum industry. Lifecycle costing helps petroleum companies make informed decisions about investments, pricing, and product development by considering the long-term financial implications. This approach is valuable in the petroleum industry, where assets such as drilling rigs and refineries have long lifecycles and significant associated costs. Companies can optimise their investments and operational strategies by accounting for the total lifecycle costs, ensuring sustainable profitability. While lifecycle costing is valuable for informing investment and pricing decisions, its

implementation faces challenges due to data availability and the complexity of accurately estimating long-term costs.

Target costing is another popular strategic management accounting technique in the petroleum industry (Basher, 2010). In the petroleum industry, target costing is used in the various value chain stages. Basher (2010) states that target costing has been used in manufacturing oil and gas companies to remain competitive. Their study found that applying cost systems based on activity contributed to the successful application of target costing in the petroleum industry. However, in the survey by Joudeh et al. (2016), target costing was uncommon in the oil and gas companies that were part of the Jordanian Industrial shareholding companies. These companies needed to have adequate information about target costing.

In summary, SMA techniques, including performance measurement, strategic cost management, and resource optimisation, play a critical role in the petroleum industry. These techniques enhance operational efficiency and support strategic decision-making, helping companies achieve and sustain a competitive advantage in a dynamic and challenging environment. Integrating SMA into strategic management practices allows petroleum firms to navigate market complexities better and drive superior performance. Nevertheless, the literature reveals significant gaps, particularly concerning these techniques' practical implementation and effectiveness in addressing the industry's unique challenges.

2.6 Management Accounting Practices in Petroleum Companies in Zimbabwe

Most of the research undertaken regarding management accounting and its role in creating and sustaining competitive advantage has been done in developed countries (Alimoradi and Borzoupour, 2017). Zimbabwe's petroleum industry has been identified as a highly politicised industry (Karombo, 2018). Some scholars indicate that the success of companies within this industry is wholly attributable to the political connections of the owners of the companies (Karombo, 2018). Additionally, international fuel companies such as BP have recently left the country despite being in Zimbabwe for decades (Muronzi, 2015). As indicated earlier, the petroleum industry in Zimbabwe plays a very significant role in the country's economy, resulting in the need for more attention to its performance and factors that affect the performance of this industry.

2.7 Chapter Summary

In conclusion, the literature on management accounting underscores its importance within the dynamic and competitive petroleum industry. This review has examined vital concepts, techniques, and applications, comprehensively understanding how management accounting practices contribute to strategic decision-making and organisational success. Management accounting, with its focus on internal processes and performance measurement, has evolved significantly, incorporating traditional and contemporary techniques to address the needs of modern businesses. Integrating SMA techniques further emphasises the importance of aligning management accounting with strategic objectives. Overall, this literature review illustrates that effective management accounting practices are integral to improving business performance and sustaining competitive advantage. The next chapter presents and discusses competitive advantage and how management accounting practices may have contributed to competitive advantage.

CHAPTER THREE

THE CONCEPT AND NATURE OF COMPETITIVE ADVANTAGE COMPETITIVE

3.1 Introduction

In the prior chapter, the petroleum industry and the current state of management accounting were unpacked. This study seeks to identify potential connections between adopting various management accounting techniques and attaining competitive advantage. This chapter explores the concept of competitive advantage in depth, reviewing the current state of research on how different management accounting practices contribute to establishing and sustaining a competitive edge in the petroleum industry. In doing so, this chapter reviews empirical studies on management accounting practices in relation to competitive advantage.

3.2 The Concept of Competitive Advantage

The notion of competitive advantage is fundamental to strategic management (Barney and Hesterly, 2015; Cenamor, 2021; Gellweiler, 2018; O'Shannassy, 2008; Peteraf, 1993; Porter, 1985; Sigalas, 2015). Several studies have examined the influence of competitive advantage on firm performance (Ma, 2000; Porter, 1991; Strandkov, 2006). Competitive advantage has been widely accepted as an essential concept in business strategy (Abdulwase et al., 2021). Barney and Hesterly (2015) assert that the goal of the strategic management process is to enable a firm to identify and implement a strategy that leads to competitive advantage. Nonetheless, there needs to be more clarity about the meaning of competitive advantage (Sigalas, 2015), due to the differences in the meanings assigned to it by academics and practising managers (O'Shannassy, 2008). Accordingly, discussing some of these different definitions is essential to identify competitive advantage.

One of the seminal authors on competitive advantage, Ansoff (1965: 10), defines the concept as the seeking "to identify particular properties of individual products and markets which give the firm a strong competitive position". In contrast, Besanko et al. (2000: 389) defines competitive advantage as "when a firm earns a higher rate of economic profit than the average rate of economic profit of other firms competing within the same market, the firm has a competitive advantage in that market." Similarly, Barney (2002) stresses that the firm possessing a competitive advantage will be having superior performance than other firms engaged in similar actions. Peteraf (1993), however, emphasises that the

higher rate of economic profit must be for a sustained period if it is to be regarded as an indication of competitive advantage. Porter (1985) concentrated on the value creation aspect, asserting that competitive advantage develops when the value offered to buyers exceeds the firm's costs of producing it.

Different schools of thought exist on achieving competitive advantage (Barney, 1991; Porter, 1985; Wang, 2014). Wang (2014) outlines two main competitive advantage theories: resource-based and market-based. The market-based view is also known as the industrial view (Porter, 1985), positioning school (Ashour, 2018), and the structural approach (Ma, 2000). Many other theories of competitive advantage have been developed, such as the capabilities view (Teece et al., 1997). The classification of the schools of thought helps identify which competitive strategy a firm is pursuing. The main theories of competitive advantage are discussed below.

3.2.1 The Industrial View

The theory of Industrial view posits that a firm's ability to achieve above-average returns is largely influenced by external factors (Porter, 1985). Industrial view theory strongly considers the industry structure as the primary influence on strategy formulation (Ashour, 2018). The firm's rules are thus determined by the market dynamics and structure (Enz, 2010). In this regard, the industrial view focuses more on external environmental variables (Ciobanasu, 2012). In a structurally favourable industry, the firm is more likely to generate supernormal returns (Klepper, 1996). For a firm to grow, it must take advantage of the imperfections in the market in which it offers its goods or services (Odhiambo and Wanjira, 2019). In doing so, the firm must position itself to defend itself against competitive pressures.

Porter (1985: 5) proposes "five competitive forces" for analysing businesses which align with the industrial view. According to Porter (1985), an organisation must adjust to these conditions to survive in the long run. He notes that an organisation's competitiveness hinges on five forces: the threat of substitutes, barriers to entry, the bargaining power of suppliers, the bargaining power of buyers, and the rivalry among existing and potential competitors. Thus, in assessing their competitive advantage, firms must determine the external environment based on the five forces.

According to Porter (1985), a firm can typically achieve one of two main competitive advantages: cost or differentiation. Porter (1985) later introduced "focus" as a third type of

competitive advantage, which includes cost focus, a variation of cost advantage, and differentiation focus, a variation of differentiation advantage.

3.2.1.1 Cost Leadership

According to Thompson et al. (2013), an organisation pursuing a cost leadership strategy focuses much of its effort on reducing its economic costs to surpass its competitors. The cost leadership approach seeks a competitive advantage primarily by lowering manufacturing and distribution costs (Ashour, 2018). Cost leadership is more suited for rivals separated from others by the large market share that permits them to reduce costs (Ashour, 2018). Cost leadership provides a competitive advantage in markets where consumers are sensitive to prices (Kurt and Zehoir, 2016). A firm pursuing cost leadership vigorously pursues cost minimisation techniques (Porter, 1985). According to Ashour (2018), to achieve cost reduction, a firm focuses on operations and materials management, primarily to increase efficiency, which results in lower costs. However, to successfully pursue cost leadership, the product or service should maintain comparative qualities with competitors and an appropriate price (Porter, 1985).

Cost leadership usually requires the firm to have scale-efficient plants, superior process technology, lower raw material costs, and lower labour costs (Nyauncho and Nyamweya, 2015; Thompson et al., 2010). Cost leadership can be realised through strategies including mass production, widespread distribution, achieving economies of scale, leveraging technology, enhancing product design, reducing input costs, efficient resource utilisation, and access to raw materials (Davidson, 2001; Malburg, 2000; Venu, 2001). Cost leadership can result in sustained competitive advantage if the cost advantages are difficult and costly to duplicate, such as differential access to cost-productive inputs and technological software (Barney and Hesterly, 2015).

Kamukama et al. (2017) explored the financial services sector in Ghana, revealing that banks adopting a cost-advantage strategy enjoyed a competitive edge, leading to higher profits and increased client acquisition. These banks could attract more clients and typically had a broader national coverage, thus increasing their portfolios. This finding aligns with Bingxin Li and Juan Li (2008), who identified cost leadership as the most effective strategy for foreign firms in China, emphasising the significance of cost efficiency over quality in emerging markets. Similarly, Nyauncho and Nyamweya (2015) found that cost leadership positively influenced the performance of Petroleum Liquid Gas companies in Kenya by minimising procurement, operational, and service costs. Mwangi (2007)

corroborated these findings among oil companies in Nairobi, indicating that cost leadership was a preferred strategic option to gain a competitive advantage. Collectively, these studies underscore the importance of cost leadership in achieving competitive advantage across different sectors and regions.

3.2.1.2 Product and service differentiation

According to Porter (1985), product and service differentiation can be a source of competitive advantage. Porter (1985) describes differentiation as when an industry seeks to be unique based on factors consumers perceive as high value and are willing to pay a premium. Differentiation can be achieved through various aspects, including the product itself, the method of delivery, the market strategy, and a wide array of additional factors (McCracken and Wallace, 2000). Barney and Hesterly (2015) identify significant business differentiation sources: quality, design of functional features, characteristics and quality of the goods, sales promotions, and differences in availability and reputation. Muthiani (2008) emphasises that differentiation does not necessarily result in a better product than the competitors; instead, it must be different to appeal to a different market niche.

The differentiation strategy seeks to create products or services that provide distinct advantages compared to competitors' offerings while also being highly valued by customers (Barney, 1991). The differentiation strategy seeks to gain a competitive advantage by providing superior products and services at comparable prices or improving profit margins through slightly higher pricing (Barney, 1991). Islami (2020) argues that all businesses follow a differentiated strategy to a certain extent, as only one firm can have the lowest costs. Differentiation goes beyond the physical attributes of a product or service, encompassing all elements that affect the value customers gain from it (Mahlberg and Url, 2009). This includes every facet of a company's interaction with its customers, such as market sector quality, company size, brand image, visual presence, client engagement, product features, delivery methods, and marketing strategies (Allen and Helms, 2006). Ashour (2018) notes that firms employing a differentiation strategy aim to build long-term customer relationships through high-quality offerings, unique innovations, and effective marketing programmes.

Differentiation can be categorised into tangible and intangible types (Grant, 2018). Tangible differentiation involves the visible characteristics of a product or service that are relevant to customers' preferences and their decision-making processes (Grant, 2018). Some examples are size, shape, colour, weight, design, material, and technology. Grant

(2018) adds product or service performance in dependability, consistency, taste, speed, durability, and safety as tangible differentiation. While most features are tangible for products, most are intangible for services (Mahlberg and Url, 2009). In a service industry such as insurance, intangible features are risk consulting, policy terms and conditions, and claims settlements (Mahlberg and Url, 2009). Gebauer et al. (2011) state that manufacturing companies focus more on redirecting their efforts to service differentiation rather than innovating products. Heskett et al. (1997) argue that services create a long-term source of competitive advantage as they are less visible and labour-intensive.

Spencer et al. (2009) posit that product differentiation is the most used strategic typology in the industrial view school of thought. Differentiation positively influenced financial and non-financial performance in Australian manufacturing firms (Spencer et al., 2009). However, in industries which manufacture commodities such as paper, differentiation plays a less significant role when compared to cost leadership in creating competitive advantage, as there is limited variation in the product (Haarla, 2003). The petroleum industry is increasingly competitive, with industry players adopting differentiation as a source of competitive advantage. In a study by Muthiani (2008) involving oil companies in Kenya, product differentiation was found to be a more sustainable competitive strategy due to the inherent difficulty of imitation. This shows that differentiation can be a sustainable competitive advantage in a commodity industry such as the petroleum industry.

3.2.1.3 Focus

A focus strategy involves a firm concentrating on a specific market niche where customer needs and preferences are uniquely different from those in the broader market (Cooper, 2015). This strategy can be either cost-focused or differentiation-focused (Porter, 1985). Porter (1985) describes cost focus as targeting market segments where customers prioritise low prices, while differentiation focus aims to offer exceptional product and service benefits, often commanding a significant price premium to a chosen market segment or niche. Essentially, a focus strategy aims to better meet the needs of a particular customer group compared to any competitor (Cooper, 2015).

In formulating a focus strategy, considerations typically include product characteristics, the type of buyers, selection of distribution channels, geographical regions, levels of pre-sales and post-sales service, volume, payment methods, and quality (Grant, 2018; McGee et al., 2010). In addition to cost and differentiation competencies, the firm must genuinely understand the market, its niches, and customer buying behaviours (Grant, 2018; McGee

et al., 2010). In certain situations, firms may use a focus strategy to defend their niche areas by acquiring patents and intellectual property rights (IPRs) and utilising regulatory, taxation, and other governmental interventions (Grant, 2018; McGee et al., 2010). These help to reduce imitation from different firms.

Cooper (2015) posits that focus strategy allows small firms to be more competitive; otherwise, they would not be able to compete with significant economies of scale and scope. A focus strategy enables small firms to commit their limited resources to a specific market segment. Midsize and large firms effectively pursue focus-based strategies and differentiation or cost leadership-based strategies (Islami et al., 2020). However, a firm that adopts a focus strategy is exposed to risks, such as competitors developing strategies to compete within the same specialised market (David, 2017). In addition, there is the potential for the niche's preferences to drift towards the product and attributes of the market as a whole, as well as the segment becoming attractive even to many competitors, thereby causing profits to be splintered (David, 2017).

A study by Gichuhi (2023), which aimed to determine the effect of competitive strategies on the performance of oil marketing companies in Kenya, found that oil marketing companies had adopted the focus strategy as a competitive strategy. In pursuing the focus strategy, oil marketing firms established a niche market. The findings show that focus strategy had a positive and significant association with the performance of Kenyan oil marketing enterprises, and the companies that implemented focus strategy increased their market share.

3.2.1.4 The Concept of Stuck in the Middle

Some firms fail to pursue one of the generic strategies effectively but instead intend to follow all strategies simultaneously (Pertusa-Ortega et al., 2009; Porter, 1985; Tallon, 2008; Tavalaei and Santalo, 2019). Such a firm is said to be "stuck in the middle" (Porter, 1985). According to Porter (1985), being 'stuck in the middle' is typically a result of a company's hesitancy to decide how to compete. A firm can also be "stuck in the middle" because of a lack of clarity in its strategic plan (Porter, 1985). The 'stuck-in-the-middle' choice may also be choosing a middle-market position in which the business is in the middle regarding costs and differentiation from its competitors (Spanos et al., 2004). In his argument, Porter (1985) discusses that such an organisation will be disadvantaged as other organisations using cost leadership, differentiation, and focus competitive strategies

will be better positioned to compete in any segment. The argument is based on the notion that differentiation will incur costs to the business, contradicting the low-cost strategy.

Kay (1995) agrees that being stuck in the middle is a poor competitive strategy; however, a business can pursue both the cost leadership and focus strategy at the same time successfully. A company is often 'stuck in the middle' not because executives fail to arrive at a well-defined business strategy but because rivals out-manoeuvred businesses (Bruner, 2012). A firm can get "stuck in the middle" when it does not have a feasible exit plan, for example, a coal tar refinery that wants to exit but does not have the capital to pay for environmental clean-up obligations from chemical leakage over the years (Bruner, 2012). A study by Makina and Oundo (2020) involving sugar-producing organisations found that some companies were caught in the middle because they employed specific competitive strategies but could not gain an advantage compared to their competitors.

3.2.1.5 Criticism of the Industrial View

While the industrial view school of thought can provide valuable insights into how some companies have gained competitive advantage, its principal is that it does not consider the characteristics of individual companies (Mekić and Mekić, 2014). Instead, it focuses more on the particular industry's characteristics. Scholars such as Stonehouse and Snowdon (2007) discuss that Michael Porter's contribution to strategy stems primarily from his previous training as an economist. Hence, Michael Porter did not pay much attention to organisational dynamics, politics, and processes of making strategy within organisations. In addition, the theoretical claims of the paradigm have been criticised. One aspect of this is the "stuck-in-the-middle" hypothesis, which suggests that conditions supporting cost leadership (such as reducing transaction costs through vertical integration, process innovation, and scale effects) are separate from those that favour differentiation (like consumer preferences, product innovation, and quality differentiation stemming from a firm's advanced position in a complex value system) (Campbell-Hunt, 2000). Additionally, businesses have differentiated their products and services without sacrificing quality by leveraging new organisational structures, information technologies, and quality strategies (Campbell-Hunt, 2000).

The industrial view theory has been criticised for being based on the economic situation in the eighties. During this period, industries were characterised by intense competition, cyclical trends, and largely stable market structures (Downes, 1997; Recklies, 2015). As a result, Porter's models concentrate on analysing the current situation (such as customers,

suppliers and rivals) and on predictable developments (such as new entrants and substitutes) (Memon et al., 2021; Thurlby, 1998). In this regard, when a firm switched its position inside this Five-Forces Framework, it would yield competitive benefits (Memon et al., 2021). As a result, the models are incapable of explaining or analysing today's dynamic developments, which have the potential to revolutionise whole sectors (Memon et al., 2021) as a result of criticism and some of the shortfalls that the industrial view presented, other theories of competitive advantage were developed.

3.2.2 The Resources Based View

The resource-based view (RBV) proposes that a firm's resources are the main factors influencing its performance (Hofer and Schendel, 1978; Wernerfelt, 1984). The RBV conceptualises strategy as a function of organisation resources and the efficiency with which these resources are structured and utilised (Gerrard, 2005; Wernerfelt, 1984). The term "resource-based view" was coined by Wernerfelt (1984). Wernerfelt (1984: 172) defines resources as those "tangible and intangible assets which are tied semi-permanently to the firm". Peteraf (1993) argues that only resources that are unique and specialised to an organisation can be a source of competitive advantage. Barney (1991) argues that a resource can lead to a sustained competitive advantage if it is valuable, rare, not easily imitable, and not easily replaceable. A resource is, therefore, anything that can be seen as a strength or weakness for a given firm (Wernerfelt, 1984).

The resource-based approach argues that variations among firms arise mainly from differences in their bundles of resources and capabilities (Barney, 1991; Eloranta and Turunen, 2015). According to Amit and Schoemaker (1993), firms can secure a sustainable competitive advantage by accumulating strategic assets that are hard to replicate, substitute, or trade. These resources encompass all assets, capabilities, organisational processes, attributes, information, and knowledge controlled by the firm, which help it formulate and execute strategies that enhance its efficiency and effectiveness (Barney, 1991).

Resources are classified into physical, human, and technological resources and capabilities (Amit and Schoemaker, 1993); property-based and knowledge-based resources (Miller and Shamsie, 1996); and physical capital, human capital, and organisational capital resources (Barney, 1991). These resources can be tangible or intangible (Ray et al., 2004). Intangible resources stand out from tangible ones due to three main features. According to Barney et al. (2011), intangible assets (i) do not decrease,

depreciate, or wear out with use, so skills are preserved regardless of usage; (ii) can be utilised simultaneously; and (iii) are hard to transfer because they are inseparable from their owner.

Some researchers suggest that intangible resources are more likely to provide a sustained competitive advantage compared to tangible resources (Ray et al., 2004). Nonetheless, Prahalad and Hamel (1990) argue that intangible resources should not be confined to a single business unit but should be accessible across different parts of the organisation where they might generate higher returns. Additionally, scholars like Wright et al. (2001) and Al-Hanshi et al. (2022) consider human resources to be the most crucial asset. Flatt and Kowalczyk (2008) identify corporate culture and reputation as significant intangible assets.

The resource-based view theory advocates that firms should develop unique, firm-specific core competencies to outperform competitors by doing things differently (Prahalad and Hamel, 1990). Core competencies are an integrated combination of multiple resources and skills that set a firm apart in the market (Schilling, 2013). These competencies are distinctive, rare, and valuable firm-level resources that competitors cannot easily imitate, substitute, or reproduce (Barney, 1991). Having distinctive capabilities over competitors can lead to a competitive advantage (Alexander and Martin, 2013; Kay, 1995). In the petroleum industry, an example is using the same drilling tools for oil wells but with unique well profiles and tool arrangements, making the combination unique (Al-Hanshi et al., 2022).

Studies done by Sillince (2006) aimed at assessing the influence of a firm's resources and organisational identities in creating competitive advantage found that these two influenced the firm's competitive advantage. Sillince (2006) argues that firms could increase competitive advantage by publicising particular information about their resources that make them desirable within the market. In their studies on the financial services sector, Clulow et al. (2003) found that assets and capabilities that can "cope" with the changing and unpredictable business environment can be a source of competitive advantage. Clulow et al. (2003) also outline that these assets can be tangible or intangible and may be publicly known. However, these assets must be unique to the firm. Studies by Stabell (2001) also show that intangible assets such as intellectual property and reputation in the petroleum industry were regarded as sources of competitive advantage. In another study involving the petroleum industry in South Africa, resources were found to be a source of

competitive advantages (Sihlobo, 2016). This shows that resources can also be a source of competitive advantage in a commodity industry such as the petroleum industry.

3.2.2.1 Criticism of Resources Based View

Despite its dominance in strategic management research, the resource-based view has faced notable criticism, particularly in recent years (Costa et al., 2013). One major critique is that the resource-based view's fundamental premises could be broader, needing more depth and specificity (Barney and Zajac, 1994; Henderson and Mitchell, 1997). Scholars such as Costa and Dierickx (2005), Barney and Clark (2007), and Pacheco-de-Almeida and Zemsky (2007), the resource-based view can be significantly enriched by adopting formal game-theoretic models. This methodology aids in understanding the dynamic effects of the interactions between firms' resource positions and their competitive strategies within defined environmental constraints.

The second criticism of the resource-based view is that it does not sufficiently consider the competitive impacts of resource deployment in product markets (Barney and Zajac, 1994; Foss and Knudsen, 2003; Henderson and Mitchell, 1997). This oversight can be partly attributed to the view that the resource-based approach primarily focuses on "efficiency"—attributing superior performance to the possession of resources that reduce costs or improve quality—while overlooking product market competition and market power dynamics (Peteraf and Barney, 2003). In this regard, the resource-based view usually looks at losing profits due to costs in getting or developing resources or when competitors copy the firm's resources. However, it often ignores the risk of losing profits because of stricter competition when those resources are used in the market.

In a Costa et al. (2013) study, unique resources do not necessarily lead to higher profits. Higher profits and above-average returns have been a competitive advantage (Besanko et al., 2000). Newbert (2007) finds from a thorough review of the literature that the relationship between unique resources and performance has received relatively minimal support. Newbert (2007) discovered that only 51% of the studies associating an exceptional resource with competitive advantage or performance were supported. These findings show that unique resources can only contribute to higher performance when combined with complementary assets and a suitable organisational framework (Costa et al., 2013). One of the primary critiques of RBV over time has been its relatively static nature, and this has led to scholars such as Teece et al. (1997) developing theories such as the Capacity Based View (CBV). According to Ambrosini et al. (2009), the CBV and the

concept of dynamic capabilities evolved from RBV. The CBV is discussed in the next section.

3.2.3 The Capability-Based View

Despite their opposing theoretical perspectives, there is broad agreement among researchers that the industrial organisation-inspired strategy concepts and the resource-based strategy concepts are complementary approaches (Ashour, 2018; Grunert and Hildenbrandt, 2004; Nayak et al., 2023; Poth, 2014). Teece et al. (1997) developed the Capability Based View (CBV) school of thought on competitive advantage. The main argument of CBV is that in an increasingly dynamic environment, organisations can gain a competitive advantage by exploiting existing internal and external firm-specific competencies (Teece et al., 1997). Teece (2023) argues that previous schools of thought on competitive advantages, such as RBV, needed more explanation of how firms develop or acquire new resources and manage them over time. The CBV emphasises the development of management and organisational capabilities that take time to imitate (Teece et al., 1997). According to Helfat and Peteraf (2003), to qualify as a dynamic capability, a capability must not only modify the resource base but also be embedded in the company and ultimately be repeatable.

Amit and Schoemaker (1993) define capabilities as a firm's capacity to deploy resources and use organisational processes to accomplish a desired goal. Capabilities are firm-specific, information-based, physical or intangible processes that evolve due to intricate interactions among the firm's resources (Amit and Schoemaker, 1993). Capabilities can be classified into "operational" and "dynamic" (Helfat and Peteraf, 2003). Winter (2000: 983) defines an operational capability as a "high-level routine (or collection of routines) that, in conjunction with its implementing input flows, confers upon an organisation's management a set of decision options for producing significant outputs of a particular type." Teece et al. (1997) define dynamic capabilities as a firm's ability to integrate, create, and reconfigure internal and external competencies to adapt to rapidly changing environments. Helfat and Peteraf (2003) highlight that a capability must alter the resource base and be ingrained in the firm to be considered a "dynamic capability," and it should also be repeatable. Ambrosini et al. (2009) describe dynamic capabilities as processes that affect resources. According to Eisenhardt and Martin (2000), dynamic capabilities include specific and identifiable processes such as product development, strategic decision-making, and forming alliances.

According to Grant (1991), capabilities are the source of competitive advantage, whereas resources are the source of capabilities. Amit and Schoemaker (1993) took a similar stance, arguing that while resources do not contribute to a firm's long-term competitive advantage, capabilities do. Haas and Hansen (2005) endorse the relevance of capabilities outlining that a business's capacity to utilise its skills to conduct critical operations inside the firm can provide a competitive advantage. According to (Eisenhardt and Martin, 2000), Teece et al. (1997) and Teece (2007), the firm's competitive advantage depends on a firm's capabilities to adapt, integrate, and reconfigure skills, resources, and functional competencies in a dynamic environment. Jiao et al. (2010) outline that managerial and technological capabilities can be a source of competitive advantage when the firm uses them to adapt to the changing business environment, understand their consequences, and reconfigure firm-specific resources and processes continuously to match environmental requirements.

In a study by Nayak et al. (2021) involving the financial sector, possessing dynamic capabilities led to sustained competitive advantage. The study also found that the adoption of emerging technologies helped to improve the capabilities of an organisation. A study involving Lithuanian technology-focused organisations show that a firm's dynamic capabilities significantly impact its open innovation performance and that open innovation, consequently, impacts its competitive performance (Pundziene et al., 2022). Persistent competitive performance likely leads to competitive advantage (Ma, 2000).

In a study by Saad et al. (2014b), dynamic capabilities were seen as a source of competitive advantage in the Malaysian petroleum industry. The study incorporated internal and external firm capabilities, contributing to competitive advantage. Shuen et al. (2014) observed similar results, noting that dynamic capabilities serve as a competitive advantage by enabling firms in the upstream oil and gas industry to effectively capture opportunities and manage risks in a changing business environment. In this context, robust dynamic capabilities enhance strategic agility, making them crucial for seizing and profiting from new business opportunities (Shuen et al., 2014).

3.2.3.1 Criticism of the Capability-Based View

Despite the increasing popularity of CBV, it, too, has faced criticism from other scholars (Arndt et al., 2022; Easterby-Smith et al., 2009; Pavlou and El Sawy, 2011; Wang and Ahmed, 2007). One of the main criticisms is that there has not been adequate information about how dynamic capabilities are developed and their consequences (Easterby-Smith

et al., 2009). Hallberg and Felin (2017) argue that when a firm holds an advantage-conferring resource or capability, it prompts immediate inquiries about how that resource or capability was initially acquired, thus leading to the issue known as "infinite regress". "Infinite regression" refers to a never-ending series of questions about the origins of a firm's advantage-conferring resource or capability. There is also a need to understand dynamic capacities in practice and how they interact with the larger environment (Pavlou and El Sawy, 2011). There has been debate on whether dynamic capabilities in isolation are sufficient for competitive advantage (Easterby-Smith et al., 2009). Teece (2007) argues that dynamic capabilities can only be foundations of enterprise-level competitive advantage during rapid technological change.

3.3 Sustained Competitive Advantage

Amit and Schoemaker (1993), Barney (1991), Kathleen (1991), and Porter (1985) all refer to the term sustained competitive advantage, which is based on the notion that some forms of competitive advantage are complicated to imitate and, therefore, can lead to persistent superior economic performance. Porter (1985: 11) went further to define "sustained competitive advantage" as "long-term profitability" and "above average performance in the long run". On the other hand, Barney (1991: 99) defines it as one that "continues to exist after efforts to duplicate that advantage have ceased". Barney's definition helps to address the question of when a competitive advantage becomes sustained by choosing not to specify a specific period. Instead, Barney (1991) defines sustained as when there is adequate evidence that efforts by other companies to duplicate that advantage have ceased. Studies show this period is usually more than one calendar year (Barney, 1991).

Scholars such as O'Shannassy (2008) found that sustained competitive advantage resulted from prolonged periods, usually longer than a year, with the company having competitive advantages. In agreement, McWilliams (2018) discusses that when a firm maintains a competitive advantage over a long period, the advantage is "sustainable". O'Shannassy (2008) argues that most firms pursue a "temporary" competitive advantage due to constraints such as uncertainty of customer behaviour and rapid technological changes within their industry. Huang et al. (2015) discuss that firms can use a temporary competitive advantage due to market position to improve their technological resource and capabilities, enhancing their sustainable competitive advantage.

Gwinji (2018) distinguishes between "sustainable competitive advantage" and competitive advantage. The former differs from the latter because it provides a long-term advantage

that is difficult to replicate. As a result, a sustainable competitive advantage can and must be maintained for an extended period, even in the face of competition (Porter, 1985). In this regard, a sustainable competitive advantage enables the company to maintain and improve its market position in the long term, allowing a firm to outlast its competitors over a long period.

Scholars have suggested various measures of sustainable competitive advantage. Bandaranayake and Pushpakumari (2021) identify two primary measures that can be used to measure sustainable competitive advantage: financial measures and performance measures. Fonseka et al. (2013) examined the influence of various financial capital sources on competitive advantages in Chinese marketplaces using 6750 firm-year observations from 2000 to 2009. In this study, the ability of the firm to generate abnormal profits that persist systematically was used to measure sustained competitive advantage. According to Lev (2017), using accounting information such as earnings and sales presents a problem. It reflects the consequences of past decisions while being sluggish in reacting to current technological changes, economic conditions, or decaying internal business processes.

According to Ray et al. (2004), "process performance" may be an alternative to financial metrics for measuring sustainable competitive advantage. This is premised on the fact that the "process performance" measure adheres to the RBV foundations, and also, "multiple business processes themselves are a source of SCA, and thus process performance is the direct measure of SCA." (Abideen et al., 2018). According to Bromiley and Rau (2016), performance indicators are more accessible to observe and more acceptable to academics and practitioners. They are used extensively to measure sustainable competitive advantage (Bandaranayake and Pushpakumari, 2021).

3.4 Competitiveness in the Petroleum Industry

The global petroleum industry is characterised by a complex and dynamic competitive environment influenced by several factors. The rapid fluctuations in marginal production costs, varying levels of demand, and the establishment of influential oil cartels such as OPEC contribute to the industry's unique competitive landscape (Baddour, 1997). Despite the uniformity of the product, crude oil, the industry exhibits significant market disparities due to the diverse nature of production processes and associated costs. Thus, examining the role of influential organisations such as OPEC is crucial to understanding the competitive dynamics within this intricate environment.

3.4.1 The Role of OPEC in Shaping Competitive Dynamics

Market volatility and tendencies of oversupply of oil usually lead to a decrease in oil prices, resulting in some economic instability in major oil-producing countries (Fattouh and Mahadeva, 2013; Fattouh and Sen, 2016). The Organisation of the Petroleum Exporting Countries (OPEC) was established in September 1960 in Baghdad (Fattouh and Sen, 2016; Satari Yuzbashkandi and Aghaei Sadi, 2020); in a bid to protect the interests of oil-producing companies and foster close communication among them. The organisation comprised five member states: Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. OPEC was established as a permanent intergovernmental organisation of oil-exporting nations (OPEC, 2020a). The OPEC's main aim is to coordinate its members' petroleum policies to secure fair and stable prices for petroleum producers (OPEC, 2020a). The organisation also seeks to promote an efficient, economical and regular supply of petroleum to consumers and coordinate the oil policies of its member states while ensuring a return on capital to those investing in the industry (OPEC, 2020a).

Since its inception, OPEC has grown to include Qatar (1961), Indonesia (1962), Libya (1962), the United Arab Emirates (1967), Algeria (1969), Nigeria (1971), Ecuador (1973), Gabon (1975), Angola (2007), Equatorial Guinea (2017), and The Republic of Congo (2018). However, Qatar terminated its membership on 01 January 2019, and Indonesia suspended its membership on 30 November 2016. Ecuador suspended its membership in December 1992 and rejoined OPEC in October 2007, but it decided to withdraw its membership, effective 1 January 2020. Indonesia suspended its membership in January 2009, reactivated it again in January 2016, and later suspended its membership in November 2016. Angola withdrew its membership effective 1 January 2024. As of 2024, the organisation consists of 13 states. These states were Algeria, Angola, The Republic of Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, United Arab Emirates and Venezuela.

There has been much debate on the effectiveness of OPEC in carrying out its mandates (Almoguera et al., 2011; Fattouh and Mahadeva, 2013; Geroski et al., 1987). Some researchers argue that OPEC has had little effect on the oil price and market dynamics (Geroski et al., 1987). There has been a question about OPEC controlling prices in an emerging global environment with increased oil exploration outside OPEC, notably in the United States of America and Canada (Inkpen and Moffet, 2011). Some issues have been raised concerning the lack of discipline among OPEC members, with Venezuela being

considered one of the biggest OPEC cheats by regularly producing more than its quota (Inkpen and Moffet, 2011). Other scholars argue that OPEC has been mostly successful in influencing oil prices through its power to raise prices above competitive levels by restricting output (Almoguera et al., 2011). Nonetheless, OPEC's control of 79.4% of the world's crude oil reserve significantly influences the supply and prices of oil in the market (OPEC, 2020b). Many other nations, such as Canada and the United States of America, produce crude oil and are not members of OPEC. These countries are discussed in the next section.

3.4.2 OPEC+ and Its Impact on Global Oil Markets

The introduction of shale oil in the United States has significantly altered the pattern of world oil production (Quint and Venditti, 2020). The advent of the United States as a prominent market participant has had significant implications for other oil producers, particularly those affiliated with OPEC (Quint and Venditti, 2020). In 2008 OPEC's 14 members accounted for about 43% of global oil production. However, its market share fell to 39 percent in 2019, as the United States raised its oil market share from 8% to 15% (European Central Bank, 2017). After a moratorium that banned producers from exporting oil, the United States became the world's top oil producer and largest oil exporter.

In response to these changes, OPEC and several other non-US oil producers established an alliance known as OPEC+ in 2016 to regain some control over petroleum prices (Quint and Venditti, 2020). This coalition includes non-OPEC countries such as Russia (the world's second-largest oil producer), Mexico, and Kazakhstan. As of 2024, OPEC+ consisted of ten member states: Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, and South Sudan. OPEC+ accounted for approximately 45 percent of global petroleum production. The OPEC+ strategy involved setting specific production targets for each member to bring oil stockpiles back to their 2010-2014 averages. However, the coalition has been mired by misunderstandings among the member states, including the clash between Saudi Arabia and Russia (Quint and Venditti, 2020). The price of oil plummeted during the coronavirus pandemic. OPEC proposed additional production cuts to raise the price of crude oil, but Russia declined to participate, arguing that US producers would benefit the most from these efforts to support prices (Smith et al., 2020).

3.4.3 Global Oil-Producing Countries and Their Competitive Position

The shifting dynamics within OPEC+ are part of a broader trend affecting global oil-producing countries and their competitive positions. At the end of 2019, the global oil

reserve was 1,734 billion barrels, showing an exponential decline, with a reduction of 2 billion barrels from the previous year (BP, 2020). These figures reflect increasing oil consumption despite government measures promoting green energy alternatives.

Figure 3. 1: Production in millions of tonnes

Region	2014	2015	2016	2017	2018	Total
North America	869.5	909.7	881.3	918.7	1 027.1	4 606.3
South and Central America	393.1	398.4	379.2	367.3	335.1	1 873.1
Europe	159.7	166.5	167.8	164.7	162.9	821.6
Commonwealth Independent States	675.8	681.3	692.2	696.1	709.1	3 454.5
Middle East	1 338.7	1 411.6	1 499.8	1 477.9	1 489.7	7 217.7
Africa	390.6	386.8	363.9	386.0	388.7	1 916.0
Asian Pacific	395.8	400.6	383.9	369.1	361.6	1 911.0
Total	4 223.2	4 354.9	4 368.1	4 379.8	4 474.2	21 800.2

Source: BP (2019)

As illustrated in Table 3.1 above, from 2014 to 2018, the Middle East had the highest oil production, with a production of 7 217.7 million tonnes. The second highest oil-producing region is North America, which produced 4,606.3 million of oil. The Commonwealth Independent States produced 3 454.5 million tonnes of oil. Africa and the Asian Pacific produced nearly the same amount of oil, with Africa producing 1,916 million tonnes and the Asia Pacific producing 1,911 million tonnes. South and Central America produced the least with 1 873.1 million tonnes. Despite Venezuela having the world's largest oil reserves, political instability and unrest negatively affect the successful exploration of that oil (Villasmil, 2018).

Oil production in Africa has steadily risen despite an initial decline between 2014 and 2015. Africa's oil and gas reserves hold much potential for increased production. However, it has yet to be fully utilised due to a lack of capital and other resources, such as expertise (PWC, 2018). At the end of 2017, Africa's proven oil reserves were 126.5 billion barrels, 7.5% of the world's total reserves (PWC, 2018). The consumption of oil by African countries is around 4.4 million barrels, which is 4.1% of the global total (PWC, 2018). Oil production

2017 was 8.1 million barrels daily, 8.7% of the global total (PWC, 2018). The African continent exports 6.8 million barrels daily, 10.1% of global exports (PWC, 2018). The main contributors to the production of oil are Nigeria, Angola, Algeria and Egypt (PWC, 2018).

The diverse organisational structures within the petroleum industry also play a significant role in shaping production and distribution patterns across different regions. This aspect is discussed in the next section.

3.4.4 Diverse Organisational Structures in the Petroleum Industry

A wide range of competing organisations characterises the petroleum industry. Although some of these organisations are privately owned, many are state-owned. In countries such as the USA and Canada, oil discovered underground belongs to the surface owners (Mitchell and Mitchell, 2014). These surface owners either collect royalties from leasing land to operating companies or operate the resource development themselves. However, in most countries, the government owns the resource and grants licenses while levying particular taxes and royalties on the resulting production. This is the case in Russia, the United Kingdom, and Norway (Mitchell and Mitchell, 2014). In many of these countries, the government is actively involved in the exploration, production, and distribution of petroleum through National Oil Companies (NOCs) (Mitchell and Mitchell, 2014). Clews (2016) groups various categories of oil and gas organisations into four categories, which are discussed below.

3.4.4.1 Integrated Oil Companies

The integrated oil companies, commonly referred to as the 'Major 5' or 'International Oil Companies', dominate the oil and gas industry. These companies include BP, Chevron, ExxonMobil, Shell, and Total. With a long history in the sector, Shell, ExxonMobil, and Chevron were among the early pioneers in the global oil and gas markets. Their industry dominance highlights the intense competition among major players for market share and influence across all sectors. Being vertically integrated, these companies operate in all sectors of the industry, significantly impacting the oil and gas market. Focused on maximising shareholder value and catering to growing investor interests, the IOCs prioritize market access, risk mitigation, coordination, and cost-effective staff utilisation in their business models.

3.4.4.2 National Oil Companies

Companies predominantly owned by governments are referred to as 'National Oil Companies' or NOCs. These entities have exclusive control over almost three-quarters of the world's oil reserves (Mitchell and Mitchell, 2014). NOCs are highly influential, particularly through their participation in OPEC. According to Inkpen and Moffet (2011), NOCs oversee about 90% of global oil and gas reserves and approximately 75% of production facilities. Notable NOCs include Saudi Aramco, Kuwait Petroleum, Abu Dhabi National Oil Company (ADNOC), Petroleo Brasileiro (Petrobras), Nigerian National Petroleum Corporation (NNPC), and Statoil in Norway (Clews, 2016). These companies propel the economic growth of their countries and contribute significant revenues, taxes, and royalties to their government (Al-Fattah, 2013). NOCs often undertake political and social responsibilities, such as job creation, providing non-energy services like building hospitals, schools, and roads and engaging in political activities (Al-Fattah, 2013). Their extensive involvement in economic and socio-political realms highlights their strategic significance and the competitive pressure they place on other industry participants.

3.4.4.3 Other large companies and Independents

In the petroleum industry, other large oil companies are as large as IOCs and NOCs but do not fall into these categories. Companies such as these include several Russian oil and gas companies (Gazprom, Rosneft and LUKoil), Chinese companies (Sinopec, CNPC and PetroChina) and other large independent firms (ENI). These entities contribute to the industry's competitive intensity by challenging the dominance of IOCs and NOCs, leveraging their unique strengths and regional advantages.

In the petroleum industry, many smaller companies within the oil and gas industry specialise in particular areas of the industry value chain. These companies usually operate exclusively upstream and are engaged in exploration and production activities, with no downstream refining or marketing operations (Al-Fattah, 2013). The independents are typically funded by private capital funds, vendor participation or a joint venture with industry partners (Al-Fattah, 2013). Some examples of Independents are small and medium-sized exploration and production companies, independent refiners, and pipeline and storage operators. Some large oil and gas companies are BP, Chevron, ExxonMobile, Royal and Dutch Shell (IEA, 2020). The presence of these independents adds another layer of competition, as they often bring innovative approaches and specialised expertise to niche

areas of the industry. These smaller independent companies usually work in joint ventures with the IOCs and NOCs.

In addition to the government's involvement in the form of NOCs, they play an administrative role in the industry, influencing the industry's competitiveness. The role of the government is discussed in the next section.

3.5 The role of the government in the oil industry

The petroleum industry is often characterised by monopolistic and oligopolistic market structures (Doric and Dimovski, 2018; Koyama, 2004; Muthini et al., 2017). Governments typically view the petroleum sector as strategically vital to their economies (Doric and Dimovski, 2018; Robinson, 1993; Tordo et al., 2011). The degree to which energy is considered a strategic resource rather than a mere commodity reflects government involvement in a nation's energy sector (Tordo et al., 2011). In centrally planned economies, where energy is seen as strategic, government-led solutions for energy are prevalent, as seen in countries like Mexico and China (Tordo et al., 2011). Conversely, government involvement is minimal in market-based economies, where energy is treated as a commodity, with market-based solutions prevailing, as observed in the USA and Canada (Doric and Dimovski, 2018).

Governments primarily act as regulators within the petroleum industry (Tordo et al., 2011). This regulatory role addresses market failures and promotes efficiency, competition, investment, and private-sector participation (Muthini et al., 2017). Governments also strive to protect consumer interests regarding affordability, service quality, and sustainability (Muthini et al., 2017). Additionally, governments draft petroleum sector policies that often pursue a variety of developmental and socio-economic objectives, such as maximising value from petroleum exploitation, promoting inter-temporal equity, fostering backwards and forward linkages, enhancing bilateral trade, ensuring energy self-sufficiency, and securing energy supplies (Tordo et al., 2011).

National governments have recently increased their involvement in local content policies, particularly in strategic industries like petroleum (Acheampong et al., 2016; CCSI, 2014; Kazzazi and Nouri, 2012). These policies are implemented through various instruments, including contractual requirements favouring local goods and services, imposing training obligations, and enacting favourable taxation policies for local industries (Acheampong et al., 2016). Additionally, regulations are set to encourage technology transfer from international to domestic companies and to favour local companies during the tender

bidding process. To further involve foreign petroleum companies in national development, governments provide incentives for these companies to reinvest their profits domestically and invest in critical infrastructure and development areas. Legislative measures, such as local ownership requirements implemented in Nigeria, also demonstrate the strategic importance of the oil industry to national interests (Acheampong et al., 2016).

The extent of government involvement in the petroleum industry significantly impacts its competitiveness. The sector may benefit from more structured and strategic development in countries where the government plays a substantial regulatory and operational role (Muthini et al., 2017). Government policies aimed at fostering local content and technological advancement can enhance the domestic industry's capabilities and competitiveness on a global scale (Rhea, 2005). Conversely, excessive government control and intervention can sometimes lead to inefficiencies, reduced private-sector participation, and slower innovation, which may hinder competitiveness (Chayita and Kaseke, 2022). The balance between regulation and market freedom determines the industry's overall competitiveness.

3.6 Competitiveness in the Zimbabwean Petroleum Industry

The Zimbabwean petroleum industry is a significant part of the national economy, contributing around 9% to the country's GDP and providing employment for thousands of people (Chayita and Kaseke, 2021; Mashange, 2002). Despite its importance, the industry relies heavily on imports, with over 80% of its petroleum needs imported (ZERA, 2022). In 2022, the country imported more than 1.7 billion litres of petroleum products, including 1.041 billion litres of diesel and 614 million litres of petrol (ZERA, 2022). The sector includes 651 licensed companies, with the majority involved in retail, procurement, wholesaling, blending, and production (ZERA, 2023b).

Before deregulation in 2003, the petroleum sector was controlled by six major players: Noczim, Total, Shell, BP, Mobil, and Caltex. Noczim, a state-owned entity, monopolised fuel procurement, transportation, storage, and distribution, while the other companies focused on retail operations. Deregulation transferred procurement responsibilities to private companies, limiting Noczim's role in supplying government departments (Brycesson, 2002). To mitigate fuel import costs, the government, through the Agricultural and Rural Development Authority (ARDA), entered into a joint venture with Green Fuel to produce bio-ethanol for fuel blending (Thondhlana, 2014). Green Fuel remains the leading

ethanol producer, supplemented by Hippo and Triangle, which were later licensed to produce ethanol (ZERA, 2015).

The Zimbabwe Energy Regulatory Authority (ZERA) oversees the highly regulated fuel industry, providing infrastructure audits, fuel quality monitoring, price determination and enforcement, and licensing (ZERA, 2018). ZERA also conducts training on the safe use of petroleum products, sets industry standards, and enforces compliance through inspections and prosecutions. However, ZERA needs more resources and support (Bimha et al., 2017).

Deregulation has increased competition within the industry, prompting companies to seek competitive advantages (Brycesson, 2002). However, it has also introduced supply chain inefficiencies and collusion among significant players (Bimha et al., 2017). The industry faces additional challenges from global economic recessions, fluctuating oil prices, and supply shortages (Brycesson, 2002). High tax levies in Zimbabwe, second only to Malawi in the region, contribute to high product costs even during low global fuel prices (Mhlanga, 2015b). Furthermore, despite the dollarisation of the economy in 2009, petroleum companies continue to experience severe foreign currency shortages for fuel importation (Bimha et al., 2017).

The petroleum industry in Zimbabwe operates within a constrained regulatory framework, where government pricing policies, foreign exchange shortages, and taxation structures significantly impact firms' financial performance (Chayita and Kaseke, 2023). Given these conditions, non-financial indicators such as operational resilience, customer retention, and supply chain efficiency have become more relevant in sustaining competitive advantage. Studies in developing economies by Kinyuira (2014) and Bayraktar et al. (2017) show that firms operating in turbulent environments prioritize adaptive strategies, such as superior distribution networks and market agility over direct financial performance improvements. Thus, while financial indicators are important, they may not be the sole determinants of competitive advantage in Zimbabwe's petroleum sector.

Regulatory frameworks, market dynamics, and external economic factors shape the competitiveness of Zimbabwe's petroleum industry. The increased competition post-deregulation underscores the need for effective management accounting techniques to sustain and enhance competitive advantage. These techniques are essential for navigating the industry's complex landscape and addressing supply chain inefficiencies, tax burdens, and currency shortages.

3.7 Management Accounting and Competitive Advantage

Management accounting techniques may create a competitive advantage for companies intensely utilising them (Alcazar, 2021). Management accounting techniques have positively impacted organisational performance (Owusu, 2024). Management accounting tools and techniques, especially strategic management accounting (SMA), are mainly driven by strategy (Ditkaew, 2023). This strategic focus on the long term pushes companies to be proactive and execute sustainable courses of action towards achieving their goals (Bhimani and Langfield-Smith, 2007). Organisations implementing SMA may constantly seek strategies to outwit competitors and implement the techniques to continually scout for opportunities in the external business environment to gain some leverage (Nielsen et al., 2015; Oyewo, 2022; Oyewo et al., 2021). In this regard, SMA usage can enhance firms' competitiveness and create and sustain a competitive advantage (Alamri, 2019a; Chiekezie et al., 2014; Eker and Aytaç, 2016).

While the discussion in this chapter has extensively examined the role of various management accounting techniques, an overarching perspective linking these techniques to competitive advantage is necessary. Management accounting practices, when integrated effectively, provide firms with decision-making tools that enhance cost efficiency, strategic planning, and overall competitiveness. Management accounting techniques in costing, budgeting, performance evaluation, and decision support systems contribute to competitive advantage by reducing costs, optimizing resources, improving performance measurement, and enabling strategic decisions (Abdelraheem et al., 2017; Bhimani et al., 2019; Ditkaew, 2023; Eichholz et al., 2024; Koskinen et al., 2020). Moreover, research indicates that firms that systematically apply management accounting techniques outperform competitors in the long run (Ditkaew, 2023; Oyewo et al., 2022).

The petroleum industry is characterized by cost-intensive operations and regulatory complexities. In this regard, effective management accounting practices play a crucial role for firms to navigate these challenges and create and maintain a competitive advantage. The following discussion explores various management accounting techniques and their role in creating and sustaining competitive advantage.

3.7.1 Costing Techniques and Competitive Advantage

Enhancing productivity is essential for an organisation's survival and is achievable through increasing revenues or decreasing costs to produce marketable goods (Agus and Shukri Hajinoor, 2012). Revenue and profitability can improve by minimising the costs of products

and services (Agus and Shukri Hajinoor, 2012). Effective costing techniques are critical in a competitive environment where demand is influenced by the price of goods and services (Akeem, 2017; Zhao et al., 2019). Costing techniques assist in reducing overall costs, thereby creating competitive advantages (Abdelraheem et al., 2017; Adigbole et al., 2022; Intakhan, 2021; Petcavage, 2016). This section discusses various costing techniques and their contributions to creating and sustaining competitive advantage.

3.7.1.1 Absorption Costing and Competitive Advantage

Absorption costing is a comprehensive method that includes all manufacturing overheads and material and labour costs, providing a full picture of production expenses (Hojna and Stryckova, 2018; Nikkeh et al., 2022). Absorption costing accounts for all manufacturing overheads as well as material and labour costs (Hojna and Stryckova, 2018; Nikkeh et al., 2022). By including additional expenses like rent, utilities, insurance, repairs, taxes, and administrative fees in the cost of products and services, companies aim to uphold product quality and introduce new variations with improved features (Ali-Momoh et al., 2022). This approach can lead to competitive advantages. When absorption costing is used to allocate costs to products and services, investments are made in human capital to develop dynamic capabilities for managing infrastructure, production materials, technologies, and logistics (Fainshmidt et al., 2019), thus generating competitive benefits.

A study by Nikkeh et al. (2022) involving Iraqi fintech found that using absorption and marginal costing assisted policymakers in formulating cost-reduction and competitive advantage-related policies. The findings show that corporate administration pays attention to the effectiveness of each department's duties and makes a suitable investment if absorption costing is implemented. As a result, it makes gaining competitive advantages easier.

Currently, petroleum companies can choose to account for their exploration and development (E&D) activities using successful efforts (SE) or the full cost (FC) accounting approach (Erhomosele and Rahim, 2021). Under the SE method, only successful E&D costs are capitalised (unsuccessful costs are expensed), while the FC approach capitalises all expenses related to acquisition, exploration, appraisal, and development activities. (Bryant, 2003). It can be argued that the SE technique assesses accounting assets and profits more in line with economic assets and earnings because successful E&D leads to future economic advantages by finding oil and gas reserves. On the other hand, it is possible to see failed E&D as an essential step in finding oil and gas deposits,

thus making the FC technique measure accounting earnings and assets more in line with economic earnings and assets.

3.7.1.2 Standard Costing and Competitive Advantage

Standard costing is a widely recognised management accounting technique that has been shown to positively influence firms' performance through modern strategies (Abdullahj et al., 2016; Al-Shattarat et al., 2021). According to Al-Shattarat et al. (2021), using standard costing techniques allows companies to achieve a competitive advantage and high performance. Abdullahj et al. (2016) investigated the impact of standard costing on the profitability of MTN Nigeria, a telecommunications company. The findings show that using standard costs in its product and decisions allowed the management to make informed decisions, enabling the efficient use of available resources.

In Jordan, Al-Shattarat et al. (2021) identified a significant association between industrial performance and standard costing techniques, noting that these techniques enhance overall organisational performance, particularly in production. Similarly, Ahmad (2018) explored the role of the standard cost system in controlling costs within Sudanese grain mills, concluding that its implementation improved profitability by enabling management to focus on deficiencies and identify their causes.

In Nigeria's petroleum sector, standard costing was considered a valuable cost control tool. Standard costing facilitated employee performance monitoring, fostered a cost-conscious environment, aided in management's reappraise of operating activities to determine cost-effectiveness, inspired employees to meet goals, and offered a framework for control over the acquisition and use of supplies and labour levels (Akenbor and Agwor, 2015). The application of standard costing in industries such as petroleum improves cost efficiency, operational transparency, and resource optimisation, all of which are critical to sustaining a competitive advantage. According to Akenbor and Agwor (2015), one of the reasons operational costs in Nigeria's oil and gas industry are unnecessarily high is that standard costing is not being used as often as it should be to manage costs.

3.7.1.3 Activity-Based Costing and Competitive Advantage

Activity-Based Costing (ABC) involves establishing an average cost for each activity. Then, the cost of each product or service is the sum of the activities required to bring forth, sustain, and retire the product (Cagwin and Bouwman, 2002). According to Bogdanoiu (2009), when ABC is appropriately applied, it provides a far more accurate portrayal of cost

than previous accounting techniques. According to Bogdanoiu (2009), ABC identifies ineffective or unnecessary activities and opportunities for cost-cutting or profit improvement by identifying causal relationships between resources, activities, and cost items like customers or products. ABC leads to a better understanding of costs and allows management to make better decisions, thus contributing to a competitive advantage (Alsayegh, 2020). Adopting ABC has been positively associated with increased competitiveness and high variation in product complexity (Chongruksut and Brooks, 2005). Pham et al. (2021) corroborated the findings of Cagwin and Bouwman (2002), which shows that when ABC is applied correctly, it leads to increased return on investment and improved financial performance. A study by Maiga and Jacobs (2005), which involved 691 manufacturing companies, discovered a substantial correlation between the usage of ABC and improvements in cycle time, quality, and cost. Dooley (2007) found that cost is reduced by 3 to 5% after implementation and then examined that implementing the ABC method leads to better product management, pricing strategy and CRM. In his study, Pizzini (2006) describes how implementing the ABC method increases shareholder value, profitability, and competitiveness. In agreement, Laitinen (2014) demonstrated that implementing ABC significantly increase organisations' profitability and competitive power. According to Vetchagool et al. (2020) the degree of ABC utilisation is strongly associated with financial and non-financial performance improvements. ABC has features that enhance return on investment and offer reliable profitability analysis (Pham et al., 2021). The results of earlier contingency studies indicate a substantial and favourable relationship between the deployment of ABC and organisational success.

Ismail and Reddy (2018) discuss that management accounting shifted from providing data to participating in the organisation's strategic planning process, and management accounting techniques such as ABC became essential tools for creating and sustaining competitive advantage. These management accounting techniques can be applied effectively, thus allowing the examination, evaluation and analysis of market information (Beheshti, 2004; Ismail and Reddy, 2018). These factors enable the organisation to gain an advantage in a highly competitive business environment (Kumar et al., 2011). In agreement, Domingo (2007), in a study involving South African banks, found that ABC was able to support corporate strategies through the supply of more accurate information, and this was useful in the designing, development and provision of cost-effective products and services, resulting in the creation and sustainability of competitive advantages.

Frega et al. (2007) conducted a case study of a southern Brazilian company in the brick and ceramic industry. The discussion centred on the dynamics of cost management systems, investment choices, and competitive strategy alignment to create a long-term competitive advantage. The study reveals that for the firm to attain better competitive advantages, it should replace a traditional costing method, such as absorption, with the direct costing method allied with time-driven ABC. They discovered that strategy and cost structure are dynamically aligned and that, for the most part, prior investment decisions determine the degree of pertinent costs.

Despite most empirical evidence showing a positive association between ABC and performance indicators such as financial performance (Hardan and Shatnawi, 2013; Kennedy and Affleck-Graves, 2001), some studies contradict this. ABC and return on assets (ROA) were not shown to be significantly correlated by Ittner et al. (2002) and Cagwin and Ortiz (2005). The degree of ABC use and return on investment (ROI) did not positively correlate (Cagwin and Bouwman, 2002; Jankala and Silvola, 2012). In a study by Pokorna (2016), adopting ABC does not boost ROA compared to enterprises without ABC. In a survey by Cagwin and Bouwman (2002), ABC was found to have a more significant influence on the financial performance of an organisation when it is used with other costing techniques, such as Just In Time (JIT) and Total Quality Management (TQM), rather than when it is used alone.

Regarding petroleum companies, a study involving an Iranian petroleum company, ABC, led to the company gaining a competitive advantage (Emami et al., 2013). Variances between the actual costs incurred by a company and the expected or estimated costs were significantly larger when the company used traditional costing systems such as absorption costing. The implementation of ABC significantly impacted Iranian Gas Company managers' perceptions of the company's cost of services. Providing accurate information about the cost of services helped managers achieve the organisation's strategic goals and provide a very effective system for internal decision-making within the company, thus improving competitiveness (Emami et al., 2013). Similarly, using ABC led to a competitive advantage for UAE petroleum companies (Alawadi et al., 2019). The use of ABC led to an improvement in the companies' performance and helped the companies to achieve the objectives in the strategic range. In addition, the use of ABC led to more accurate calculations of the cost of production. Hence, it aided cost control, cost reduction, and decision-making initiatives at all levels of management.

3.7.1.4 Marginal Costing and Competitive Advantage

In marginal cost analysis, management identifies the point at which economies of scale may be realised, and production technologies and overall business operations can be enhanced (Delis et al., 2014). A business can grow its market share and compete more successfully with improved processes and productivity. Marginal costs hence boost competitive advantages. According to Akan and Ewiwile (2022), marginal cost pricing aims to allocate resources as close to an optimal (in the sense of strictly competitive) allocation as feasible given decreasing cost conditions. Marginal costing allows for price flexibility with marginal cost pricing, which would help lessen the effects of cyclical fluctuations in economic activity.

When marginal costing is applied, there is a propensity for careful spending such that each unit incurs the lowest cost, which is also helpful for cost preparedness (Nikkeh et al., 2022). The company can set itself apart from competitors by utilising marginal costs and subsequent cost reduction through consistently monitoring and managing variable costs, identifying inefficiencies and implementing targeted measures to reduce expenses, building competitive advantages (Akan and Ewiwile, 2022). Marginal costing also encourages cost transparency (Akan and Ewiwile, 2022). Marginal costing provides a clearer picture of the direct costs associated with production, as only variable manufacturing costs are included in the product cost. This transparency can be advantageous when dealing with customers who are concerned about understanding the specific costs associated with the products or services they purchase.

Marginal costing is prevalent in the petroleum sector as the market is not the only factor determining the supply and demand for energy (Bernstein Research, 2007). Several aspects influence crude oil prices, such as geopolitical risk and weather (Bernstein Research, 2007). Furthermore, the relationship between supply and demand is complex. Pricing and supply are tightly related since the industry often produces just enough to meet demand, with spare capacity and stockpiles compensating for slight production drops. In addition, demand is typically relatively sensitive to sudden changes in price. In the upstream petroleum industry, costs such as exploration remain relatively the same over significant production levels (U.S. Energy Information Administration, 2016). However, costs such as tax are likely to change significantly in response to changes in production, dramatically affecting costs and profitability (Bernstein Research, 2007). In this regard, a

company that can monitor its marginal costs is expected to enjoy a relative competitive advantage.

3.7.1.5 Target Costing and Competitive Advantage

The turn of the century has seen increased customer demands and heightened industry competition (Pajrok, 2020). Target costing emerged as a response to the expanding range of products, the need for cost reduction, and price-sensitive customers (Pajrok, 2020). Target costing has been identified as the most crucial strategic cost management approach to keeping up with the demands of the competitive environment (Celayir, 2020; Ghafeer et al., 2014; Oncioiu et al., 2021). The principle of target costing involves designing products to meet customer expectations at a "target cost," which is achieved by transferring the competitive pressures to the product designers and suppliers. This requires supply chain partners to find cost-saving strategies in the design, production, and distribution stages (Ahn et al., 2018; Al-Kawaz et al., 2023). Target costing creates a common language between the production, product engineering, procurement, and marketing departments (Oncioiu et al., 2021). Target costing forces an increased understanding of markets, competition, and customer needs regarding products, quality, timeliness, and price and requires a significant change in management and organisational behaviours (Sabir et al., 2011). Cost-cutting measures emphasised by target costing give the business competitive advantages and boost its profitability and marketability (Al-Awawdeh and Al-Sharairi, 2012).

In a study by Alkababji (2023) of Palestinian industrial companies, it was observed that implementing target costing had a favourable impact on attaining a sustainable competitive advantage. Target costing was used to minimise product costs early in the planning and design process, which allowed for reduced selling prices without compromising on quality, resulting in increased demand and a competitive advantage (Alkababji, 2023). In a study by Al-Awawdeh and Al-Sharairi (2012), which involved the use of target costing in private Jordanian universities, the use of target costing led to increased competitiveness by providing competitive rates for their educational services. Similarly, in a study by Musa and Ibrahim (2023) involving Sudanese industrial companies, target costing led to a competitive advantage by delineating the necessary product specifications and determining the selling price, thereby serving as a critical compass for cost management. In addition, the incorporation of competitors' product prices and types into the

determination of target cost enables effective cost and time management, thereby fostering a competitive advantage for economic units (Al-Kawaz et al., 2023).

Implementing target costing in the petroleum sector can lead to better resource allocation, improved decision-making processes, and ultimately enhance companies' competitive position within the industry (Basher, 2010; Kalifa et al., 2020). In addition, target costing can improve a petroleum company's competitiveness by improving cost management and overall operational efficiency (Kalifa et al., 2020). In a study involving petroleum firms in Nigeria, target costing was found to contribute to a cost and product quality advantage (Okafor et al., 2021). Consequently, target costing stands out as a strategic tool that not only addresses the current demands of the petroleum industry but also positions firms to achieve sustainable competitive advantage in a dynamic market environment.

3.7.1.6 Value Chain Analysis and Competitive Advantage

Value chain analysis encompasses all organisational activities from design to post-servicing of a product or service, identifying primary, secondary, and support activities to ascertain their value addition and cost implications (Dubey et al., 2020; Porter, 1985). This analysis accumulates the total margin of value-added activities. It reduces nonvalue-added activities, enabling management to understand the behaviour of costs across different activities and bring focus to these areas (Kahar et al., 2022). Porter (1985) argues that the ability to perform particular activities and to manage the linkages between these activities is a source of competitive advantage. Through value chain analysis, companies can pinpoint cost reduction or differentiation opportunities, thus potentially gaining a competitive advantage (Dubey et al., 2020). Value chain analysis can also lead to a competitive advantage by allowing management to understand linkages between activities, integrate them strategically, and coordinate interrelationships to increase value and respond effectively to market forces (Grigorescu, 2015).

The petroleum value chain encompasses upstream, midstream, and downstream activities, highlighting increased commercial value from crude extraction to retail sales (Álvarez et al., 2018). Upstream involves searching for reservoirs, drilling wells, and production; midstream handles transportation and storage; and downstream involves refining crude into products like gasoline and petroleum coke for marketing and distribution (Álvarez et al., 2018). While individual companies can cover one or more activities along the value chain, suggesting a degree of vertical integration may have challenges. The strategic positioning of facilities involved in oil and gas processing, such as refineries and

petrochemical manufacturing plants, can generate synergies, lower costs, increase value, and lead to competitive advantage. However, the complexities and risks associated with these activities, such as substantial capital investments, regulatory compliance, and geopolitical instability, often overshadow the potential benefits.

Moreover, the assumption that vertical integration inherently leads to competitive advantage may be overly simplistic. The study by Rusinga (2010) suggests that companies can optimise operations and gain a competitive edge by locating terminals near markets and outsourcing non-core activities. While this strategy can enhance efficiency, it raises critical issues regarding supply chain dependency, potential quality control problems, and loss of internal capabilities. Furthermore, such strategic decisions' environmental and social implications must be addressed. Proximity to markets reduces transportation costs, increases the environmental footprint, and exacerbates community tensions. Thus, while value chain analysis offers substantial opportunities, it demands a nuanced approach that critically assesses the benefits and the significant challenges inherent in the petroleum industry's operational landscape.

3.7.1.7 Lifecycle Costing and Competitive Advantage

Life Cycle Costing (LCC) is a comprehensive management accounting tool that considers all costs incurred throughout an asset's life, including planning, design, acquisition, and support costs (Gluch and Baumann, 2004). LCC can contribute towards competitive advantage by supporting management decision-making and fostering sustainable development through the assessment of costs across product life cycle phases, the optimisation of total operating costs and the consideration of the societal and environmental impact of products and processes (Al-Khasawneh, 2019; Savić et al., 2019).

In a study by Dunk (2012) involving Australian manufacturing companies listed in the Kompass business directory, life cycle costing contributed significantly to firms' competitive advantage by enhancing decision-making processes and assessing the environmental attributes of products. Dunk (2012) argues that rapid technological changes and shortened product life cycles have made life cycle cost analysis crucial for gaining a competitive edge. In a comparable context, Knauer and Möslang (2018) demonstrate that German firms use LCC to achieve sustained competitive advantage by setting result-oriented cost-management goals, thus underscoring the technique's importance in long-term strategic planning.

However, the effectiveness of LCC is not universally acknowledged. For instance, Kawauchi and Rausand (1999) found that while LCC enables informed decision-making and sustainability in the oil and chemical sectors, the benefits may be contingent on the accuracy of cost estimation and alignment with environmental and social objectives. This is further supported by Cruz et al. (2019), who showed that integrating biomass coprocessing with LCC in petroleum refineries could lead to cost advantages and improved competitive positioning. Nevertheless, the study implies that such benefits are context-specific and may only be universally applicable across some petroleum industry segments.

In summary, while LCC offers significant cost management and strategic planning advantages, its impact on competitive advantage varies depending on industry context and implementation. The critical analysis suggests that while LCC can enhance decision-making and sustainability, technological changes, cost estimation accuracy, and the specific industry environment influence its effectiveness in gaining a competitive edge.

3.7.2 Budgeting Techniques and Competitive Advantage

Budgets are essential management control tools that provide a financial plan outlining revenues and expenses for a specified period, aiding in coordinating activities for plan implementation (Bistriceanu, 2001a; CIMA, 2007; Lasyoud et al., 2018). Budgets aim to optimise the relationship between revenues and expenses, distribute resources among business units, and evaluate managerial performance while facilitating operational planning, motivation, performance evaluation, and goal communication (Atkinson et al., 2011; Barrios Álvarez et al., 2021; Sulaiman et al., 2002).

Budgets contribute to competitive advantage by ensuring optimal use of resources and enhancing operational efficiency (Horngren et al., 2014). One of the main functions of budgeting is the strategic allocation of resources, which enables firms to support innovation, enhance customer satisfaction, and improve market responsiveness (Greenwalt and Patt, 2021; Van Wyk, 2004). Companies can innovate and stay ahead of competitors by directing funds toward high-impact areas such as research and development (R&D), marketing, and talent acquisition (Al-Kawaz et al., 2023; Rebrova et al., 2020). In addition, effective budgeting allows firms to prioritise projects with the highest return on investment (Azlika et al., 2023).

Shank and Govindarajan (1993) highlight the importance of cost management, emphasising that integrating tools like value chain analysis and cost driver analysis within budgeting processes can yield a sustainable competitive advantage. Similarly, Klychova

et al. (2014) reinforce this view, asserting that budgeting is crucial for effective cost management and financial performance by enabling the comparison of planned costs with anticipated revenues, thereby enhancing an organisation's competitive position.

In contrast, while Yee et al. (2016) argue that budgeting is crucial in performance management and directly impacts organisational performance and competitive advantage, they also point out that overemphasising budgeting can sometimes stifle creativity and innovation. Budgeting is a tool for resource allocation and performance evaluation, reducing budget slack and increasing effort and task performance (Fisher et al., 2002). Regularly comparing actual performance against the budget helps organisations identify variances and allows for prompt corrective actions (Yee et al., 2016). This continuous monitoring can improve overall business performance and adaptability, essential for sustaining competitive advantage.

Furthermore, Bhimani et al. (2019) suggest that the planning function of budgeting, which involves utilising short-term budgets to enhance coordination, allocate resources efficiently, align actions with company objectives, and delegate decision-making and spending authority, is fundamental to a company's competitiveness. Eichholz et al. (2024) support this by showing that budgeting ensures resources are used effectively, goals are met, and operations run smoothly. A well-structured budget that aligns with strategic goals ensures that long-term objectives are financially feasible and supported by appropriate investments, maintaining a focused approach to achieving competitive differentiation.

Moreover, Eichholz et al. (2024) argue that budgeting plays a crucial role in risk management by enabling companies to anticipate and mitigate financial risks, thereby creating a competitive advantage. This aligns with Bhimani et al. (2019), who recognise risk management as a critical aspect of management accounting. Budgets help companies consider both risks and opportunities when determining strategies for increased competitiveness (Eichholz et al., 2024). However, it is essential to consider that Shah et al. (2011) highlight the importance of budgeting in the petroleum industry for improving supply chain management, which requires enterprise-wide optimisation. This is especially crucial when discussing real options, such as creating and managing satellite fields, accessible through option pricing theory (Ekern, 1988). Sturm et al. (2009) add that budgeting is essential due to the industry's distinct financial challenges, such as macroeconomic stabilisation and fiscal planning.

3.7.3 Performance Evaluation and Competitive Advantage

Performance evaluation, involving both quantitative and qualitative metrics, assesses and reports on an organisation's activity levels, inputs, outputs, and outcomes (Farazmand, 2019). It provides a structured framework to help managers identify deviations from planned activities and implement corrective actions, thereby meeting organisational objectives (Farazmand, 2019). Performance management contributes to competitive advantage by revealing insights into an organisation's market position and operational efficiency (Jusoh and Parnell, 2008) and tracking changes in competitiveness over time to support strategic decision-making (Epstein, 2018).

Some various tools and frameworks aid performance evaluation. The balanced scorecard, a popular multi-dimensional approach, incorporates financial and non-financial indicators to give a comprehensive view of organisational health (Niven, 2014). Brand evaluation metrics assess the value and impact of a company's brand, which is increasingly recognised as a critical asset (Sharma, 2016). Performance evaluation measures can be categorised into financial and non-financial. Financial measures, such as Return on Investment (ROI) and sales growth, provide insights into a firm's efficiency and market responsiveness (Botchkarev, 2015a; Mohd et al., 2013). Non-financial measures, like customer satisfaction and employee retention, offer a broader view of organisational performance, facilitating strategic improvements and long-term success (Kaplan and Norton, 2001; Verbeeten and Boons, 2009). The following section discusses performance evaluation measures and their contribution to competitive advantage.

3.7.3.1 The Balanced Scorecard and Competitive Advantage

The balanced scorecard is a strategic tool that measures both financial and non-financial performance across four perspectives: financial, customer, internal processes, and learning and growth (Kaplan, 2010b; Kaplan and Norton, 1992). The alignment of performance metrics with strategic goals enables organisations to track financial outcomes alongside customer satisfaction, operational efficiency, and employee development, fostering a comprehensive approach to management (Niven, 2014; Perkins et al., 2014). The alignment also helps organisations meet customer needs, differentiate from competitors, and optimise internal processes to enhance efficiency and reduce costs (Kaplan and Norton, 2004; Ling Sim and Chye Koh, 2001). The focus on learning and growth ensures continuous investment in employee skills and technology, promoting innovation and adaptability in a dynamic business environment (Niven, 2014). The

balanced scorecard can contribute to a competitive advantage by balancing short-term financial results with long-term strategic objectives (Kaplan and Norton, 1992; Niven, 2014).

There is substantial empirical evidence demonstrating the efficacy of the balanced scorecard in contributing to competitive advantage across various organisational contexts (Gawankar et al., 2015; Hasan and Chyi, 2017; Hoque, 2014; Quesado et al., 2018; Taufik et al., 2021). For instance, a study by Ittner and Larcker (1998) on manufacturing firms found that the balanced scorecard (BSC) positively influences firm performance by providing a comprehensive framework for aligning strategic objectives with operational activities. Vărzaru (2022) explored the BSC's impact on sustainable development in healthcare, revealing that the balanced scorecard improved both organisational performance and sustainability. Notably, the study highlights that the BSC's internal process dimension had the most significant impact on performance, underscoring the importance of effective internal processes for stakeholder satisfaction and overall organisational success, thereby leading to potential competitive advantage.

Similarly, De Geuser et al. (2009) examined European companies that recently implemented a BSC and found a positive impact on organisational performance, particularly through integrating management processes and empowering individuals. This study further supports the idea that the BSC can enhance organisational performance by fostering a cohesive and motivated workforce. However, critically considering the contextual differences between these studies is essential. While Ittner and Larcker (1998) focused on manufacturing firms, the varied industrial contexts in Vărzaru (2022) and De Geuser et al. (2009) suggest that the BSC's effectiveness may vary depending on industry-specific factors and implementation strategies. This highlights the need for a nuanced approach when adopting the BSC, tailored to different sectors' unique challenges and objectives.

In contrast, Shadrach (2017) found that while the BSC enhanced employee performance, which improved metrics such as sales and customer service in the service sector, it did not significantly impact overall organisational performance. This raises questions about the BSC's effectiveness in translating individual performance improvements into broader organisational success within this sector. Similarly, Oyewo et al. (2022) observed that the BSC positively affected employee performance and engagement in the manufacturing industry. However, it did not directly influence overall organisational performance,

suggesting that the BSC's benefits may be confined to certain aspects of performance rather than universally applicable across all metrics.

In a different context, Anuforo et al. (2019) studied a higher education institution. They concluded that the BSC facilitates continuous improvement by enabling organisations to monitor key performance indicators and take corrective actions promptly. This study also emphasises the importance of staff buy-in, top management commitment, organisational culture, and communication strategy in enhancing institutional performance through the BSC. This indicates that the BSC's success may depend on these supportive elements.

Moreover, Guix and Font (2020), in the hospitality industry, highlighted the critical role of stakeholder focus in driving organisational success. The BSC was instrumental in integrating stakeholder perspectives into decision-making processes, underscoring its utility in aligning organisational objectives with stakeholder needs. This approach contrasts with findings in other sectors where the direct impact on overall performance could have been more evident.

The balanced scorecard is a valuable performance management tool that can enhance competitive advantage in the petroleum industry by providing a holistic approach to evaluation (Camilleri, 2020). According to Kwakye et al. (2023), the balanced scorecard is the industry's most widely used performance management tool, which is crucial for the petroleum industry. Projects in this highly volatile sector take multiple years and involve significant investments. Exploring the use of the balanced scorecard at Shell, Schaltegger and Dylick (2002) found that integrating sustainability perspectives in its balanced scorecard served as a strategic tool for prioritising sustainability efforts. Shell aligned incentives with these sustainable development goals, which fostered accountability and performance. The balanced scorecard also facilitated communication and collaboration among departments. Shell generated efficiencies and strategic alignment by effectively aligning sustainability objectives, targets, actions, and processes using the balanced scorecard, ultimately leading to a competitive advantage in the industry.

In a study by Ngari (2014) involving Kenyan petroleum refineries, the company successfully communicated its strategy, delineated targets, and established key performance indicators across various organisational levels through the balanced scorecard. This strategic alignment enhanced organisational clarity and accountability, improved performance appraisal systems, and fostered a culture of continuous

improvement and agility. As a result, Kenya Petroleum Refineries Ltd has gained a competitive advantage by leveraging the balanced scorecard.

3.7.3.2 Brand Evaluation and Competitive Advantage

Brand evaluation involves assessing both tangible and intangible assets of a corporate or product brand to quantify its overall impact and convert it into monetary terms (Communication Controlling, 2018). Various methods, including financial-based, behavioural-based, and composite approaches, are employed for different purposes, such as financial reporting, tax planning, and market strategy (Sahaf, 2013; Sharma, 2016). By meticulously evaluating these assets, organisations can gain insights into their market positioning and potential, contributing to competitive advantage.

Strong brands create business value and provide a competitive advantage by allowing businesses to charge price premiums and penetrate new markets more easily (Davies, 2007; Millward Brown, 2018). Additionally, strong brands help reduce business risk, attract and retain talented staff, and enhance customer satisfaction (Brand Finance, 2019; Slaughter et al., 2004; Wirtz, 2003). In a study by Huang and Sarigollu (2012) involving consumers of consumer-packaged goods in the United States, branding and brand equity contributed to competitive advantage by increasing brand awareness, thus positively influencing consumer decision-making, market performance, sales and market share.

Brand evaluation is essential in the petroleum industry due to its commodity-based nature (Brand Finance, 2019). Studies, such as Mokabiri (2009) on petroleum companies in Botswana, highlight how robust brand management and customer loyalty programs contribute to competitive advantage. BP led in consumer preference, followed by Shell, Engen, and Caltex, with Total trailing. Notably, BP demonstrated superior management in these factors, emphasising the critical role of effective management practices, including accounting strategies, in sustaining competitive advantage.

In a study by Abah and Onuoha (2020) involving petroleum companies in Port Harcourt, Rivers State, Nigeria, a high-value brand was shown to enhance both product and company value. Branding was the most efficient means to communicate a business's essence to potential customers, emphasising the importance of a clear brand message. In a study by Amoako (2022) involving oil marketing companies (OMCs) in Ghana, it was found that brand evaluation, with a focus on brand equity components such as brand loyalty, awareness, association, and perceived quality, is essential for enhancing competitive advantage within the petroleum industry through its positive effect on

consumer purchasing behaviour. These findings are similar to those of Thanabordeekij and Syers (2020), who involved liquid petroleum gas. A strong and favourable brand image contributes to customer satisfaction and loyalty, positively affecting the concerned firms' competitive advantages.

3.7.3.3 Other Performance Evaluation Techniques and Competitive Advantage

Performance management has become a critical tool for organisations seeking a competitive edge in today's dynamic business environment. Companies can comprehensively understand their operational effectiveness by integrating financial and non-financial performance evaluation techniques. Traditional financial measures such as Return on Investment (ROI) and sales growth remain pivotal in assessing a firm's economic performance and investment efficiency (Botchkarev, 2015a; Mohd et al., 2013). However, the limitations of financial metrics alone have led to an increased emphasis on non-financial indicators like customer satisfaction and operational efficiency, which offer deeper insights into areas like quality, employee participation, and customer service (Abdel-Maksoud et al., 2008; Barsky and Marchant, 2012). By employing a balanced approach that includes both financial and non-financial measures, organisations can better align their performance management systems with their strategic objectives, ultimately fostering sustainable competitive advantage (Kaplan, 1994b).

Return on Investment (ROI) is a performance evaluation technique which seeks to establish the efficiency of investments and the financial performance of projects or activities within an organisation (Botchkarev, 2015a). ROI is calculated by dividing the net gain from an investment by its cost, providing a straightforward measure of profitability. According to Botchkarev (2015a), ROI remains one of the most popular performance evaluation metrics due to its simplicity and applicability in comparing different investment opportunities. Empirical studies by Neely (2004) demonstrate that firms employing ROI are more adept at identifying and capitalising on growth opportunities, thus fostering a competitive advantage by ensuring that investments support long-term objectives and market positioning. Similarly, Botchkarev (2015a), who presents a case where a technology firm used ROI to evaluate its Research and Development investments, found that ROI led to more focused innovation efforts and improved market responsiveness, contributing to competitive advantage.

Sales growth as a performance evaluation technique indicates a firm's ability to generate revenue and sustain market competitiveness (Mohd et al., 2013). In a study done by Mohd

et al. (2013) involving 24 ICT companies in the ASEAN region, which consisted of Thailand, Malaysia, and the Philippines and 69 ICT companies in Japan, sales growth was found to reflect a company's operational efficiency market acceptance, and strategic positioning, thus offering valuable insights into the effectiveness of marketing strategies, product innovations, and customer relationship management. Similarly, in a study by Lazăr (2016), sales growth as a performance evaluation technique contributed to competitive advantage by making more apparent market demand, customer satisfaction and market share gains over competitors, thus helping attract investors and stakeholders, encourage innovation and adaptation and improvement of existing offerings.

Cash flow is a fundamental performance measure that provides insights into a firm's liquidity, operational efficiency, and financial health (Lazăr, 2016). Using cash flow as a performance evaluation technique enhances transparency and provides insights into the efficiency of a company's operations and its ability to generate cash from its core activities, thus helping managers make informed decisions about resource allocation and operational improvements (Lee et al., 2020). In a study by Márkus and Rideg (2020) involving 639 SMEs in cashflow analysis, ample cash reserves, and future-oriented cash flows enhanced a firm's competitive performance. In a study aimed at assessing the impact of cash flow and profit analysis in the banking context, Nuryani et al. (2023) extend this discussion by demonstrating the positive influence of both cash flow and profits on future cash flow in the banking sector.

Cashflow analysis is crucial in the petroleum sector, particularly in creating and sustaining competitive advantage. In a study involving 24 representative companies analysed over five years (2004–2008), Weijermars (2011) highlights the impact of capital-market dynamics and cash flow analysis on the competitive position of oil and gas companies, noting that smaller companies face significant challenges in funding new projects. Agostinho and Weijermars (2017) study delved into the impact of volatile market conditions on the financing strategies and tactics of petroleum companies. Employing a cash-flow analysis, the study scrutinised 30 oil companies, ranging in market capitalisation from USD 95 million (juniors) to USD 360 billion (majors), focusing mainly on two pivotal recovery periods: 2004-2008 and 2009-2014. The findings underscored the paramount importance of cash flow management amidst market volatility. Smaller companies, in particular, were highlighted as needing to strike a delicate balance between capital expenditure and operational cash flow to ensure positive cash flow and corporate liquidity.

Despite the prevalence of financial measures of performance outlined, multiple studies, including those by Zhang et al. (2013), Hornungová (2017) and Sandu (2019), emphasise the significance of non-financial performance measures in establishing and maintaining competitive advantage. In a study by Zhang et al. (2013) comprising 158 Chinese firms operating within comparable market conditions and of similar size, it was found that augmenting the financial metrics did not necessarily correspond to enhanced performance among these firms. Conversely, an escalation in employing comprehensive performance metrics or nonfinancial measures exhibited potential for improving firm performance. Hornungová (2017), in a study involving Czeck companies, found a stronger relationship between non-financial metrics such as staff and customers and company profit compared to financial metrics.

Various non-financial performance measures have been identified as influential in the petroleum industry. Akhtar et al. (2013) highlight the significance of organisational learning in the petroleum industry in achieving competitive advantage. In a study by Mukuusi (2019) involving 63 licensed Oil Marketing Companies (OMCs) in Kenya, non-financial measures such as employee performance were shown to impact competitive advantage significantly. Companies using these performance measures invested more in their workforce through training, fair compensation, and maintaining high levels of employee satisfaction, leading to increased productivity and innovation. This created more competitive and resilient organisations capable of sustaining their market position over time. These studies suggest that a combination of non-financial performance measures, including operational, marketing, and employee performance, differentiation advantage and organisational learning capability, are crucial for creating and sustaining competitive advantage in the petroleum industry.

3.7.3.4 Non-Financial Performance Metrics and Competitive Advantage

Traditional financial performance indicators such as revenue growth, profitability, and return on investment (ROI) have long been considered the cornerstone of assessing competitive advantage. However, contemporary research suggests that financial performance alone may not fully capture a firm's long-term success in today's dynamic business environment (Kaplan and Norton, 2001). The increasing complexity of markets, shifts in consumer behaviour, and advancements in management accounting techniques have necessitated a broader perspective which incorporates non-financial performance

metrics such as customer satisfaction, employee engagement, innovation capacity, and sustainability initiatives (Bambang and Ali, 2020; KPMG, 2021; Wirtz, 2003).

In the petroleum industry, where financial performance can be volatile due to fluctuating oil prices, regulatory shifts, and geopolitical uncertainties, non-financial metrics play an essential role in assessing a company's resilience and strategic positioning (KPMG, 2021). Empirical evidence suggests that firms with strong capabilities in areas such as brand reputation, operational efficiency, and customer loyalty tend to sustain competitive advantage even when financial indicators are less favourable (Arslan, 2020; Mokabiri, 2009).

Studies have shown that financial metrics, while crucial for assessing firm viability, are often influenced by external factors beyond a firm's strategic initiatives. For instance, Zhang et al. (2013) found that an increased emphasis on financial performance indicators did not necessarily correlate with enhanced firm competitiveness. Instead, firms that relied more on non-financial metrics such as customer satisfaction, operational efficiency, and market responsiveness demonstrated greater sustainability and long-term competitive advantage.

Similarly, Hornungová (2017) in an empirical study of Czech firms observed that firms prioritizing non-financial performance indicators, such as innovation, employee engagement, and brand perception, achieved superior long-term positioning compared to firms that emphasized financial metrics alone. The study concluded that financial performance is often a lagging indicator rather than a driver of competitive advantage, as it reflects past strategic decisions rather than real-time market adaptability.

Costa et al. (2013) further argue that competitive advantage arises from a firm's ability to leverage unique resources and capabilities rather than short-term financial gains. Their findings indicate that companies investing in strategic differentiation, such as process innovation, superior customer service, or brand positioning, often maintain competitive advantage even when financial performance fluctuates due to macroeconomic conditions.

In capital-intensive industries such as petroleum, financial performance can be misleading as an indicator of competitive advantage due to industry-wide constraints. Oyewo (2022) highlights that while management accounting techniques contribute to strategic positioning, their direct impact on financial performance may not be immediate or easily quantifiable. Regulatory changes, geopolitical risks, and global supply chain dynamics

significantly affect financial performance in these industries, often overshadowing the internal efficiencies gained from superior management accounting practices.

Moreover, Etim et al. (2020) suggest that financial performance in industries like petroleum is highly cyclical, depending on factors such as oil price fluctuations, fiscal policies, and taxation regimes. This affects its reliability as a sole measure of competitive advantage. Instead, companies in these sectors achieve sustainable competitive advantage by focusing on cost leadership, supply chain optimization, and technological integration.

Recognizing the limitations of financial performance as a proxy for competitive advantage, scholars have been advocate for a more balanced approach incorporating non-financial performance measures (Kaplan and Norton, 1992; Verbeeten and Boons, 2009). Financial indicators such as profitability, return on assets (ROA), and return on equity (ROE) provide a retrospective view of firm performance but often fail to capture critical elements that drive sustainable competitive advantage, such as customer satisfaction, employee engagement, brand equity, and innovation capacity (Ittner and Larcker, 1998; Zhang et al., 2013) .

In a study by Hornungová (2017) involving companies operating in the Czech Republic, an assessment of non-financial performance metrics such as employee engagement, intellectual capital, customer satisfaction, and corporate social responsibility (CSR) and their impact on long-term competitiveness was done. The study found that while financial performance may fluctuate due to external factors such as economic cycles and market conditions, non-financial measures provide a more stable and predictive assessment of a firm's competitive positioning. Furthermore, it was found that businesses excelling in intellectual capital development, employee engagement, and corporate social responsibility (CSR) achieved superior long-term performance, even when short-term financial indicators appeared weak. This suggests that financial performance turning insignificant in statistical models does not necessarily imply weak firm competitiveness but rather may be an indication of the growing relevance of intangible assets and strategic capabilities in sustaining advantage.

3.7.4 Decision Support Systems and Competitive Advantage

Decision-making is crucial for allocating scarce resources to achieve organisational goals (Ada and Ghaffarzadeh, 2015). Effective decision-making is critical to today's dynamic competitive environment. Decision support systems (DSS) facilitate short-term and long-term analyses, aiding management in making informed decisions (McLean et al., 2015).

This section explores empirical studies on the role of various decision support techniques, such as break-even analysis, stock control, product profitability analysis, customer profitability analysis, and project appraisal techniques, in creating and sustaining competitive advantage. These tools help organisations understand costs, manage resources efficiently, and make strategic decisions, thereby contributing to their competitive advantage (Adedeji and Ituma, 2020; Alnasser et al., 2014; Cooper and Kaplan, 1991; Gitman et al., 2015; Koskinen et al., 2020)

3.7.4.1 Break-even analysis and Competitive Advantage

Break-even analysis, also known as Cost Volume Profit (CVP) analysis, is essential for examining the relationship between costs, profits, and sales volume. This technique identifies the break-even point where total revenue equals total costs, guiding decisions on pricing, product mix, special orders, marketing strategies, and profitability impacts (Adedeji and Ituma, 2020; Horngren et al., 2014). Breakeven analysis enhances management's understanding of business costs and aids in classifying costs into variable and fixed categories, leading to optimised profit strategies (Persaud, 2020). By understanding cost drivers and their behaviour, businesses can make informed decisions, creating and sustaining competitive advantage (Sievänen et al., 2004).

Calantone et al. (2014) conducted a study involving 233 firms in the manufacturing sector, with a primary focus on high-tech industries. Their findings revealed that firms with faster break-even times for new product launches tend to perform better. This is because quicker break-even times allow these firms to reinvest in research and development (R&D) and launch new products more rapidly, which is essential for survival and success in fast-moving industries. The ability to quickly recoup investments supports ongoing innovation and provides a substantial competitive advantage by improving short-term and long-term firm performance. Adopting the break-even analysis when making investment decisions likely leads to a competitive advantage.

3.7.4.2 Stock control and Competitive Advantage

Stock control, also known as inventory management, represents the art and science of regulating the quantity of stock within a company to economically meet its demands while ensuring customer satisfaction and mitigating business fluctuations (Jay and Barry, 2006). Inventory is among the most significant investments in many businesses, particularly in the manufacturing, retail and petroleum industries (Handfield et al., 2011; Sutrisno and Airlangga, 2020). In this regard, effective stock control minimises costs while ensuring a

continuous supply for daily operations (Mogorosi, 2016). Thus, stock control is pivotal in business operations and competitive strategy. Effective stock control becomes crucial for creating and sustaining a competitive advantage (Devarajan and Jayamohan, 2016).

A study by Izuakulom (2022) of Nigeria's downstream petroleum sector found that effective inventory management significantly contributed to competitive advantage. The companies enhanced customer satisfaction and loyalty by ensuring constant stock availability, while cost reduction measures mitigated expenses related to overstocking and stockouts, fostering profitability. The robust inventory management systems promoted transparency and accountability across the supply chain, aiding strategic planning and swift adaptation to market changes.

3.7.4.3 Product Profitability Analysis and Competitive Advantage

Product profitability analysis, which examines the relationship between a product's selling price and its costs, is crucial for informed decision-making in an organisation (Mustonen et al., 2019). Product profitability analysis encompasses all products, including services, software, and physical goods, and highlights opportunities for cost reduction, outsourcing, and product redesign (Brierley, 2016; Koskinen et al., 2020; Sievänen et al., 2004). It provides insights into often overlooked costs, such as after-sales expenses, significantly impacting profitability. By assessing profitability across a product's lifecycle, businesses can make strategic adjustments to enhance value. Additionally, product profitability analysis aids in product portfolio management by classifying products based on their strategic value and profitability, thus guiding firms in maximising their overall profit and strategic fit (Koskinen et al., 2020; Verrollot et al., 2020).

In a study by Brierley (2016) involving the British manufacturing industry, product and customer profitability analyses were shown to strategically enhance profitability by providing detailed insights into product costs and revenues. These analyses enabled firms to make informed decisions on cost reductions, outsourcing, and product redesigns, leading to the identification of unprofitable products or customers. This allowed the firms to focus resources on the most profitable products and customers, maximising overall value and ensuring alignment with market demands, leading to significant competitive advantage. This agrees with Koskinen et al. (2020), in which companies that leveraged product profitability analysis outperformed their competitors regarding market position and sales performance.

A study by Shokouhi et al. (2024) looked into product profitability analysis within the context of an oil refinery investment project, highlighting the significance of various risk factors, including crack spreads for gasoline, diesel, LPG, and jet fuel, along with crude oil prices and refinery utilisation rate, in influencing profitability. By understanding and leveraging the profitability of each product, the refinery can make informed decisions, optimising resource allocation and strategic planning. This approach can lead to a competitive advantage by maximising profitability and enhancing the refinery's ability to adapt to market fluctuations.

3.7.4.4 Customer Profitability Analysis and Competitive Advantage

Businesses increasingly prioritise optimising customer relationships and analysing customer profitability to enhance overall performance. Customer profitability analysis involves analysing revenue streams and service costs associated with specific customers or groups (Albalaki, 2018). Notably, not all revenue contributes equally to profit, as specific customers may incur higher relationship costs, resulting in disparities in profitability among customer segments (Zeithaml, 2000b). In this regard, customer profitability analysis offers valuable insights for targeted cost management, pricing strategies, and decision-making regarding marketing activities (Atkinson et al., 2012; Shapiro et al., 1987). Through the identification and prioritisation of customer categories with long-term value, businesses can bolster their competitive advantage (Noone and Griffin, 1999; Storbacka, 1997).

Zeithaml (2000b) conducted an empirical literature review across various industries, including banking, pharmaceuticals, and marketing research. By categorising customers into profitability tiers using a Customer Pyramid, companies tailored their services to enhance profitability. Highly profitable customers received premium treatment, average profitability customers were cultivated to increase their value, and unprofitable customers were either improved or eliminated. This approach of tailoring service based on customer profitability levels made the customer base more profitable, boosting the company's competitive success in the marketplace.

A study by Guerreiro et al. (2008) involving a Brazilian food-industry company, found that only 6% of customers provided 80% of the service margin after accounting for their related costs. This insight enabled the company to concentrate resources and marketing efforts on the most profitable customers while reconsidering or discontinuing services to less profitable ones, thus improving financial performance. Customer profitability analysis contributed to competitive advantage by offering detailed profitability insights across customer segments, facilitating better strategic decision-making. The company maintained

profitability by optimising resource allocation, enhancing customer relationships, and increasing service efficiency while reducing costs, such as through shared sales promoters. Additionally, customer profitability analysis informed commercial policies and negotiation strategies, improving outcomes with large clients and greater marketing and logistics efficiency. This strategic use of customer profitability analysis helps retain valuable customers and sustain long-term competitive advantage.

In contrast, Mokabiri (2009) notes that petroleum product prices are usually regulated and cannot be used as a competitive tool; companies must differentiate themselves through service provision, station location, and fuel brand. In this context, customer profitability analysis helps identify the most profitable customer segments and tailor services to meet their needs, enhancing customer satisfaction and loyalty. This strategic focus on high-value customers can lead to repeated purchases and positive customer testimonials, which are crucial for maintaining profitability.

On the other hand, Gloy et al. (1997) demonstrates that applying customer profitability analysis through the Customer Lifetime Value model in the petroleum industry helps firms identify the most profitable customer segments, optimise resource allocation, enhance customer retention, and develop effective marketing strategies. These strategic advantages contribute significantly to sustaining a competitive edge in the marketplace. Similarly, leveraging customer profitability analysis by petroleum retailers in Botswana led to the development of sustainable strategies to attract and retain customers, ultimately leading to long-term competitive advantage in a market characterised by close substitute products and significant competition (Mokabiri, 2009).

In addition, customer profitability analysis can highlight inefficiencies and areas for cost reduction, which is vital in industries with tight profit margins and high competition. This analysis allows companies to decide which customers to focus on and which services to modify or discontinue, improving overall performance and competitiveness.

3.7.4.5 Project Appraisal Techniques and Competitive Advantage

Organisations frequently undertake new projects or investments, necessitating capital appraisal techniques to evaluate feasibility and alignment with firm goals (Gitman et al., 2015). These techniques, including payback period, accounting rate of return (ARR), net present value (NPV), and internal rate of return (IRR), help allocate resources among competing projects by estimating cash flows and assessing investment risks (Stamalevi, 2015). While the payback period emphasises liquidity and simplicity (Lucey, 2009), ARR

aligns financial data with accounting principles but overlooks the time value of money (Hynek et al., 2015). NPV and IRR are favoured for incorporating all cash flows and the time value of money, aiding in strategic decisions that maximise shareholder value (Imegi and Nwokoye, 2015; Jory et al., 2016). These methods collectively enhance competitive advantage through strategic resource allocation and improved financial performance.

Various empirical studies have historically found significant buy-in for the Payback Period (PB) technique across different regions and industries. This technique's simplicity and effectiveness in assessing investment recovery times have made it widely popular (Lefley, 1996). For instance, McIntyre and Coulthurst (1986) surveyed 750 medium-sized firms in the UK and found that 82.3% used the payback method. Similarly, Hendricks (1988) reported that 29% of 168 Fortune 500 industrial firms in the USA used PB as their primary evaluation technique, with an additional 48% using it as a secondary method.

According to a study by Loginovskiy and Gelrud (2016), the payback period contributed to competitive advantage by allowing them to allocate resources efficiently, attract investors, adapt to market changes, and ultimately achieve higher investment returns. However, their study involving 30 companies listed on the Ghana Stock Exchange, Owusu-Ansah et al. (2023) shows that the widespread use of a payback period led to less optimal investment decisions, resulting in firm value degradation. This resulted from no equity estimation cost, and using an expected firm-wide discount rate needs to account for time and risk correctly.

As regards accounting rates of return, a study by Magni (2016) found the use of measures such as average return on investment (AROI) to accurately capture a project's economic profitability by improving financial stability, transparency, and alignment of expenses with revenues, ultimately leading to better decision-making and enhanced market position.

A study by Dobrowolski and Drozdowski (2022) involved the analysis of data from Poland, Romania, Hungary, Croatia, the USA, the United Kingdom, Japan, Israel, and the Euro Zone. The study shows that the Net Present Value technique contributed to creating and sustaining competitive advantage by considering the time value of money, providing an objective financial assessment, and incorporating risk reduction through discount rates that reflect the cost of capital and project risks. The Net Present Value supports strategic planning by prioritising projects with the highest economic returns. It enables dynamic adaptation to changing economic conditions, thus ensuring that firms make informed, financially viable investment decisions that enhance long-term competitiveness and financial stability.

A study by Emhjellen and Alaouze (1999) shows that the use of NPV to evaluate exploration projects in the North Sea was widespread. By considering potential cash flows from discovered reserves and applying a discount rate to account for risks, the companies determined which projects had a positive NPV, leading to significant profits. The NPV technique can also contribute to competitive advantage in the petroleum industry by evaluating projects, risk assessment, capital allocation, long-term planning, and comparison with industry benchmarks.

A study by Magni (2021) offers an in-depth examination of the Internal Rate of Return (IRR) as a tool for assessing economic profitability and its implications for shareholder value. Despite its known pitfalls and limitations, IRR remains widely used among practitioners due to its role as an internal measure of a project's economic return, independent of the cost of capital. The study highlights how IRR facilitates firms in focusing on internal economic efficiency and simplifying decision-making processes. IRR plays a crucial role in creating and sustaining competitive advantage by enabling effective project return comparisons and aligning investment choices with the goal of shareholder value creation. Additionally, this technique complements other appraisal methods, such as Net Present Value (NPV), by providing a comparative perspective on the profitability of potential projects.

According to Back (2001), the petroleum industry is now using more complex investment analysis techniques due to developments in information technology and how it has enhanced data processing and analysis, enabling real-time reservoir modelling and facilitating the creation of electronic marketplaces for faster transactions. Advanced portfolio optimisation techniques and decision analysis software allow planners to evaluate multiple scenarios and strategically optimise capital allocation. Advanced IT techniques have made decision-making more efficient, data-driven, and responsive to market conditions.

3.7.5 Strategic Management Accounting and Competitive Advantage

Strategic management accounting (SMA) involves providing and analysing management accounting information regarding a company and its competitors and utilising it to develop and oversee business strategies (Simmonds, 1981). Roslender and Hart (2003: 272) describe it succinctly as "making management accounting more strategic." There is growing emphasis on the importance of adopting SMA to enhance strategic decision-making and organisational performance (Abdullah et al., 2022; Alamri, 2019a; Cinquini and

Tenucci, 2010; Ekkaphol and Wichitsathian, 2024; Mohammed et al., 2019; Ojra, 2014; Zakaria, 2015). Cadez and Guilding (2008) classified SMA techniques such as costing, strategic decision-making, and competitor accounting, emphasising their strategic orientation. Despite its relative novelty, the use of SMA is growing, with many firms leveraging these tools to enhance performance and competitiveness.

Empirical studies have consistently shown that SMA techniques significantly contribute to competitive advantage, especially in manufacturing. For example, a study by Uyar (2010), which involved a survey of the Nigerian manufacturing sector and a study by Oyewo (2022), which involved the analysis of data from publicly listed companies, both highlight the critical role of SMA in enhancing decision-making, optimising resource allocation, and achieving superior financial performance. The study by Uyar (2010) found that firms with high customer and competitor accounting adoption rates consistently outperformed their peers, emphasising SMA's long-term competitiveness. Similarly, Oyewo (2022) findings indicate that companies intensely applying SMA techniques outperformed competitors at industry and sector levels over a decade, even though overall adoption rates were moderate.

Building on these findings, Asoloko et al. (2019) reported similar results in their study of manufacturing companies in Nnewi and Awka, Anambra State. The findings show that SMA techniques significantly influenced cost reduction and product differentiation decisions, enhancing competitive advantage. These studies collectively underscore the vital role of SMA in the manufacturing sector's competitive landscape.

Ditkaew (2023) explores the impact of business strategy on SMA and its subsequent effect on competitive advantage within Thailand's rice export businesses. His study revealed that business strategy positively influences SMA, significantly enhancing competitive advantage. This aligns with Alamri (2018) research involving Saudi industrial companies found that adopting a strategic management accounting perspective enhances competitive advantage across dimensions such as cost efficiency, product quality, operational flexibility, and timely delivery. Both studies highlight the strategic importance of SMA in different industrial contexts, emphasising how it optimises resource allocation and enhances operational effectiveness.

The relationship between SMA and competitive advantage is similarly significant in the petroleum industry. Sunday and Onuoha (2023) found a substantial correlation between strategic management practices and corporate performance within petroleum servicing

firms. They concluded that SMA contributes to competitive advantage through enhanced efficiency and effectiveness in corporate performance. Al-Hanshi et al. (2022) extended this understanding in their study involving petroleum companies in the UAE and Oman, showing that SMA leverages valuable resources, emphasises human resources as strategic assets, and focuses on timely resource exploitation, reinforcing competitive advantage.

In summary, these studies collectively highlight the critical role of SMA techniques across various industries, particularly in manufacturing and petroleum, in creating and sustaining competitive advantage. They underscore the importance of strategic management accounting in optimising resource allocation, enhancing decision-making, and ultimately achieving superior financial performance and market positioning.

3.8 Chapter Summary

This chapter explored various dimensions and sources of competitive advantage, emphasising the importance of unique resources, capabilities, and strategic positioning. Firms can leverage their strengths to create value, differentiate from competitors, and secure a dominant market position. A comprehensive framework for analysing competitive advantage is provided by integrating insights from the industrial, resource-based, and capability-based views. A sustained competitive advantage occurs when a firm has achieved long-term profitability and above-average performance over an extended period. The chapter also presents and discusses the competitiveness of the global and Zimbabwean petroleum industries.

The chapter also presents the empirical literature on the role of management accounting in creating competitive advantages within organisations. Costing systems such as activity-based costing (ABC), target costing, and life-cycle costing enable businesses to accurately allocate costs, discern profitability drivers, and optimise resource utilisation. Similarly, budgeting systems contribute to competitive advantage by setting clear financial targets, efficiently allocating resources, and monitoring performance against predefined metrics. Performance evaluation systems align performance metrics with strategic objectives, enhancing responsiveness to customer demands, innovation capabilities, and adaptability to market dynamics. Decision support systems facilitate scenario planning and sensitivity analysis, enabling proactive adjustments that elevate operational efficiency and customer responsiveness, reinforcing competitive advantage. By integrating external market insights with internal financial data, strategic management accounting supports effective resource

allocation, cost reduction strategies, and the development of differentiated product offerings, thereby solidifying organisational competitive positions. The research methodology used in this study is presented and discussed in the following chapter.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

This chapter outlines the research design and methodology used to collect and analyse the data necessary to achieve the research objectives of this study. As delineated in Chapter One, the primary objective of this research is to investigate the extent to which the implementation of management accounting techniques by Zimbabwe's petroleum companies has led to the creation and sustaining of competitive advantage. Chapter One introduced the study and provided an overview of the research problem, objectives, and questions guiding the investigation. Chapters Two and Three provided a comprehensive review of the literature on management accounting practices, competitive advantage, and the interplay between these practices and competitive advantage. Building on this foundation, this chapter presents the research methodology, detailing the approaches, processes, and procedures used for data collection and analysis. The following sections discuss the research design, sampling techniques, data collection methods, data analysis procedures, and the ethical considerations observed during the study.

4.2 Research Design

A research design refers to a set of defined structures outlining the implementation of the study (Akhtar, 2016). It can also be described as the planned conditions for data collection and analysis, aiming to combine relevance and cost-effectiveness in research (Sekaran and Bougie, 2013). The chosen research design should be justified by the research question and objectives and the philosophical approach adopted in the study (Saunders et al., 2019). The research design acts as the research blueprint, and that helps in decision-making during the research process. Descriptive and causal research designs were employed in this study to examine the relationship between management accounting practices (MAPs) and competitive advantage in Zimbabwe's petroleum industry.

The causal research design is usually used to investigate how changes that deviate from the norm might impact behavioural patterns (Creswell, 2014). Descriptive research "describes" a state of affairs or a given phenomenon (Mittal, 2010). Descriptive research focuses on addressing the 'what' question (Shields and Rangarajan, 2013). By employing these methods, researchers can gather extensive social and economic data, which contributes to the design's popularity in business and social studies research (Creswell, 2014).

The descriptive research design was regarded as the most suitable as descriptive data was needed, and the causal research design was used to determine if there is a link between implemented management accounting practices and the selected petroleum companies benefitting from relative competitive advantage. Ahmad (2012) used a descriptive research design in similar research. Ahmad (2012) outlines that descriptive data can provide information on contingent factors that affect management accounting practices (MAPs) and the relationship between the extent of MAPs use and firm performance. This dual approach ensured the research questions were thoroughly addressed and the study's objectives were achieved. The next section discusses the research philosophy used in this study

4.3 Research Philosophy

Saunders et al. (2019) define a research philosophy as a set of beliefs, values, and assumptions regarding the gathering, analysis, and utilisation of data about a phenomenon. Ontology deals with the nature of reality, while epistemology pertains to what is considered true, encompassing various research approach philosophies (Saunders et al., 2019). Axiology involves the values and ethics system of a research philosophy (Patton, 2015). Philosophical assumptions are crucial as they form the foundation for the research strategy and the methods selected within that strategy. The three main research philosophies are positivism, interpretivism and pragmatism (Saunders et al., 2019). In addition to these, realism, critical realism and constructivism will be discussed.

According to the positivist paradigm, all reality can be interpreted through measurable numeric inferences (Saunders et al. (2019). This approach often involves manipulating reality by varying some variables and observing the effects on others (Park et al., 2020). On the other hand, interpretivists argue that all research is subjective and involves subjective interpretation, meaning it cannot be completely objective or independent of people's thinking and reasoning (Saunders et al., 2019). The pragmatic philosophy posits that the most practical approach should be used in research without restriction to any single philosophical approach (Saunders et al., 2019). Pragmatists believe that reality is continuously renegotiated, discussed, and interpreted, advocating for using the method that best addresses the research problem (Naoum, 2012).

Realism is a broad philosophical perspective encompassing views that range from materialism to objective idealism (Erikawati, 2023). Realism asserts that sensory objects

exist independently of each other and do not rely on knowledge or perception for their existence (Nuroh et al., 2020). According to this view, the essence of an object remains unchanged regardless of whether it is observed or experienced. In this regard, while consciousness may interact with an object, it does not create or alter its fundamental nature; things exist objectively, whether or not they are recognized by an observer.

Critical realism is an extension of realism which asserts that observable phenomena in the social and economic world are shaped by deeper, underlying structures that may not be immediately apparent (Stutchbury, 2022). Unlike purely empirical approaches, which focus on direct observation, critical realism emphasizes the need to uncover the mechanisms and structures driving these observable realities (Zhang, 2023). Researchers adopting this philosophy aim to move beyond mere observation, seeking to identify and explain the root causes behind social and economic patterns rather than relying solely on measurable data.

Constructivism posits that knowledge is not merely discovered but actively constructed through individual experiences and social interactions (Creswell, 2014). This paradigm emphasizes that learning occurs through engagement, reflection, and experimentation rather than passive reception of information (Adom et al., 2016). Constructivists argue that understanding is not derived from objective observation alone but is co-created through the researcher's interpretation of data, influenced by prior knowledge and lived experiences (Adom et al., 2016). Therefore, meaning making in research is an active process, where findings are shaped by the perspectives and interactions of both the researcher and the participants. This perspective challenges traditional positivist approaches that assume an objective reality, advocating instead for qualitative methodologies that embrace subjectivity, multiple perspectives, and contextualized understanding in knowledge creation.

In this study, the positivist paradigm was selected due to its support for researcher independence (Saunders et al., 2019). The positivist approach facilitates objectivity by positioning the researcher as an objective analyst, which enables impartial interpretations (De Vos et al., 2011). This objectivity supports replicability (Saunders et al., 2019), a crucial factor in the dynamic petroleum industry. The positivist approach was also deemed ideal because it simplifies planning by allowing simultaneous data collection and analysis (De Vos et al., 2011). This study utilised a cross-sectional design, meaning data was gathered at a single point in time rather than over a longer period, distinguishing it from a longitudinal

study. This cross-sectional approach was practical and time-efficient, aligning with the project's timelines.

4.4 Research Methodology

Research methodology refers to the process by which the researcher collects data and the stages involved in executing this process (Saunders et al., 2019). It is a systematic approach that includes gathering data from a specific population using a structured data collection instrument, employing a particular sampling technique, and analysing the collected data (Van Zyl et al., 2014). According to Naoum (2012), scientific research commonly employs qualitative and quantitative methodologies. Additionally, Shannon-Baker (2015) describes a mixed research methodology. This section discusses these three research methodologies.

Quantitative research methodology uses statistical procedures to establish the relationship between variables (Creswell, 2014). A quantitative research methodology seeks to establish an objective reality by gathering information using deductive reasoning and predetermined assertions with numeric significance (Aliaga and Gunderson, 2002). Saunders et al. (2019) note that structured and closed-ended survey methods, such as questionnaires, are among the most commonly used data collection tools in quantitative research. Quantitative researchers typically utilise larger sample sizes to achieve objective opinions and facilitate data generalisation (Van Zyl et al., 2014). The data collection tools are typically structured and closed-ended survey inquiry methods such as a questionnaire (Saunders et al., 2019).

Denzin and Lincoln (2003) define qualitative research as the study of various groups and communities in their natural settings. According to Saunders et al. (2019), qualitative research involves in-depth data collection methods and inductive data analysis. This approach is based on the understanding that numerically measuring human connections to phenomena is not feasible. Qualitative research is typically used to uncover underlying subjects through flexible, open-ended inquiries such as interviews (Saunders et al., 2019). This approach was deemed unsuitable for this research due to the need for objectivity to analyse the relationship between variables accurately. Additionally, the study required assessing the magnitude of these relationships, which is more effectively presented through quantitative methods.

Mixed methods research involves the collection, analysis, and integration of both quantitative and qualitative data within a single study or across multiple studies (Creswell, 2014). This methodology often helps clarify unexpected findings and resolve contradictions, providing a deeper understanding of the research problem (Creswell, 2014). According to Shannon-Baker (2015), mixed methods research aims to offer a comprehensive view of a phenomenon that may not be achievable through a single method alone. However, this approach was deemed unsuitable for this study due to the time and resources required for data collection, given that it involves two different research methods. The quantitative research methodology was most suitable for this study as it allowed data collected to be generalised by engaging various respondents to participate in the study.

To analyse the quantitative data effectively, the study employed multiple regression analysis to assess the predictive power of management accounting practices on competitive advantage in Zimbabwe's petroleum industry. Specifically, three multiple regression models were developed:

1. **Model 1:** The effect of management accounting practices on relative competitive advantage.
2. **Model 2:** The impact of management accounting practices on financial performance.
3. **Model 3:** The relationship between management accounting practices and non-financial performance.

Additionally, hierarchical regression analysis was conducted to control for confounding variables such as the age of the business and the number of employees. This approach ensures robust statistical inference and accounts for external factors that may influence competitive advantage. The adoption of multiple regression and hierarchical regression provided a rigorous and systematic analysis of the data, ensuring that the study's conclusions are statistically sound and generalizable.

4.5 Research Strategy

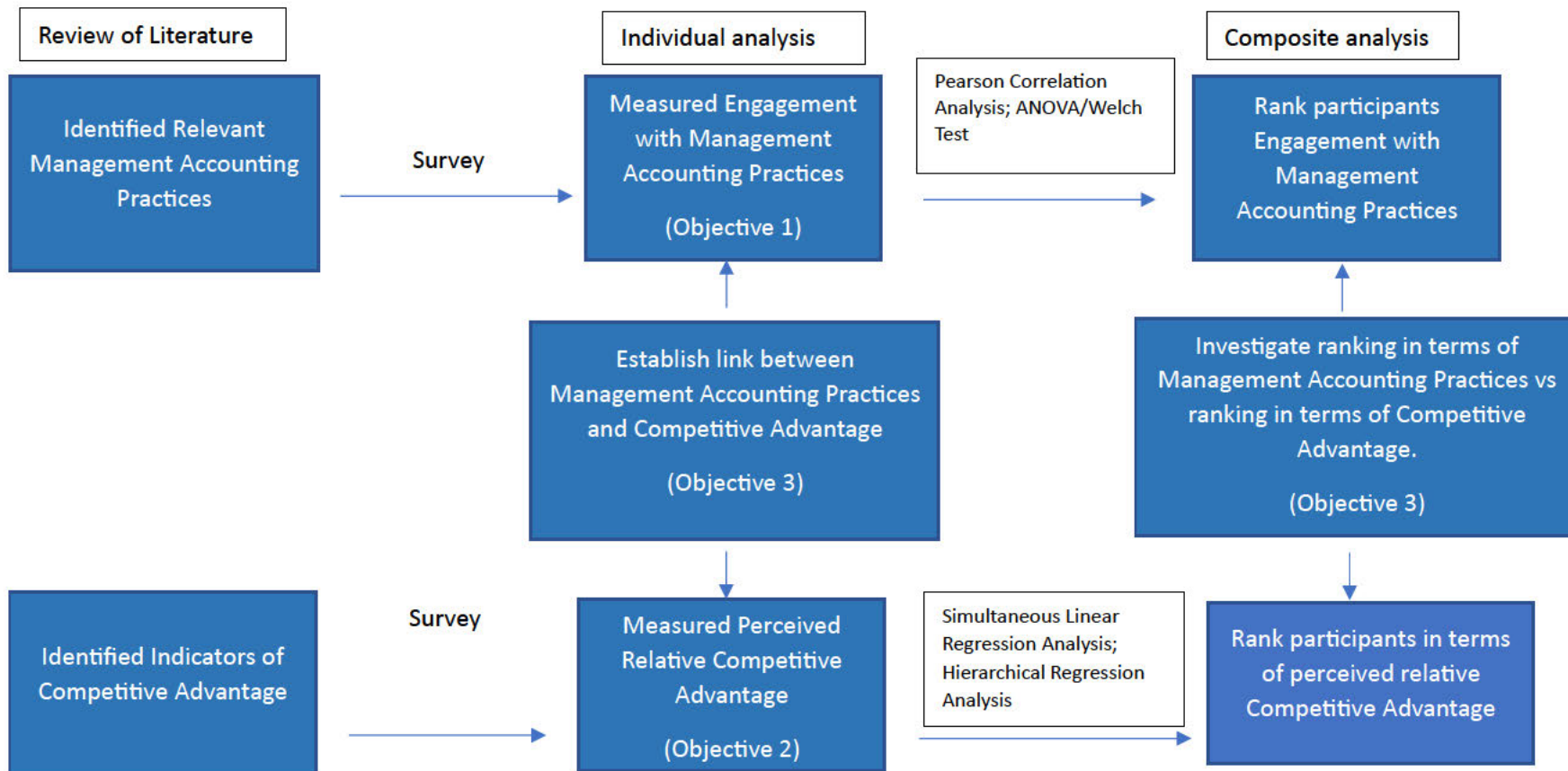
Saunders et al. (2019) describe a research strategy as a broad plan of action detailing how the researcher addresses research questions. In this study, a survey strategy was employed. As Check and Schutt (2012) noted a survey involves gathering information from a sample of individuals through their responses to questions. The survey is when the researcher "systematically asks many people the same questions and then records their

answers" (Neuman, 2006: 43). The survey research method is usually used to describe specific aspects of a given population. In a survey, data is usually collected from a large sample, providing a generalisation of results and replicability of the discovery process (Saunders et al., 2019). In this research, the survey technique was chosen due to its cost-effectiveness and ability to prove and disprove a theory about the nature of relationships within a given theory.

4.6 Research Framework

This section presents the research framework used to assess the relationship between management accounting practices and competitive advantage in Zimbabwe's petroleum industry.

Figure 3. 2: Framework for Assessing Management Accounting Practices and Competitive Advantage in Zimbabwe's Petroleum Industry



Source: Author's Compilation

The diagram illustrates the research framework used to assess the relationship between management accounting practices and competitive advantage in Zimbabwe's petroleum industry. It was anticipated that management accounting practices such as strategic management accounting systems would have a significant positive effect on competitive advantage, aligning with the principles of the Resource-Based View (RBV), which emphasizes leveraging internal capabilities for sustained competitive advantage (Barney, 1991). The study begins with identifying relevant management accounting practices and measuring the engagement of these practices through surveys (Objective 1). Participants are then ranked based on their engagement with management accounting practices. Following this, the study measures perceived relative competitive advantage and ranks participants accordingly (Objective 2). The framework establishes indicators of competitive advantage and uses Pearson Correlation Analysis, ANOVA/Welch Tests, and Composite Analysis to investigate the link between management accounting practices and competitive advantage (Objective 3).

Simultaneous Linear Regression Analysis and Hierarchical Regression Analysis are employed to explore this relationship further. The regression models were developed to evaluate the influence of distinct management accounting techniques on competitive advantage within Zimbabwe's petroleum industry. This model incorporates independent variables representing different management accounting practices, including costing systems, budgeting systems, performance evaluation methods, decision support systems, and strategic management accounting. Each construct was measured using composite scores derived from survey responses.

The general form of the regression model is presented as follows:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon_i$$

Where:

- Y_i represents the dependent variable, competitive advantage, measured through relative competitiveness, financial performance, and non-financial performance.
- X_1, X_2, \dots, X_n are the independent variables representing various management accounting practices.
- β_0 is the intercept.
- β_n are the coefficients that reflect the impact of each independent variable.
- ϵ_i denotes the error term.

Three models were developed based on the dependent variable:

1. **Model 1:** Assesses the effect of management accounting practices on relative competitive advantage.
2. **Model 2:** Examines the impact of management accounting practices on financial performance.
3. **Model 3:** Evaluate the relationship between management accounting practices and non-financial performance.

4.7 Population and Sampling

Sekaran and Bougie (2013) define sampling as the process of selecting individuals, objects, or events from a study to represent the entire population. Thus, the sampling strategy is the plan designed to ensure that the sample accurately represents the target population.

4.7.1 Target Population

The target population refers to the specific, conceptually defined group of potential participants that the researcher can access and that reflects the characteristics of the population of interest (Casteel and Bridier, 2021). This group typically shares similar characteristics or attributes, which the researcher aims to generalise to the broader population (Welman et al., 2005).

The targeted population for this study comprises petroleum companies in Zimbabwe. The population members were obtained from the petroleum companies' directory on the Zimbabwe Energy Revenue Authority (ZERA) website. According to ZERA (2024b), there are 75 procurement and 24 wholesale petroleum companies, as well as 938 retail outlets in Zimbabwe. However, 10 of these have not been operational in the past 10 years. This study focused on the 89 procurement and wholesale companies because these entities own most retail outlets in Zimbabwe, and these companies are more likely to have established management accounting techniques. The survey sought to engage finance personnel and senior management in petroleum companies. In the next section, a discussion of the various sampling techniques that were considered.

4.7.1.1 Probability Sampling

Probability sampling, which relies on random selection, ensures that every element in the target population has an equal chance of being chosen (Etikan and Bala, 2017). Common

techniques in probability sampling include simple random sampling, stratified random sampling, systematic sampling, and cluster sampling.

Simple random sampling provides high representativeness. However, it is time-consuming and does not account for non-responses (Ghauri and Gronhaug, 2005; Taherdoost, 2016). In this regard, this strategy was not suitable for this study. Stratified sampling, which involves dividing the population into subgroups based on shared characteristics, was also deemed unsuitable since the study focused on employment positions rather than geographic or demographic distinctions (Van Zyl et al., 2014). Systematic sampling, which selects units at fixed intervals, introduces the risk of over- or under-representation if patterns exist in the population, thereby reducing its appropriateness for this study (Mostafa and Ahmad, 2017; Saunders et al., 2019). Cluster sampling, where the population is divided into clusters and then sampled from these groups considered not suitable due to the relatively small population size, which could have led to limited representation (Sedgwick, 2014).

4.7.1.2 Non-Probability Sampling

Non-probability sampling does not rely on random selection and includes techniques such as convenience, quota, and purposive sampling (Vehovar et al., 2016) (Vehovar et al., 2016). These methods were assessed but found unsuitable for the study. A brief discussion of the common non-probability sampling techniques is done.

Convenience sampling selects participants based on availability; however, this introduces bias and limits generalizability, making it unsuitable for this study (Edgar and Manz, 2017; Farrokhi, 2012). Quota sampling, while ensuring representation based on predefined characteristics, risks over-representing certain attributes, potentially leading to skewed data (Vehovar et al., 2016). Similarly, purposive sampling, which involves selecting participants based on specific traits, was deemed unnecessary since the target population shared similar characteristics, such as educational background and professional roles (Palinkas et al., 2015; Saunders et al., 2019). Snowball sampling, which relies on participants referring others (Simion, 2016) , was not pursued as comprehensive company data was readily available from ZERA, eliminating the need for such an approach.

4.7.2 Census Method

Given the relatively small and manageable size of the target population, a census method was employed in this study. A census involves collecting data from every member of the population, providing a comprehensive overview without the need for sampling (Saunders et al., 2019). This approach was deemed necessary and appropriate for several reasons. A census ensures that every member of the target population is included in the study, enhancing the findings' accuracy and reliability (Nirel and Glickman, 2009). This is particularly important in industries like petroleum, where variations in practices and performance can be significant. In addition, by including all 99 procurement and wholesale petroleum companies, the study minimises the risk of selection bias, ensuring that the results represent the entire industry (Creswell, 2014). Lastly, a census allows for a more detailed and granular data analysis, providing richer insights into management accounting practices and their impact on competitive advantage.

This study's census approach involved contacting all 89 procurement and wholesale petroleum companies. Of the 89 contacted companies, 64 responded, resulting in a response rate of approximately 72%. There was a response from one participant from each company. This high response rate enhances the validity of the findings and ensures that the data collected reflects the entire population. The decision to use a census method aligns with the recommendations of (Creswell, 2014) Creswell (2014), who advocates for a census approach when the population size is small and manageable and when comprehensive data collection is feasible.

4.7.3 Selected Participants

The participants for this study were management accounting personnel and senior management of petroleum companies in Zimbabwe. One participant was selected for each company that participated. These participants were selected based on their expertise, roles, and responsibilities within their respective companies, which made them highly suitable for providing valuable insights into management accounting practices and their impact on competitive advantage.

Management accounting personnel were chosen because they are directly involved in implementing and monitoring management accounting techniques. Their in-depth understanding of these practices, from budgeting and forecasting to performance measurement and cost control, positions them as key informants who can accurately describe the extent and nature of management accounting techniques employed in their

companies. Their firsthand experience with the tools and methodologies used in their day-to-day operations ensures that the data collected is detailed and relevant to the research objectives.

Senior management was included because of their strategic oversight and decision-making roles. These individuals are responsible for aligning management accounting practices with broader organisational goals and strategies. They can provide a comprehensive perspective on how these practices contribute to achieving and sustaining competitive advantage. Their insights are crucial for understanding the strategic benefits and challenges of adopting various management accounting techniques.

Furthermore, senior management's involvement in policymaking and resource allocation means they are well-placed to comment on the effectiveness and efficiency of these practices in real-world settings. Their strategic vision allows them to assess the long-term impact of management accounting practices on their companies' competitive positions within the industry.

The involvement of management accounting personnel and senior management ensures that the study captures a holistic view of management accounting practices in the petroleum industry. This approach allows for a multi-faceted analysis, encompassing both operational and strategic perspectives, thereby enhancing the robustness and credibility of the research findings.

4.8 Methods of Data Collection

Van Zyl et al. (2014) define research instruments as tools used to measure and collect data on a particular topic, such as questionnaires and interviews. A questionnaire is a measurement tool comprised of questions designed to gather information from participants (Saunders et al., 2019). Creswell (2014) notes that questionnaires can be structured or flexible and typically include close-ended and open-ended questions. Data collected from closed-ended questions are analysed using quantitative methods such as statistical analysis, while open-ended questions are usually analysed using qualitative analysis methods such as content analysis (Saunders et al., 2019)

Another instrument, the interview, is designed to collect a wide range of data from a relatively minor sample for a specific idea. Van Zyl et al. (2014) mention that interviews give the researcher a deeper understanding of the phenomenon and allow the researcher to observe the participants' behaviour. An interview allows the participants to have room

to express their ideas as the questions are open-ended (Saunders et al., 2019). Interviews can uncover insights and ideas; the information collected through them is typically analysed using qualitative methods. However, in this study, a structured questionnaire was deemed the most suitable method. This approach enables data collection from a large audience efficiently and cost-effectively while also being easy to administer.

4.8.1 Questionnaire Design

Questionnaire design involves creating the format and questions for the survey instrument used to gather data on a specific phenomenon (Lavrakas, 2008). During the drafting of the questionnaire, the main variables, which are management accounting techniques, measures of competitive advantage and competitive advantage were used to develop the questions. The questionnaire design was informed by previous research into management accounting practices, identified in the theoretical part of the literature review. These questionnaires, which primarily focused on large companies and in more advanced economies, were modified in order for them to meet the Zimbabwean context. The questionnaire seeks only information on mainstream management accounting practices relevant to the Zimbabwean context. The final version of the questionnaire was made up of 21 main questions. Questions were put into four sections to gather data on the critical topics in an organised way. These sections are Demographic Profile of Respondents, Profile of the Firm, Extent of the Use of Management Accounting, Factors that are Indicative of Competitive Advantage, and The Role of Management Accounting in your Organisation. The details of the topics are as follows:

4.8.1.1 Section A: Demographic profile of participants

In this section, nominal and ordinal measures of the participants were collected, which were aimed at profiling the participant's demographic characteristics. All questions were in a close-ended form and asked:

- a) Employment level;
- b) Length of service.

4.8.1.2 Section B: Profile of Firm

In this section, ordinal measures of the firm were collected to profile the firm's characteristics. All questions were in a close-ended form and asked:

- a) Years in operation/business;
- b) Number of employees;

c) Number of filling stations.

4.8.1.3 Section C: Extent of the Use of Management Accounting

This section employed both binary (dichotomous) and ordinal measures to assess the extent of management accounting technique usage among petroleum companies in Zimbabwe. The management accounting techniques were categorised into five main areas: management accounting staff, costing systems, budgeting systems, performance evaluation systems, decision support systems, and strategic management accounting. The initial section profiles the firm's management accounting staff, while the remaining sections include questions to determine whether the respondents utilise the specified management accounting techniques.

For instance, Section B begins with the question, "Do you use a costing system in your firm?" with response options provided in yes and no boxes. The following statement directs respondents to the next relevant question based on their response. In Section B, Question 3 asks, "Do you employ any management accounting staff?" If the answer is 'yes,' the survey proceeds to Question 4; if 'no,' it moves to Question 5.

A Likert scale is used to measure the extent of usage for each management accounting technique, with responses ranging from 1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, to 5 = very frequently. This scale is consistently applied throughout each part of Section B. The detailed items that each respondent needs to answer are as follows:

Management accounting staff

The questions in this section are two questions aimed at establishing the existence of the management accounting function, the size of the management accounting department/section, and the qualifications of the management accounting staff.

Costing system

The questions in this section are categorised into two main areas: cost collection methods and costing techniques. These categories were developed based on a synthesis of approaches used in previous research studies (Abdel-Kader and Luther, 2006; De Zoysa and Kanthi Herath, 2007; Innes and Mitchell, 1995; Lamminmaki and Drury, 2001; Lorenz, 2015; Shields et al., 1991; Susilawaty and Lubis, 2023; Vale et al., 2022; Wijewardena and De Zoysa, 1999). The items under each category are:

- a) Cost collection method:
 - i. Job costing.
 - ii. Batch costing.
 - iii. Contract costing.
 - iv. Process costing.

- b) Costing systems:
 - i. Absorption Costing.
 - ii. Standard Costing.
 - iii. Activity-Based Costing.
 - iv. Variable Costing.
 - v. Target Costing.

Budgeting system

The extent of use of budgeting practices is collected under three headings: type of budget, budgeting technique and period of budgets. The items under each heading are consistent with previous research (Ahmad, 2012; Ahmad et al., 2003; Joshi, 2001; Lasyoud et al., 2018; Lorenz, 2015; Sulaiman et al., 2004; Susilawaty and Lubis, 2023; Szychta, 2002). The following are the details of the categories.

- a) Type of budget:
 - i. Sales Budget
 - ii. Purchasing Budget
 - iii. Production Budget
 - iv. Cash Flow Budget.

- b) Budgeting technique:
 - i. Flexible Budget
 - ii. Activity Based Budgeting
 - iii. Incremental Budgeting
 - iv. Zero Based Budgeting
 - v. Continuous Budget

Performance evaluation system

The questions regarding the use of performance evaluation systems are categorised into two main areas: evaluation based on financial measures and evaluation based on non-financial measures. The non-financial measures are further divided into internal processes, customer metrics, and employee metrics. These categories are derived from a synthesis of prior research (Abdel-Maksoud et al., 2008; Abdel-Kader and Luther, 2006; Ahmad, 2012; Al Sawalqa, 2011; Lorenz, 2015; Susilawaty and Lubis, 2023; Vale et al., 2022). The information sought is as follows:

- a) Performance evaluation based on financial measure(s):
 - i. Operating Income.
 - ii. Return on Investment.
 - iii. Sales Growth.
 - iv. Cash Flows.

- b) Performance evaluation based on non-financial measure(s):
 - i. Number of Customer Complaints.
 - ii. Survey of Customer Satisfaction.
 - iii. Employee Turnover.

Decision support system

Decision support distinguishes between short-term and long-term analysis techniques. The techniques covered were selected from past research (Abdel-Kader and Luther, 2006; Braim, 2020). Questions were asked about the extent of use of the following techniques:

- a) Short-run analysis:
 - i. Break-even analysis.
 - ii. Stock Control Model.
 - iii. Product Profitability Analysis.
 - iv. Customer Profitability Analysis.

- b) Long-run analysis:
 - i. Payback period
 - ii. Accounting Rate of Return

- iii. Net Present Value
- iv. Internal Rate of Return

Strategic management accounting

This section collects data on strategic management accounting (SMA). The items used in this study are derived from Guilding et al. (2000), who identified 12 indicators of Strategic Management Accounting (SMA). However, this research focuses on only five of these SMA indicators. The omitted techniques include quality costing, attribute costing, brand value budgeting, and monitoring brand value. The main reason why these were excluded is their relevance to the petroleum industry. For example, quality costing focuses on the costs associated with ensuring and maintaining product quality, which is not critical in the petroleum industry, where the emphasis is often on volume and compliance with regulatory standards rather than on differentiating products based on quality attributes.

Similarly, techniques such as attribute costing, which assigns costs to product attributes, may not be applicable in the petroleum industry, where products are generally standardised, and differentiation based on attributes is less prevalent. In addition, the complexity and application of techniques such as brand value budgeting might not apply to the petroleum industry in Zimbabwe as these are more relevant in consumer goods industries where brand differentiation is a critical competitive factor. The decision to focus on only five SMA indicators was aimed at concentrating on techniques that are more practically implementable and directly impact the management accounting practices within the selected petroleum companies.

The five selected indicators of SMA used in this study are as follows.

- i. Target costing is used in the design of new products;
- ii. Strategic costing used to determine the firm's strategy;
- iii. An analysis of costs involved in each of the activities in the firm's value chain;
- iv. Strategic factors are taken into account when setting price decisions;
- v. Systematically collect data on competitors' reactions, demand, and market positions.

4.8.1.4 Section D: Factors that are indicative of Competitive Advantage

This section applied ordinal measures to identify factors indicative of competitive advantage. These have been grouped into two: market competition and firm performance. These categories were based on synthesising those used in previous research studies (Abdel-Kader and Luther, 2006; Lamminmaki and Drury, 2001; Sachitra, 2017; Sigalas et al., 2013).

The questions posed for each category are presented below.

a) Measurement of relative competitiveness

- i. The intensity of price competition within the market;
- ii. The uniqueness of petroleum products within the organisation;
- iii. The use of superior services to increase competitiveness;
- iv. The availability of resources in the petroleum sector;
- v. The use of efficient management accounting techniques;
- vi. The availability of alternative products;
- vii. The use of standardised electronic interfaces with customers and suppliers;
- viii. The use of innovation in changing product portfolio;
- ix. The existence of interdepartmental support within the organisation;
- x. The level of complementarity of capabilities and resources within the organisation.

b) Firm performance

- i. Product Quality
- ii. Sales growth
- iii. Operating profit growth
- iv. Cash flow growth

4.8.2 Administration of Questionnaire

An online questionnaire was created using Lime Survey and distributed to respondents via email. A brief invitation message was included to encourage participation. Upon clicking the survey link, respondents were presented with a short introduction and asked to consent to participate. Responses were collected through the Lime Survey platform and exported as spreadsheets. These spreadsheets were then transferred to SPSS version 28 for data analysis. A copy of the data was saved on a flash drive and stored in a safe. The room housing the safe was kept secure and locked to prevent unauthorised access.

4.8.3 Pilot Study

A pilot study is a preliminary experiment conducted before the main survey to identify any shortcomings in the research design and to test the data collection instrument (Janghorban et al., 2014). In this study, the pilot test was carried out two weeks prior to the main survey to evaluate the validity and accuracy of the questionnaire. Five survey links were sent to the management of petroleum companies in Zimbabwe. The primary goal was to determine if respondents required assistance in understanding the questions and to identify any ambiguities or areas that needed improvement.

The feedback from the pilot study participants indicated that the questions were clear and comprehensible. None of the respondents reported any difficulties in understanding the questionnaire. Based on this feedback, it was determined that no further modifications were necessary, and the survey instrument was deemed ready for the main study.

The pilot study was instrumental in affirming the clarity of the questionnaire and provided confidence that the data collected in the main survey would be valid and reliable. It also ensured that any potential issues were addressed prior to full-scale implementation, thus enhancing the overall quality and robustness of the research design.

4.9 Data Analysis

This study used quantitative research methods for data collection, and quantitative analysis was employed for data evaluation. According to Saunders et al. (2019), data analysis involves using logical reasoning and analytical techniques to interpret and understand the phenomenon under investigation. It is crucial to align data analysis with the research questions to ensure the findings are relevant to the research objectives. The data collected from the questionnaires were verified and cleaned by matching records, checking for duplicates, and identifying missing values to minimise errors. The cleaned data was then exported to a statistical software package for analysis.

4.9.1 Reliability and Validity

This section examines the reliability and validity of the research instruments, ensuring that the data collection methods produce consistent and accurate results. Reliability refers to the consistency of the measurement process, while validity assesses whether the instruments effectively capture the intended constructs (Saunders et al., 2019). Both aspects are critical for enhancing the credibility and robustness of the study's findings.

Reliability can also be defined as the consistency of a test or the degree to which it produces consistent outcomes (Saunders et al., 2019). In this study, reliability was ensured by addressing four key risks identified by Porta (2008): participant error, participant bias, observer error, and internal consistency threat. To mitigate participant error, which can occur due to the participant's emotional state, the survey link was emailed to participants, allowing them to complete it at their convenience within a given period, ensuring responses were given under optimal conditions. To counteract participant bias, where participants might respond in ways they think the researcher desires, anonymity was guaranteed, encouraging more honest and unbiased answers. Observer error, which can occur due to the researcher's biases, was minimised by maintaining objectivity throughout the data collection and analysis process. Internal consistency was assessed using Cronbach's alpha, which evaluated the consistency of the scale items, with a target alpha coefficient between 0.7 and 0.9, indicating high reliability.

For this study, validity was ensured through content validity and construct validity. Content validity was ensured by reviewing the questionnaire with subject matter experts in the petroleum industry and academia. Their feedback refined the survey items to capture the measured constructs accurately. Construct validity was assessed using convergent validity. Convergent validity was determined by the degree to which multiple measures of the same construct were correlated. This was evaluated using Pearson correlation coefficients, ensuring that items intended to measure the same construct were related. SPSS version 28 was used to aid in the analysis, and the results indicated satisfactory construct validity, confirming that the instruments measured the intended constructs effectively.

4.9.2 Statistical analysis

This section presents and discusses statistical analysis procedures implemented in the study.

4.9.2.1 Descriptive Statistics

Descriptive statistics are both numerical and graphical methods used to summarise and organise the characteristics of a dataset (Anderson et al., 2020). These statistics help illustrate the features of a group of observations (Marshall and Jonker, 2010). This study used descriptive statistics to summarise and describe the fundamental aspects of the data collected from 63 petroleum companies. Measures such as mean, median, mode, standard deviation, and frequency distributions were calculated to provide a detailed

overview of the dataset. Although descriptive statistics do not involve making inferences or predictions, they are crucial for understanding the dataset's basic features and laying the groundwork for more advanced statistical analysis.

4.9.2.2 Reliability Analysis

In this study, Cronbach's alpha was used to assess the internal consistency of the survey instruments. This test evaluates how closely related a set of items are as a group, indicating the scale's reliability. The reliability coefficients for the various scales in this study ranged from 0.73 to 0.92. A coefficient of 0.70 or higher is generally acceptable, indicating that the scales have good internal consistency and are reliable measures of the intended constructs. Specifically, higher coefficients, such as those close to 0.90, suggest that the items within those scales are highly consistent and effectively measure the same underlying concept.

For instance, the survey items related to management accounting practices had a Cronbach's alpha of 0.85, suggesting that these items reliably measure the intended construct. Similarly, the scales used to assess the perceived benefits of management accounting practices in creating and sustaining competitive advantage had a Cronbach's alpha of 0.92, indicating excellent internal consistency. These high-reliability scores ensured that the survey items consistently measured the intended constructs across different respondents, providing a robust foundation for the study's findings and conclusions.

4.9.2.3 Correlation Analysis

Pearson correlation coefficients were calculated to explore the relationships between management accounting practices and competitive advantage measures within the petroleum companies surveyed. This statistical approach was employed to determine whether and how adopting specific management accounting techniques correlated with enhanced competitive performance indicators in these companies.

The correlation analysis aimed to identify significant correlations between various management accounting practices and measures of competitive advantage. By understanding these relationships, the study sought to provide insights into which management accounting techniques contribute most effectively to the companies' ability to gain and sustain a competitive edge in the petroleum industry. This analysis is crucial

for developing strategies that leverage management accounting practices to enhance overall competitive performance.

4.9.2.4 Composite Analysis

In order to effectively address the research objectives and examine the causal relationships between the constructs of interest, it is essential to derive composite scores for each construct that exhibit reliability and can be utilised in regression and other analytical procedures (Shrestha, 2021). Composite analysis involves aggregating scores across multiple items within each construct to form a representative score reflecting the underlying concept. Each construct was operationalised for this study by averaging the scores from the relevant items, thereby creating composite variables. To ensure the reliability of these composite scores, Cronbach's alpha was calculated for each construct, with a threshold of 0.7 indicating acceptable reliability. Confirming that the composite scores are stable and consistent across different items is essential. For instance, the construct of "Costing Systems" was divided into sub-constructs "Cost Collection System" and "Costing System," each showing adequate reliability with Cronbach's alpha values of 0.734 and 0.806, respectively.

Similarly, "Performance Evaluation" and "Decision Support Systems" exhibited high reliability, with Cronbach's alpha values of 0.861 and 0.842, respectively. The reliability of composite variables ensures that the constructs measured are robust and reliable, thereby providing a solid foundation for further statistical analysis. By employing composite scores, the study can accurately assess the relationships between management accounting practices and competitive advantage, facilitating a more nuanced understanding of their impact on the petroleum industry.

These composite scores provided a robust and reliable basis for regression and other statistical analyses. For each section, composite variables were formed by averaging the scores across the items within each construct. This method ensures that the composite scores accurately represent the collective responses related to each management accounting technique and competitive advantage indicators. Cronbach's alpha was calculated for each construct to confirm the reliability of these composite variables. Table 3.1 presents the composite constructs and their reliability.

Table 3. 1: Composite Constructs and Their Reliability

Construct	Sub-construct	Items included	Label	Cronbach's alpha (reliability)
Costing systems	Cost collection system	8.1-8.4	CCS	0.734
	Costing system	9.1-9.5	CS	0.806
Budgeting systems	Budgets	11.1-11.4	BUD	0.777
	Budget techniques	12.1-12.5	BUDTECH	0.767
Performance evaluation	Financial	14.1-14.4	PERF_FIN	0.861
	Non-financial	14.5-14.7	PERF_NONFIN	0.843
Decision support systems	Short term analysis	16.1-16.4	DEC_SHORT	0.842
	Long term analysis	16.5-16.8	DEC_LONG	0.892
Strategic management accounting		18.1-18.5	SMA	0.905
Competitive advantage	Relative competitiveness	19.2-19.10	CA_RelComp	0.867
	Firm performance - financial	20.3-20.7	CA_FP_FIN	0.929
	Firm performance -	20.1-20.2;		

	non-financial	20.8-20.10	CA_FP_NonFIN	0.856
Role of management accounting		21.1-21.10	MA	0.917

The composite constructs were analysed to ensure reliable measurement of various management accounting techniques and their associated outcomes. Each construct was formed by averaging scores across relevant items, with Cronbach's alpha calculated to verify reliability. These results confirmed the internal consistency of the constructs, providing a solid foundation for further statistical analysis and interpretation.

4.9.2.5 Multiple Regression Analysis

Multiple regression analysis was employed to examine the predictive power of various management accounting practices on competitive advantage within the petroleum industry. This analytical technique allowed for the simultaneous assessment of multiple independent variables to determine their collective and individual contributions to the dependent variable, competitive advantage.

The regression model incorporated independent variables representing distinct management accounting techniques, including costing systems, budgeting systems, performance evaluation, decision support systems, and strategic management accounting. These constructs were measured using composite scores, as described in the previous section, ensuring that each technique was reliably captured. The dependent variable, competitive advantage, was also operationalised through composite measures, encompassing relative competitiveness and firm performance (both financial and non-financial).

The equation representing the Multiple Linear Regression Model used in this study is below:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon_i$$

Where:

- Y_i = Competitive Advantage (measured by relative competitiveness, financial performance, and non-financial performance).

- X_1, X_2, \dots, X_n = Independent variables (management accounting practices, e.g., budgeting, costing, performance evaluation, decision support systems, strategic management accounting).
- β_n = Regression coefficients indicating the impact of each management accounting practice
- ϵ_i = Error term (random disturbance in the model)

The individual equations for each model will be shown below:

Model 1: The Impact of Management Accounting Practices on Relative Competitive Advantage

$$\text{CARelComp} = \beta_0 + \beta_1(\text{SMA}) + \beta_2(\text{CCS}) + \beta_3(\text{PERF_NONFIN}) + \beta_4(\text{BUDTECH}) + \beta_5(\text{DEC_SHORT}) + \beta_6(\text{BUD}) + \beta_7(\text{PERF_FIN}) + \beta_8(\text{DEC_LONG}) + \beta_9(\text{CS})$$

Where:

- **CARelComp** = Relative Competitive Advantage (Dependent Variable)
- **SMA** = Strategic Management Accounting
- **CCS** = Costing Systems
- **PERF_NONFIN** = Non-financial Performance evaluation
- **BUDTECH** = Budgeting Techniques
- **DEC_SHORT** = Short-term Decision Support Systems
- **BUD** = Budgeting Systems
- **PERF_FIN** = Financial Performance
- **DEC_LONG** = Long-term Decision Support Systems
- **CS** = Costing Strategies
- **β_0** = Constant (Intercept)
- **β_1** = Regression coefficients (impact of each independent variable)
- **ϵ_i** = Error term

Adjusted R² = 0.456, indicating that 45.6% of the variance in Relative Competitive Advantage is explained by these predictors.

Model 2: The Impact of Management Accounting Practices on Financial Performance

$$\text{CAFP_FIN} = \beta_0 + \beta_1(\text{SMA}) + \beta_2(\text{CCS}) + \beta_3(\text{PERF_NONFIN}) + \beta_4(\text{BUDTECH}) + \beta_5(\text{DEC_SHORT}) + \beta_6(\text{BUD}) + \beta_7(\text{PERF_FIN}) + \beta_8(\text{DEC_LONG}) + \beta_9(\text{CS})$$

Where:

- **CAFP_FIN** = Financial Performance (Dependent Variable)
- All other independent variables remain the same as in Model 1.

Adjusted R² = 0.033 indicating that only 3.3% of the variance in Financial Performance is explained by these predictors, suggesting a weak predictive relationship.

Model 3: The Impact of Management Accounting Practices on Non-Financial Performance

$$\text{CAFP_NonFIN} = \beta_0 + \beta_1(\text{SMA}) + \beta_2(\text{CCS}) + \beta_3(\text{PERF_NONFIN}) + \beta_4(\text{BUDTECH}) + \beta_5(\text{DEC_SHORT}) + \beta_6(\text{BUD}) + \beta_7(\text{PERF_FIN}) + \beta_8(\text{DEC_LONG}) + \beta_9(\text{CS})$$

Where:

- **CAFP_NonFIN** = Non-Financial Performance (Dependent Variable)
- All other independent variables remain the same as in Model 1.

Adjusted R² = 0.294, meaning that 29.4% of the variance in Non-Financial Performance is explained by these predictors.

The independent variables used in all three models are consistent, meaning the same predictors were tested against different dependent variables. Financial performance has a weak relationship with management accounting practices, as shown by the low adjusted R² of 0.033. Relative competitive advantage and non-financial performance show stronger relationships, with adjusted R² values of 0.456 and 0.294, respectively. These regression models align with the study's objective of examining the role of management accounting practices in influencing different dimensions of competitive advantage.

4.9.2.6 Hierarchical Regression Analysis

Hierarchical regression analysis was employed to evaluate the incremental value of different sets of predictors on the dependent variables of financial and non-financial performance of petroleum companies. This method allowed for examining how much additional variance in the dependent variable could be explained by adding new predictors at each step of the regression model.

For financial performance (CA_FP_FIN), three hierarchical regression models were constructed. The first model included essential control variables: the number of years in operation (B3) and the number of employees (B4). In the second model, management accounting practices were introduced as predictors, encompassing costing systems (CCS, CS), budgeting systems (BUD, BUDTECH), performance evaluation (PERF_FIN, PERF_NONFIN), decision support systems (DEC_SHORT, DEC_LONG), and strategic management accounting (SMA). The third model incorporated a variable representing relative competitiveness (CA_RelComp), further enhancing the model's explanatory power.

By systematically adding predictors and evaluating their incremental contributions, the hierarchical regression approach provided a nuanced understanding of the complex relationships between management accounting practices and competitive performance outcomes.

4.9.2.7 ANOVA/Welch Test

To assess the significance of differences in competitive advantage (CA) variables across varying extents of environmental management accounting (EMA) usage, an ANOVA/Welch test was conducted. This test was crucial in determining how the degree of EMA implementation impacts key performance indicators within petroleum companies.

The ANOVA/Welch test was applied to three primary constructs: relative competitiveness, financial performance, and non-financial performance. By categorising firms based on their extent of EMA usage (none/small extent, medium extent, and large extent), the test provided insights into whether significant differences exist among these groups.

The relevance of the ANOVA/Welch test to this study lies in its ability to elucidate the differential impact of EMA practices on various dimensions of competitive advantage. By highlighting whether significant variations exist in performance outcomes based on EMA

usage, this analysis informs the strategic decisions of petroleum companies regarding the adoption and extent of EMA practices.

4.10 Model Specification Considerations

This study primarily employed multiple and hierarchical regression analyses to examine these relationships. However, potential omitted variables could influence the model's explanatory power, necessitating careful consideration of additional firm-specific and environmental factors.

One of the primary concerns in model specification is the potential influence of unobserved firm-specific factors. Variables such as regulatory environment, competitive intensity, and macroeconomic conditions could play a significant role in shaping the impact of management accounting techniques on competitive advantage (Dechezleprêtre and Sato, 2017). For instance, companies operating in more stringent regulatory environments may face compliance costs that affect their ability to leverage management accounting techniques effectively. Similarly, firms in highly competitive industries may adopt more aggressive strategic management accounting practices to gain a competitive edge (Baird et al., 2024) .

Another important consideration is the interaction between management accounting practices and external factors. Management accounting techniques do not operate in isolation; rather, they interact with industry trends, technological advancements, and strategic leadership decisions (Abugalia and Mehafdi, 2018). Future research should explore the interaction effects between management accounting practices and external conditions, assessing how these dynamics influence competitive advantage.

4.11 Limitations of the Study

Additionally, part of the study was conducted during the COVID-19 pandemic, which affected the timing and effectiveness of data collection until restrictions were eased. Furthermore, the primary data collection tool was an online-distributed questionnaire, which posed a limitation because participants needed access to electronic devices to participate in the research.

Additionally, some respondents may have given favourable answers to the organisation for fear of reprisals. In order to minimise this, the respondents were assured of anonymity. Those who have yet to understand the questions will have answers which will skew the results. This resulted in only those with access to these electronic tools participating in the

research. In addition, the online survey technique did not allow the interviewer to probe the participants further to get in-depth information about the phenomenon. Limitations are defined as factors beyond the researcher's control that constrain the research methodology and conclusions (Saunders et al., 2019). While every effort was made to ensure the rigour of the study, certain methodological constraints must be acknowledged:

i. Time Constraints in Data Collection

A significant limitation of this study was the time available for data collection, as the researcher faced constraints due to the need for multiple data collection phases. This time pressure may have limited opportunities for follow-ups with non-respondents, potentially reducing the overall response rate.

ii. Impact of the COVID-19 Pandemic

A portion of the research was carried out during the COVID-19 pandemic, which delayed data collection due to movement restrictions and disrupted business operations. Although restrictions were later eased, initial data collection was slower than anticipated.

iii. Reliance on Online Survey Distribution

The primary data collection tool was an online questionnaire, which introduced limitations such as restricted participation for respondents who lacked access to electronic devices or internet connectivity. This may have inadvertently excluded some potential respondents, affecting the representativeness of the sample.

iv. Potential Response Bias

Some respondents may have provided socially desirable responses rather than fully objective answers, particularly when reporting on their organisation's management accounting practices. To mitigate this, anonymity and confidentiality were assured to encourage honest participation.

v. Lack of Opportunity for Probing

Unlike face-to-face interviews, the online survey method did not allow the researcher to probe responses for further clarification or obtain in-depth qualitative insights. As a result, the study relied solely on the survey responses without additional qualitative perspectives that could have provided further context.

In order to mitigate some of these limitations, the researcher used multiple reminders and follow-ups to encourage higher response rates despite time constraints. In addition to this, the researcher ensured clear, well-structured survey questions to minimise misinterpretations in the absence of interviewer intervention. To reduce the risk of potential response, the researcher emphasized confidentiality and anonymity to reduce response bias.

4.12 Delimitations of the Study

Delimitations refer to the choices made by the researcher that should be explicitly acknowledged (Saunders et al., 2019). These choices define the boundaries of the research. In this study, the delimitations include focusing specifically on petroleum companies in Zimbabwe.

4.13 Elimination of Bias

Bias is any tendency leading to a prejudiced consideration of a research question (Saunders et al., 2016). Bias can occur at various stages of the research process, including study design, data collection, data analysis, and publication. According to (Gerhard, 2008), a systematic bias occurs when the tests run, or the sampling technique favours one result or response over another. There are many biases. However, the focus will be on those relevant to this study.

Smith and Noble (2014) identify data collection bias, which occurs when a researcher's personal beliefs affect how information or data is gathered. A preconceived idea may influence the data collection methods. To mitigate this bias, the study sought a 'second opinion' on the questions from an expert. Smith and Noble (2014) also discuss measurement bias, which arises when the data collection tool has not been properly evaluated for validity and reliability. In this research, efforts were made to thoroughly assess the instrument's validity and reliability to minimise this bias. To further reduce bias, the survey avoided vague and ambiguous language and refrained from using leading questions, allowing respondents to provide independent answers.

4.14 Ethical Considerations

Van Zyl et al. (2014) define ethics as a discipline that guides the research process by formulating codes and principles of moral behaviour. This section will discuss some of the ethical guidelines.

4.14.1 Ensuring Respondents Have Given Informed Consent

In research, importance is given to ensuring that the participant gives informed consent (Saunders et al., 2019). In this research, respondents were asked for their informed consent before they took the survey. A brief description of the research and what it entails was outlined before they were asked to give their informed consent.

4.14.2 Ensuring no Harm comes to the Respondents

Ensuring that respondents are not exposed to any form of harm, including physical, psychological, or work-related stress, is essential (Saunders et al., 2019). The researcher is responsible for protecting participants from such risks. This study implemented measures to ensure that no participant experienced physical or psychological harm.

4.14.3 Ensuring Confidentiality and Anonymity

Ensuring that no invasion of the respondents' privacy is allowed in research (Saunders et al., 2019) is essential. In this study, participant anonymity was preserved, and individual responses were kept strictly confidential. Although the emails of all targeted employees were known, the questionnaire did not require the submission of email addresses. This ensured that individual responses could not be explicitly linked to any participant.

4.14.4 Ensuring that Permission is obtained

The researcher must obtain permission from the organisation where the study will be conducted. In this case, a letter of permission from ZERA granted the researcher the authority to carry out the research. To ensure further transparency, the contact details of both the researcher and the supervisor were included on the front page of the questionnaire. Additionally, ethical clearance was obtained from the University.

4.15 Conclusion

Petroleum industry management participated in the research through a survey study strategy employing a census approach. An online questionnaire was created and distributed via LimeSurvey. After data collection, the data were analysed using SPSS version 28. Both descriptive and inferential data analysis methods were applied, including parametric and non-parametric techniques, depending on the normality test results for each variable. Ethical considerations were taken into account during the research, such as protecting respondents, ensuring anonymity, and obtaining the necessary permissions. The next chapter will analyse, present, and interpret all research findings using the methodologies described in this chapter.

CHAPTER 5

PRESENTATION OF RESULTS

5.1 Introduction

This chapter presents the results from the study, which aimed to investigate the use of management accounting practices in the petroleum industry in Zimbabwe and their impact on competitive advantage. In doing so, it was important to determine what management accounting techniques have been implemented in selected petroleum companies and whether they have contributed to creating and sustaining competitive advantage. The chapter is organised into several sections, each corresponding to the key research objectives outlined in the study.

The first section provides the response rate, followed by the profile of the respondents. The second section presents the profile of the firms analysed. This is followed by a descriptive analysis of the management accounting practices evident in the selected petroleum companies, including an overview of the prevalence and types of management accounting techniques used. The chapter further analyses the relative competitive advantages observed among these companies, focusing on financial and non-financial performance indicators.

This chapter details the composite analysis, which examines the relationship between the use of management accounting techniques and competitive advantage. This includes an analysis of both financial and non-financial performance indicators. The subsequent section identifies significant correlations and insights, highlighting the impact of implementing management accounting practices on competitive advantage. The final section presents evidence supporting the link between these practices and the relative competitive advantage experienced by the selected petroleum companies.

The results presented in this chapter are based on the data collected through a comprehensive survey distributed to finance and management personnel across the petroleum industry in Zimbabwe. The analysis used SPSS version 28, employing descriptive statistics and inferential statistical techniques. By presenting these results, this chapter aims to provide empirical evidence on the role of management accounting in creating and sustaining competitive advantage within the petroleum industry in Zimbabwe. The findings contribute to the existing body of knowledge and offer practical insights for industry stakeholders and policymakers.

5.2 Response rate

This study adopted a census approach, targeting all 89 licensed wholesale and procurement petroleum companies in Zimbabwe. During the survey, it was found that 10 of these companies were either not operational in the past year or not fully operational, reducing the effective target population to 89 companies. Of these, 63 companies responded to the survey, achieving an effective response rate of 70.8%.

An analysis of the characteristics of respondents and non-respondents was performed to assess non-response bias. The factors examined included company size, years of operation, and geographical distribution. The analysis showed no notable differences between respondents and non-respondents in these key characteristics, suggesting that non-response bias is unlikely to impact the study's findings substantially.

Given the substantial response rate and the lack of significant differences between respondents and non-respondents, the data collected represents the target population. However, it is essential to acknowledge that non-respondents may still possess unobserved differences that were not captured in this analysis. Therefore, while the potential for non-response bias is minimal, it should be considered when interpreting the study's results.

5.3 Profile of Respondents

Section A of the questionnaire collected the respondents' profile information. Two questions asked were based on: the length of service and the employment level. This information helped to understand the respondents' background and provided data for further statistical analysis. Figure 5.1 presents the length of service in years of the 63 participants.

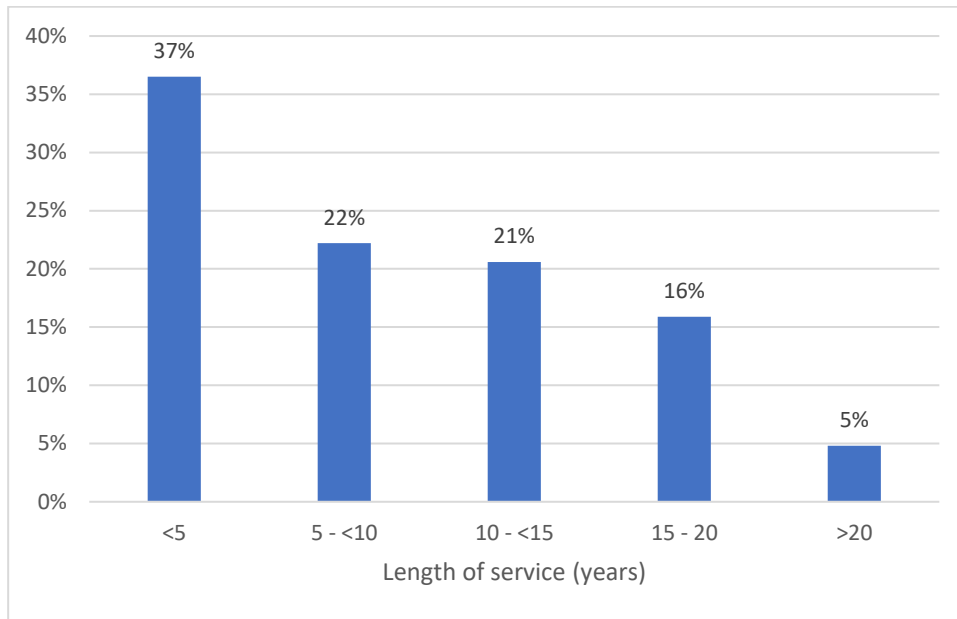


Figure 5. 1: Length of service of respondents

Source: Author's Compilation

The results indicate that 37% of respondents had less than five years of service in the organisation. Additionally, 22% had 5 to 10 years of service, 21% had 10 to 15 years, 16% had 15 to 20 years, and 5% had more than 20 years of service. Figure 5.2 below shows the employment levels of the participants.

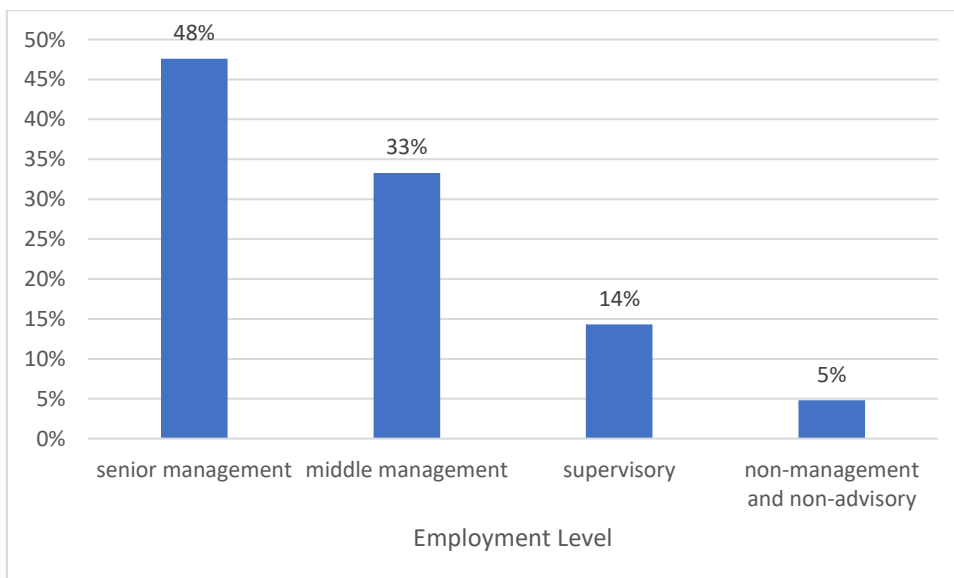


Figure 5. 2: Employment levels of respondents

Source: Author's Compilation

Regarding employment levels, the survey results indicate that 48% of respondents hold senior management positions, 33% are in middle management, 14% occupy supervisory roles, and 5% are in non-management and non-advisory positions. These findings demonstrate that most participants are in management roles.

5.4 Profile of the Firm

Section B of the questionnaire collected the profile of the companies. Three questions used for data collection focused on: the years in operations or business, the number of employees and the number of filling stations. This information gives insight into the companies represented in the survey. Figure 5.3 presents the years in operation or business of the participants' firm.

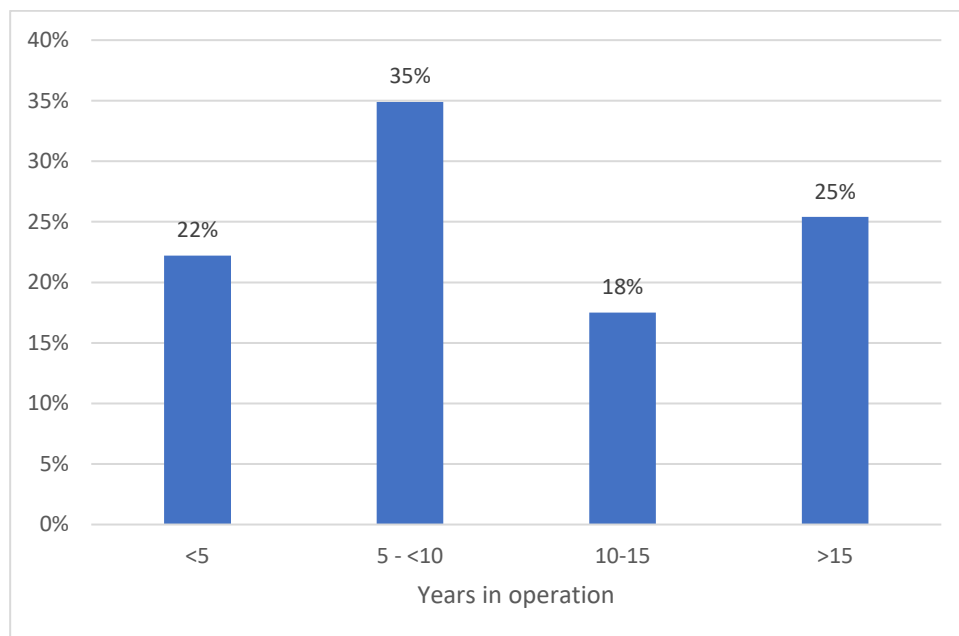


Figure 5. 3: Years in operation of the firms

Source: Author's Compilation

When participants were asked about the years in operation of their firms, 22% reported that their businesses had been operating for less than five years, 35% indicated a duration of between 5 and 10 years, 18% reported between 10 and 15 years, and 25% stated their businesses had been running for more than 15 years. Therefore, most of the firms that responded have operated for over five years. These businesses developed and implemented management accounting techniques and systems suitable for their needs.

The respondents were asked to indicate the number of employees their firms have. The results are shown in Figure 5.4.

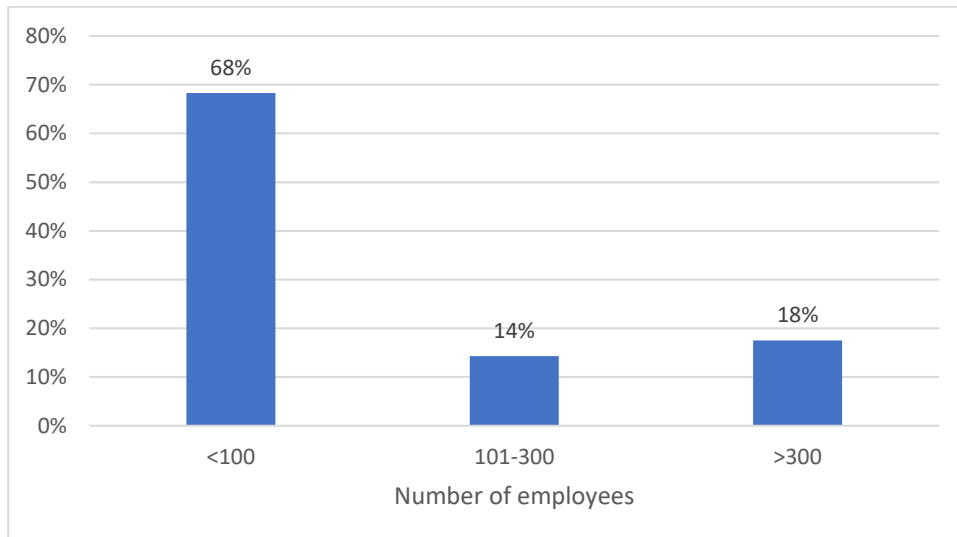


Figure 5. 4: Number of employees

Source: Author's Compilation

Regarding the number of employees within their organisation, 68.3% of respondents reported having fewer than 100 employees, 14.3% indicated between 101 and 200 employees, and 17.5% stated they had more than 300 employees.

The results for the number of filling stations the respondents' firms have is presented in Figure 5.5 below.

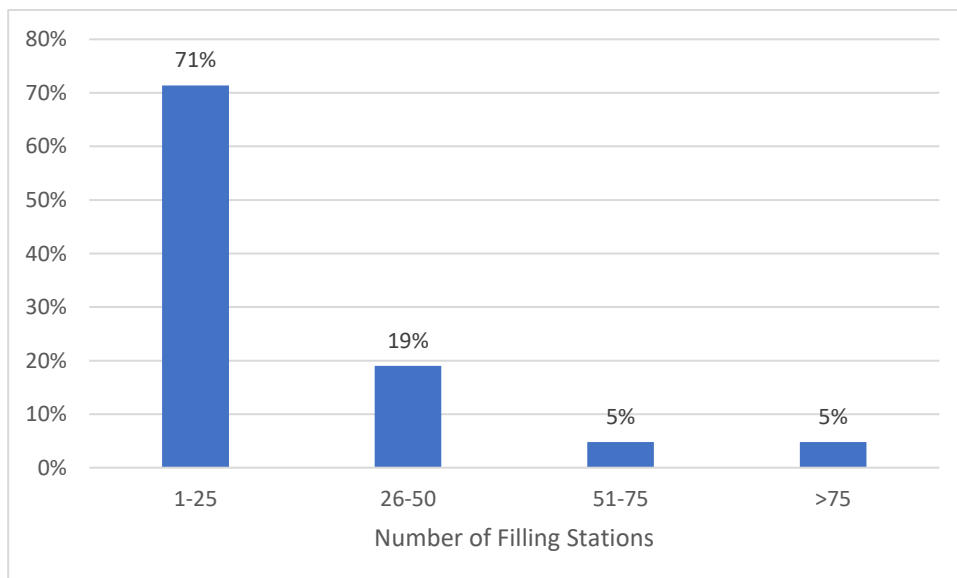


Figure 5. 5: Number of filling stations

Source: Author's Compilation

The results indicate that most firms (71%) have 1 to 25 filling stations, 19% have 26 to 50 filling stations, 5% have 51 to 75 filling stations, and 5% have more than 75 filling

stations.

5.5 Extent of the use of management accounting

This section addresses the first research objective, which is to determine the management accounting practices used in selected petroleum companies. The section is divided into six parts: Management Accounting Staff, Costing System, Budget Systems, Performance Evaluation Systems, Decision Support Systems, and Strategic Management Systems. The Management Accounting Staff section inquired about the presence of management accounting staff, their gender, and their qualifications. The Costing Systems section examined the use of costing systems. The Budget Systems section focused on the budgeting systems employed. The Performance Evaluation Systems section evaluated the range of performance evaluation systems used. The Decision Support Systems section explored the decision support techniques employed. Lastly, the Strategic Management Systems section investigated various strategic management accounting techniques. The questionnaire first determined whether respondents used each particular practice in their firms. If they did, further inquiry was made into the extent of use based on a five-point Likert scale.

5.5.1 Management Accounting Staff

In this section, the respondents were asked if management accounting staff existed within the organisation and If not, respondents were requested to give reasons. The respondents were also asked about the qualifications of the management accounting staff. The response is shown in Table 5.1 below.

Table 5. 1: Do you employ management accounting staff

Item	Frequency (%)		N	p-value
	Yes	No		
Management accounting staff	54 (86)	9 (14)	63	<.001

Source: Author’s Compilation

The results in Table 5.1 show that 86% of the participating companies had management accounting staff. This suggests widespread recognition of the importance of management accounting expertise within organisational structures. The companies that indicated not having management accounting staff were asked to give reasons why that

was so. The results are shown in Table 5.2.

Table 5. 2: Reasons for not employing management accounting staff

Why do you not employ management accounting staff?	Frequency	Percent of those not employing management accounting staff
No need for one	4	44.4%
Cannot afford the cost	3	33.3%
Other (2)		
Company still small	1	11.1%
Outsource consultancy services	1	11.1%
Total	9	100%

Source: Author’s Compilation

The results show that, among the 14.3% of respondents who do not employ management accounting staff, 44.4% stated that they did not need one, 33.3% cited cost concerns, 11.1% noted that the company was still small, and another 11.1% indicated that they outsourced these services. These insights highlight various factors influencing the decision-making process regarding staffing within management accounting functions. They provide valuable perspectives on resource allocation strategies, organisational size considerations, and alternative approaches to accessing management accounting expertise within the surveyed context.

The respondents were asked about the tertiary qualifications their management accounting staff held within their respective organisations. The analysis reveals a consistent pattern in the distribution of qualifications among management accounting staff across the surveyed companies. Notably, the number of individuals holding each qualification tends to follow a similar trend: a few companies employ one or two individuals with a specific qualification, while the count decreases as the number of individuals per company increases.

For instance, the Bachelor's Degree in Accounting emerges as the most prevalent qualification, with 134 individuals holding this degree across various companies. This includes 13 companies having one individual, seven companies having two individuals, and so forth, as detailed in the table. Similarly, the Honours Degree in Accounting is held by a total of 103 individuals, with 18 companies employing one individual each and four companies employing two individuals each.

Conversely, the CIMA qualification has the lowest count, with 35 individuals. This includes 17 companies having one individual each, three companies having two individuals each, and fewer as the number of individuals per company increases. Table 5.3 below illustrates the distribution of these qualifications.

Table 5. 3: Tertiary Accounting Qualifications of Management Accounting Staff

Qualification	Number in company												Total
	1	2	3	4	5	6	7	8	9	10	12	13	
Certificate in Accounting	12	8	6	2	-	-	-	-	-	-	-	-	54
Accounting Diploma	7	12	5	-	1	-	-	-	-	1	-	-	51
Bachelor's Degree in Accounting	13	7	6	1	2	5	1	2	1	-	-	1	134
Honours Degree in Accounting	18	4	9	1	3	2	1	-	-	-	1	-	103
Masters/Post Graduate in Accounting	18	3	3	-	3	1	-	-	1	-	-	-	63
CIMA	17	3	1	1	1	-	-	-	-	-	-	-	35
ACCA	23	7	2	1	1	-	1	-	-	-	-	-	59

Source: Author's Compilation

5.5.2 Costing System

This section covers two aspects of the costing system: cost collection method and specific costing technique. The main reason is to establish if the companies use these cost collection techniques and to what extent they use them. First, the respondents were asked if they used costing systems in their firm. If not, the respondents were requested to give reasons. Table 5.4 below shows the responses on whether the company used a costing system in their firm.

Table 5. 4: Do you use a costing system in your firm?

Item	Frequency (%)		N	p-value
	Yes	No		
Do you use a costing system in your firm?	48 (76)	15 (24)	63	<.001

Source: Author’s Compilation

The results in Table 5.4 indicate that 76% of firms surveyed reported utilising a costing system, underscoring the prevalence and importance of such systems within organisational operations. These results are similar to those of studies by Ahmad (2012), where costing systems were found to be one of the most prevalent management accounting practices. The robust adoption of costing systems suggests a widespread recognition of their value and necessity in managing financial processes and decision-making. The companies that indicated not using costing systems were asked to give the reasons why that was so. The results are shown in Table 5.5.

Table 5. 5: Reasons for not using a costing system

Why do you not employ management accounting staff?	Frequency	Percent of those not using a costing system
No need for one	12	80%
Cannot afford the cost	2	13.3%
Use Enterprise Resource Planning system	1	6.7%
Total	15	100%

Source: Author's Compilation

Table 5.5 above elucidates why respondents opted not to implement a costing system. The primary reason, cited by 80% of respondents, was a perceived lack of necessity. Financial constraints were mentioned by 13.3% of respondents. Interestingly, a minority of respondents, constituting 6.7%, noted the adoption of Enterprise Resource Planning (ERP) systems as an alternative to traditional costing systems. These findings highlight various factors influencing the decision-making process regarding costing systems, offering valuable perspectives on resource allocation and organisational operational strategies.

A binomial test was conducted to assess if each system was used by a significant proportion of companies to a large or small extent. The responses were grouped into two categories: Group 1, comprising firms reporting no extent, very small extent, or small extent of usage, and Group 2, consisting of firms indicating medium, large, or very large extent of usage. The results of the binomial test, summarised in Table 5.6, provide insights into the extent of adoption of costing methods across surveyed firms.

Table 5. 6: Costing System

Item	Frequency (%)		N	p-value
	Not at all/ very small extent/ small extent	Medium extent/ large extent/ very large extent		
Job Costing	34 (55)	28 (45)	62	.562
Batch Costing	31 (49)	32 (51)	63	1.000
Contract Costing	32 (52)	30 (48)	62	.899
Process Costing	32 (52)	30 (48)	62	.899
Absorption Costing	33 (52)	30 (48)	63	.801
Standard Costing	26 (41)	37 (59)	63	.207
Activity Based Costing	28 (44)	35 (56)	63	.450
Variable Costing	23 (37)	40 (63)	63	.043
Target Costing	31 (49)	32 (51)	63	1.000

Source: Author's Compilation

A significant 63% of respondents reported using variable costing to a medium or large extent ($p = .043$), highlighting its prevalent adoption and suggesting its critical role in their cost management practices. While standard costing is utilised by 59% of respondents to a medium or large extent, the result is not statistically significant ($p = .207$), so it only applies to the particular sample. It cannot be projected onto the population. These results contradict Akenbor and Agwor (2015), who found standard costing to be one of the most prevalent management accounting techniques. The other costing methods, such as job costing, batch costing, contract costing, process costing, absorption costing, and activity-based costing, showed varied levels of adoption but did not reach statistical significance. These findings suggest that while some costing methods, such as variable costing, are

widely and significantly adopted, others are used with varying frequencies, reflecting the diverse cost management strategies employed by the firms. In a study by Ahmad (2012), while variable costing was common, it was not the most frequently used, with process costing being the most frequently used.

5.5.3 Budgeting System

This part covers two aspects of the budgeting system: the type of budget and the budget method. The main reason was to establish if the companies use these types of budgeting methods and to what extent they use them. Firstly, the respondents were asked if they used budgeting systems in their firm and if not, respondents were requested to give reasons. Table 5.7 below shows the responses regarding whether the company used a budgeting system in their firm.

Table 5. 7: Do you use a budgeting system in your firm?

Item	Frequency (%)		n	p-value
	Yes	No		
Do you use a budgeting system in your	59 (94)	4 (6)	63	<.001

Source: Author’s Compilation

The results indicate that a significant 94% of the participating companies utilise budgeting systems within their organisations, underscoring the prevalence and importance of budgeting systems within organisational operations. Numerous studies identify budgeting as one of the most popular management accounting techniques (Ahmad, 2012; Lorenz, 2015; Vale et al., 2022). For those who reported not using budgeting systems, explanations were provided and are detailed in Table 5.8.

Table 5. 8: Reasons for not using a budgeting system

Why do you not use a budgeting system?	Frequency	Percent of those not using a budgeting system
No need for one	4	100%
Total	4	100%

Source: Author's Compilation

The findings regarding the reasons for not using a budgeting system provide insight into the perceptions and practices of the surveyed population. Notably, all respondents who reported not using a budgeting system, constituting 100%, cited a perceived lack of need. Several factors could contribute to this finding. For instance, organisations may have established alternative financial management practices that they perceive to be sufficient for their needs, rendering a formal budgeting system redundant.

A binomial test was conducted to assess the significance of the proportion of firms utilising budgeting systems to different extents. The responses were grouped into two categories: Group 1, comprising firms reporting no extent, very small extent, or small extent of usage, and Group 2, consisting of firms indicating medium, large, or very large extent of usage. Table 5.9 provides insights into the extent of using budgeting systems and budgeting techniques.

Table 5. 9: Budgeting systems

Item	Frequency (%)		N	p-value
	Not at all/ very small extent/ small extent	Medium extent/ large extent/ very large extent		
Sales Budget	7 (11)	56 (89)	63	<.001
Purchasing Budget	9 (14)	54 (86)	63	<.001
Production Budget	31 (50)	31 (50)	62	1.000
Cash Flow Budget	6 (10)	57 (90)	63	<.001
Flexible Budget	18 (29)	45 (71)	63	.001
Activity Based Budgeting	22 (35)	41 (65)	63	.023
Incremental Budgeting	17 (27)	46 (73)	63	<.001
Zero Based Budgeting	35 (56)	28 (44)	63	.450
Continuous Budgeting	18 (29)	45 (71)	63	.001

Source: Author's Compilation

Table 5.9 above analyses whether a significant proportion (%) adopted a system to a medium or large extent or to a small extent. A substantial proportion of the companies indicated usage of a medium to large extent of the following budget systems: sales budgeting (89%, $p < .001$), purchasing budgeting (86%, $p < .001$), cash flow budgeting (90%, $p < .001$), flexible budgeting (71%, $p = .001$), activity-based budgeting (65%, $p = .023$), incremental budgeting (73%, $p < .001$), and continuous budgeting (71%, $p = .001$). These findings agree with Lorenz (2015), who states that the sales budget was the most widely used. The findings also highlight the widespread adoption of these budgeting practices, reflecting their importance in the surveyed companies' financial planning and resource management. On the other hand, production budgeting and zero-based

budgeting indicate a less widespread or more varied adoption among the firms. This analysis underscores organisations' diverse approaches to managing their financial resources and planning future financial commitments.

5.5.4 Performance Evaluation System

This section covers the use of performance measures within the surveyed organisations. Firstly, the respondents were asked if they used performance measures within their firm. The results are shown in Table 5.10 below.

Table 5. 10: Do you use a performance evaluation system in your firm?

Item	Frequency (%)		N	p-value
	Yes	No		
Does your organisation use some performance evaluation systems to manage its performance?	58 (92)	5 (8)	63	<.001

Source: Author's Compilation

The results show that 92% of the participating companies used performance evaluation systems in their organisation, underscoring their importance within the industry. The results are similar to Ahmad (2012), in which performance evaluation techniques were highly prevalent among Malaysian small and medium-sized businesses. The companies that indicated not using performance evaluation systems were asked to explain why. The results are shown in Table 5.11 below.

Table 5. 11: Reasons for not using a performance evaluation system

Why are you not using a performance evaluation system?	Frequency	Percent of those not using a performance evaluation system
No need for one	5	100%
Total	5	100%

Source: Author's Compilation

The results revealed that all respondents who did not use the performance evaluation system indicated lack of necessity. This suggests that organisations may not see the need for formalised performance evaluation systems to assess employee performance or organisational effectiveness.

A binomial test was conducted to evaluate the significance of the proportion of firms utilising performance evaluation to varying extents. Responses were categorised into two groups: Group 1, comprising firms with minimal to no usage, and Group 2, consisting of firms with moderate to extensive usage. Table 5.12 shows the descriptive and inferential results of the extent of use of performance evaluation measures.

Table 5. 12: Performance evaluation systems

Item	Frequency (%)		N	p-value
	Not at all/ very small extent/ small extent	Medium extent/ large extent/ very large extent		
Operating income	6 (10)	57 (90)	63	<.001
Return on investment	15 (24)	48 (76)	63	<.001
Sales growth	4 (6)	59 (94)	62	<.001
Cash Flows	5 (8)	58 (92)	63	<.001
Number of customer complaints	18 (29)	45 (71)	63	. <.001
Survey of customer satisfaction	19 (30)	44 (70)	63	.002
Employee turnover	21 (33)	42 (67)	63	.011

Source: Author’s Compilation

Table 5.12 highlights the significant utilisation of key performance metrics among respondents. Notably, 90% and 76% use operating income and return on investment metrics ($p < .001$). Sales growth also demonstrates significant adoption, with 94% of

respondents utilising it to varying extents ($p < .001$). Likewise, cash flows and the number of customer complaints are frequently employed, with 92% and 71% of respondents utilising them to a medium to large extent, indicating significant differences in usage ($p < .001$ and $p = .001$, respectively). Furthermore, surveying customer satisfaction and monitoring employee turnover are moderately utilised, with 70% and 67% of respondents, respectively, employing them to varying degrees, both showing significant differences in usage ($p = .002$ and $p = .011$, respectively). The preference towards financial performance indicators is similar to findings by Abdel-Kader and Luther (2006), in which British food and drinks companies gave more value to measuring financial performance. These findings underscore organisations' diverse range of metrics to assess operational performance and strategic effectiveness, emphasising the importance of employing multifaceted evaluation approaches in organisational management and decision-making processes.

5.5.5 Decision Support System

This section covers the decision support system within the surveyed organisations. Firstly, the respondents were asked if they used performance measures within their firm. Their responses are as shown in Table 5.13 below.

Table 5. 13: Do you use decision support systems?

Item	Frequency (%)		N	p-value
	Yes	No		
Does your organisation use decision support systems?	55 (87)	8 (13)	63	<.001

Source: Author's Compilation

The results demonstrate a notable prevalence of decision support systems within the surveyed organisations, with 87% of respondents indicating their utilisation. According to Ahmad (2012), the uptake of decision support systems was low. This is likely due to the size of the enterprises, as their studies focused on small and medium-sized businesses. In this study, the high percentage suggests a widespread recognition of the importance of decision support systems in aiding decision-making processes across various organisational functions. The companies that indicated not using performance evaluation

systems were asked to explain why. The results are shown in Table 5.14.

Table 5. 14: Reasons for not using decision support systems

Why are you not using a decision support system?	Frequency	Percent of Respondents Not Using Decision Support Systems
No need for one	7	87.5%
Cannot afford the cost	1	12.5%
Total	8	100%

Source: Author’s Compilation

Table 5.14 highlights reasons for not utilising decision support systems within the surveyed organisations. A notable proportion, representing 87.5% of respondents, cited a perceived lack of necessity as the primary rationale for not adopting decision-support systems. This indicates that these organisations may not need formalised decision-support systems to aid their decision-making processes. Additionally, a small minority of respondents, constituting 12.5%, indicated financial constraints as a prohibiting factor, suggesting an inability to afford the associated costs of implementing a decision support system.

A binomial test was executed to determine the significance of firms employing decision support systems to varying degrees. Responses were segmented into two groups: Group 1, comprising firms with minimal to no usage, and Group 2, encompassing firms with moderate to extensive usage. Table 5.15 shows the descriptive and inferential results of using decision support systems.

Table 5. 15: Decision support systems

Item	Frequency (%)		N	p-value
	Not at all/ very small extent/ small extent	Medium extent/ large extent/ very large extent		
Break-even analysis	9 (14)	54 (86)	63	<.001
Stock Control Model	6 (10)	57 (90)	63	<.001
Product Profitability Analysis	10 (16)	53 (84)	63	<.001
Customer Profitability Analysis	15 (24)	48 (76)	63	<.001
Payback period	18 (29)	45 (71)	63	.001
Accounting Rate of Return	21 (33)	42 (57)	63	.011
Net Present Value	22 (35)	41 (65)	63	.023
Internal Rate of Return	25 (40)	38 (60)	63	.130

Source: Author's Compilation

Table 5.15 provides a thorough examination of various decision support systems. Break-even analysis, stock control models, and product profitability analysis emerge as widely utilised tools, with a notable 86%, 90%, and 84% of respondents, respectively, employing them to a medium to large extent ($p < .001$). Similarly, customer profitability analysis and payback period analysis are frequently employed, with a substantial 76% and 71% of respondents, respectively, utilising them to varying degrees, all showing significant differences in usage extent ($p < .001$, $p = .001$, and $p = .011$, respectively). Net present value is medium extent to very large extent, with 65% of respondents employing it to a medium to a large extent ($p = .023$). While break-even analysis is reported as one of the most popular techniques in this study, this contrasts with the findings of Lorenz (2015) involving service industries in the United Kingdom, where breakeven analysis was not

found to be popular. This can be attributable to the differences in industries and their relevance. For example, there is no tangible product trade in service industries. The variability in the cost and nature of services can make break-even analysis less practical. These findings underscore the critical role of diverse decision support systems in facilitating organisations' informed strategic and financial decision-making processes.

5.5.6 Strategic Management Accounting

This section covers the use of strategic management accounting (SMA) within the surveyed organisations. The respondents were asked if they used strategic management accounting. The results are presented in Table 5.16.

Table 5. 16: Do you use strategic management accounting?

Item	Frequency (%)		N	p-value
	Yes	No		
Does your organisation use strategic management accounting?	50 (79)	13 (21)	63	<.001

Source: Author's Compilation

The results show that most organisations, constituting 79%, reported using SMA. This high percentage underscores a widespread recognition of the importance of SMA in aiding organisational decision-making processes, particularly in aligning financial strategies with overall business objectives. These results provide valuable insights into the prevalence of SMA practices, underscoring their importance in driving organisational success and competitive advantage. In a study by Ahmad (2012), the use of SMA was limited, likely due to the size of the firms, as the study focused on small to medium-sized businesses. A more recent study by Vale et al. (2022) showed a significant increase in the adoption of SMA, suggesting that the use of SMA has increased due to the rise in competition in the business environment. The companies that indicated not using strategic management were asked to explain why. The results are shown in Table 5.17.

Table 5. 17: Reasons for not using strategic management accounting

Why are you not using strategic management accounting	Frequency	Percent of Respondents Not Using SMA
No need for one	9	69.2%
Cannot afford the cost	3	23.1%
Other	1	7.7%
Total	13	100%

Source: Author's Compilation

The perceived lack of necessity is the most common reason for not adopting Strategic Management Accounting (SMA). Out of the total respondents, 9 (69.2%) indicated that their organisations do not see a need for SMA. This suggests that these companies either have sufficient alternative management practices or require more awareness of SMA's benefits regarding long-term strategic planning and competitive advantage. Financial constraints are the second most reported reason, with three respondents (23.1%) indicating that the cost of implementing SMA is too high. This suggests that the financial investment required for SMA tools and processes is a significant barrier for some organisations. This could be due to limited budgets, especially in smaller companies.

A binomial test evaluated the significance of firms employing different strategic management techniques. Responses were divided into two categories: Group 1, representing firms with minimal to no usage, and Group 2, including firms with moderate to extensive usage. Table 5.18 shows the descriptive results of the use of strategic management accounting.

Table 5. 18: Strategic management accounting

Item	Frequency (%)		N	p-value
	Not at all/ very small extent/ small extent	Medium extent/ large extent/ very large extent		
Target costing in the design of new products	26 (42)	36 (58)	63	.253
Strategic costing in determining the firm's strategy	15 (24)	48 (76)	63	<.001
An analysis of costs for each of the activities in the firm's value chain	17 (27)	46 (73)	63	<.001
Taking into account any strategic factors, such as the industry's competitiveness, when making pricing decisions	11 (17)	52 (83)	63	<.001
Systematic collection of data, e.g., on competitor's reaction, demand reaction, market position, etc	18 (29)	45 (71)	63	.001

Source: Author's Compilation

Table 5.18 shows the extent of use of SMA practices within organisations. Strategic costing in determining the firm's strategy, as well as an analysis of costs for each activity in the firm's value chain, are widely employed, with 76% and 73% of respondents, respectively utilising them to a medium to large extent, both showing highly significant differences in usage extent ($p < .001$). Additionally, taking into account strategic factors

such as industry competitiveness in pricing decisions and system engagement in management accounting data collection on competitors' reactions and market positioning are also frequently practised, with 83% and 71% of respondents, respectively, utilising them to varying degrees, both showing significant differences in usage extent ($p < .001$ and $p = .001$ respectively). These findings highlight the importance of SMA practices in informing strategic decision-making processes, enhancing competitiveness, and driving organisational performance within the surveyed context.

5.6 Factors Indicating Competitive Advantage

This section of the results chapter addresses the objective of determining whether selected petroleum companies are benefiting from a competitive advantage in the industry. It focuses on analysing the factors that indicate competitive advantage within the petroleum industry in Zimbabwe. The data presented is derived from responses to the questionnaire designed to measure various aspects of relative competitiveness and firm performance.

The first part of this section explores respondents' perceptions of their firms' competitive positioning. This includes assessing how firms view their standing relative to competitors in the market. The second part evaluates the changes in firm performance over the past three years across several dimensions, such as financial performance, customer satisfaction, and innovation.

By examining perceived relative competitiveness and performance metrics, this section seeks to identify the participating firms' relative competitiveness and performance levels. The subsequent presentation shows the results from the survey responses, highlighting significant trends in relative competitiveness and firm performance.

5.6.1 Relative Competitiveness

This section aimed to gauge the firms' relative level of competitiveness. Participants were asked to rate their agreement with a series of statements regarding pricing, product uniqueness, service quality, resource availability, management accounting techniques, product development capabilities, technology utilisation, responsiveness to competitors' innovations, internal collaboration, and overall resource and capability synergy compared to major competitors. These dimensions collectively provide a comprehensive understanding of how firms perceive their competitive positions in the marketplace. Ratings were given on a scale of 1 to 5, where one represents "strongly disagree" and five

means "strongly agree." A one-sample t-test was utilised to assess if there was significant agreement/disagreement in responses. The results are outlined in Table 5.19.

Table 5. 19: Relative competitiveness

Relative competitiveness	n	Mean	Standard deviation	t	df	p-value
Our prices are among the lowest in the market	63	3.46	1.013	3.606	62	.001
We offer unique petroleum products	63	3.16	1.221	1.032	62	.306
Compared to most in the industry, we offer superior services (such as fuel card)	63	3.60	1.225	3.907	62	<.001
We have adequate availability of resources	63	3.73	1.181	4.909	62	<.001
We have efficient management accounting techniques.	63	3.84	1.035	6.452	62	<.001
The range of alternative products that we can develop, manufacture, distribute, and market is more significant than most of our competitors	63	3.03	1.191	.212	62	.833
The use of standardised electronic interfaces with our customers and suppliers	63	3.70	1.131	4,903	62	<.001

makes us flexible.						
Over the last five years, we have reacted to competitors' innovations by changing our product portfolio	63	3.46	1.075	3.399	62	.001
Our business and functional units (e.g., marketing, R&D, sales) are closely intertwined and support each other, improving our competitiveness.	63	4.03	.933	8.780	62	<.001
Compared to our major competitors, our capabilities and resources complement each other extremely well	63	4.02	1.039	7.757	62	<.001

Source: Author's Compilation

The analysis of the relative competitiveness of firms within the petroleum industry, as presented in Table 5.19, reveals several significant findings. There is significant agreement that prices are amongst the lowest in the market ($p = .001$) and that compared to most in the industry, services offered are superior ($p < .001$). Furthermore, there is significant agreement that resources are adequately available ($p < .001$) and efficient management accounting techniques are employed ($p < .001$). Additionally, firms show a proactive approach to market changes, with significant agreement that they react to competitors' innovations by changing their product portfolio ($p = .001$). The highest mean scores were observed for internal collaboration and resource complementarity, indicating significant agreement that business and/or functional units are closely intertwined and supportive of each other, and capabilities and resources complement each other extremely well ($p < .001$). These findings suggest that internal synergies and resource management are critical factors in the competitive positioning of these firms.

5.6.2 Firm performance

This section aimed to gauge respondents' perceptions of their firm's performance changes over the past three years across various dimensions such as product quality, service quality, market share, and more. Respondents rated these changes on a scale ranging from significant declines to significant improvements, providing a detailed assessment of performance shifts. This analysis aims to correlate perceived competitive advantages with perceived financial performance outcomes, thus enhancing the understanding of the competitive dynamics in the petroleum industry. A one-sample t-test was conducted to assess whether there were significant declines or improvements. The results can be found in Table 5.20.

Table 5. 20: Measurement of firm performance

Firm performance	n	Mean	Standard deviation	t	Df	p-value
Product quality	63	3.90	.962	7.462	62	<.001
Service quality	63	4.24	4.24	11.006	62	<.001
Market share	62	3.92	1.091	6.636	61	<.001
Sales	62	4.13	1.063	8.361	61	<.001
Operating profit	62	3.90	1.211	5.874	61	<.001
Cash flow	62	3.82	1.208	5.361	61	<.001
Resources deployment	63	3.89	.989	7.159	62	<.001
Innovativeness	63	4.10	.875	9.939	62	<.001
Business units synchronisation	62	4.10	.863	10.008	61	<.001
Business flexibility	63	4.19	.877	10.771	62	<.001

Source: Author's Compilation

The results from Table 5.20 highlight significant improvements in perceived firm performance across various aspects of the petroleum industry. The biggest improvement was indicated for service quality, followed by business flexibility and sales, with a mean rating of 4.24, 4.19 and 4.13, respectively. Other areas demonstrating notable enhancement include innovativeness (mean = 4.10) and business unit synchronisation (mean = 4.10). These findings underscore the dynamic nature of performance improvements within the surveyed firms.

5.7 Composite Section Analysis: Management Accounting and Competitive Advantage

This section presents the findings on the individual level of engagement with various management accounting techniques. It was imperative to derive composite scores for each construct to further comprehensively address the research objectives and explore the causal relationships between these constructs.

5.7.1 Usage of Management Accounting Techniques

This section further addresses the first research objective: what management accounting practices are used in the selected petroleum companies? The detailed univariate analysis in the previous sections provides insights into using individual management accounting systems. To gain a comprehensive understanding, the section focuses on the overall usage of these systems by analysing the average extent of usage across the combined items in each construct. The extent of usage is measured using a six-point scale: 1. Not at all; 2. Very small extent; 3. Small extent; 4. Medium extent; 5. Large extent; 6. Very large extent. A binomial test is applied to determine if a significant proportion of responses fall into groups 1 (not at all, very small, small) or 2 (medium, large, very large). By calculating the mean scores for each construct, we can interpret the overall engagement with the various management accounting systems. This approach allows us to determine whether these systems are being utilised effectively and to what degree they are integrated into the operations of the petroleum companies. The results are as shown in Table 5.21.

Table 5. 21: Usage of Management Accounting Techniques

Management Accounting Technique	Frequency (%)		n	p-value
	Not at all/ very small extent/ small extent	Medium extent/ large extent/ very large extent		
Cost collection system	33 (52)	30 (48)	63	.801
Costing system	26 (41)	37 (59)	63	.207
Budgets	7 (11)	56 (89)	63	<.001
Budget techniques	18 (29)	45 (71)	63	.001
Performance evaluation - financial	4 (6)	59 (94)	63	<.001
Performance evaluation - non-financial	17 (27)	46 (73)	63	<.001
Decision support system - short-term analysis	9 (14)	54 (86)	63	<.001
Decision support system - long-term analysis	21 (33)	42 (67)	63	0.11
Strategic management accounting	16 (25)	47 (75)	63	<.001

Source: Author's Compilation

The results presented in Table 5.21 provide a comprehensive overview of various management accounting techniques within the petroleum companies surveyed. The data indicates that budgets and financial performance evaluation are widely utilised, with a significant 89% and 94% of respondents, respectively, engaging with these techniques to a medium to very large extent. Similarly, short-term decision support systems and strategic

management accounting are also prevalent, with a significant 86% and 75% of respondents reporting usage to a medium to very large extent. Notably, non-financial performance evaluations are also highly employed, with a significant 73% of respondents indicating substantial usage. These findings highlight a strong inclination towards using budgeting and performance evaluation techniques while adopting cost collection and long-term decision support systems, which are more varied among the companies. The high adoption and frequency of use of budgets are in agreement with the findings by Lorenz (2015).

5.7.2 Evidence of Relative Competitive Advantage

This section further addresses the second research objective, which seeks to determine whether selected petroleum companies benefit from competitive advantage in the industry. Two dependent variables are used to evaluate this: relative competitiveness and firm performance. The analysis employs one-sample t-tests to compare the mean scores of these variables against a test value of 3, representing a neutral position on the respective scales. Relative competitiveness is measured on a scale from 1 (strongly disagree) to 5 (strongly agree), while firm performance is measured on a scale from 1 (declined a lot) to 5 (improved a lot). The results are summarised in Table 5.22 below.

Table 5. 22: Measurement of Competitive Advantage

Competitive advantage	n	Mean	Standard deviation	T	df	p-value
Relative advantage	63	3.6190	.77873	6.310	62	<.001
Financial performance	63	3.9079	1.00311	.12638	62	<.001
Non-financial performance	63	4.1058	.70848	12.386	62	<.001

Source: Author’s Compilation

The results indicate significant positive deviations from the neutral test value 3 for all three constructs. The mean score for relative competitiveness suggests a statistically significant competitive advantage. Financial and non-financial metrics show even higher mean scores for firm performance. These results indicate that the companies perceive themselves as

competitive and report improvements in both financial and non-financial performance metrics. These findings suggest that petroleum companies are experiencing substantial competitive advantages, as evidenced by their perceived competitiveness and actual performance outcomes.

5.8 Regression Assumptions

Before presenting the results of the multiple regression analysis, it is crucial to establish whether the dataset meets the fundamental assumptions required for valid and reliable statistical inference. Ensuring these assumptions are satisfied enhances the robustness of the findings and minimizes potential biases in interpretation. The key regression assumptions that were tested are presented in this section.

5.8.1 Independence of Errors (Autocorrelation)

The Durbin-Watson statistic was used to check whether residuals were independent, as values between 1.5 and 2.5 indicate no significant autocorrelation (Kabaila et al., 2021).

- **Model 1 (Relative Competitive Advantage):** Durbin-Watson = 1.916
- **Model 2 (Financial Performance):** Durbin-Watson = 2.070
- **Model 3 (Non-Financial Performance):** Durbin-Watson = 1.987

These values confirm that the assumption of independence was met for all models (see Appendix B for further details).

5.8.2 Homoskedasticity (Constant Variance of Errors)

Homoskedasticity ensures that residuals maintain constant variance across predicted values. This was tested using a scatter plot of standardized residuals against standardized predicted values. A randomly dispersed pattern in the plots confirmed that the assumption of homoskedasticity was satisfied, with no visible funnel shape suggesting heteroskedasticity (see Appendix B for scatterplots).

5.8.3 Linearity

Linearity was assessed using scatter plots of standardized residuals against standardized predicted values, ensuring that the relationship between independent and dependent variables was linear. Additionally, the standard deviation (SD) of residuals was compared to the SD of the dependent variable:

- **Model 1:** SD (dependent variable) = 0.77873, SD (residuals) = 0.57410 (linearity confirmed)

- **Model 2:** SD (dependent variable) = 1.00311, SD (residuals) = 0.91209 (linearity confirmed)
- **Model 3:** SD (dependent variable) = 0.70848, SD (residuals) = 0.55037 (linearity confirmed)

Since the SD of residuals was within an acceptable range, linearity was confirmed across all models (scatterplots included in Appendix B).

5.8.4 Outliers and Influential Data Points

Potentially influential data points were examined using Cook's Distance (>1) and Leverage Values (>0.5). Results indicated:

- **Model 1 (Relative Competitive Advantage):**

Maximum Cook's Distance = 0.162 (below the threshold of 1)

Maximum Leverage Value = 0.392 (below the threshold of 0.5)

These values suggest that no significant outliers or highly influential points were present, ensuring the stability of regression estimates.

- **Model 2 (Financial Performance):**

Maximum Cook's Distance = 0.171 (below the threshold of 1)

Maximum Leverage Value = 0.392 (below the threshold of 0.5)

These values suggest that no significant outliers or highly influential points were present, ensuring the stability of regression estimates.

- **Model 3 (Non-Financial Performance):**

Maximum Cook's Distance = 0.121 (below the threshold of 1)

Maximum Leverage Value = 0.392 (below the threshold of 0.5)

These values suggest that no significant outliers or highly influential points were present, ensuring the stability of regression estimates.

5.8.5 Multicollinearity

Multicollinearity was assessed using Variance Inflation Factor (VIF) and Tolerance values:

Highest VIF = 4.253 (below the problematic threshold of 5)

Lowest Tolerance = 0.235 (above the threshold of 0.2)

Since no VIF values exceeded 5 and all tolerance values were above 0.2, multicollinearity was not a concern, confirming that the independent variables did not exhibit excessive correlation.

5.8.6 Conclusion on Regression Assumptions

All key regression assumptions, namely independence, homoskedasticity, linearity, absence of influential outliers, and acceptable multicollinearity levels, were met, ensuring that the multiple regression models used in this study provide valid and reliable insights into the impact of management accounting practices on competitive advantage. Detailed assumption test results, including diagnostic plots, are provided in Appendix B.

5.9 Effect of management accounting on competitive advantage

This section addresses the third research objective, which aims to determine how management accounting practices affect competitive advantage in selected petroleum companies.

5.9.1 Effect of management accounting on relative competitive advantage

This section investigates the simultaneous effect of various management accounting systems on relative competitive advantage. To analyse this relationship, linear regression is employed, where the nine management accounting constructs are independent variables and the relative advantage is the dependent variable. This method allows us to understand the collective impact of the different management accounting practices on the competitive positioning of the firms. Multiple linear regression analysis was used. Multiple linear regression analysis examines the relationship between multiple independent variables (predictors) and a single dependent variable (outcome). Before conducting the regression analysis, all necessary assumptions of multiple regression were tested to ensure the validity and reliability of the results. These tests included checks for linearity, multicollinearity, homoskedasticity and independence of errors. The diagnostic tests confirmed that the dataset met the required assumptions, as detailed in Section 5.8 and Appendix B. The predictors included in the model are Strategic Management Accounting (SMA), Cost Collection System (CCS), Performance Evaluation - Non-Financial (PERF_NONFIN), Budget Techniques (BUDTECH), Decision Support System - Short-Term Analysis (DEC_SHORT), Budgets (BUD), Performance Evaluation - Financial (PERF_FIN), Decision Support System - Long-Term Analysis (DEC_LONG), and Costing System (CS). The dependent variable in this analysis is Relative Competitive Advantage

(CA_RelComp). The results are shown in Table 5.23.

Table 5. 23: Effect of management accounting on relative advantage

IV	R ²	F	df1; df2	p- value	B (regression coefficient)	T	p- value
CCS	.456	4.946	9; 53	<.001	-.080	-.795	.430
CS					.145	1.228	.225
BUD					.064	.557	.580
BUDTECH					-.151	-1.447	.154
PERF_FIN					.223	1.671	.101
PERF_NONFIN					.106	1.515	.136
DEC_SHORT					-.281	-2.272	.027
DEC_LONG					.276	2.708	.009
SMA					.060	.612	.543

Source: Author's Compilation

The corresponding regression equation, incorporating the obtained coefficients, is as follows:

$$CA_RelComp = 0.000 + (-0.080)(CCS) + 0.145(CS) + 0.064(BUD) + (-0.151)(BUDTECH) + 0.223(PERF_FIN) + 0.106(PERF_NONFIN) + (-0.281)(DEC_SHORT) + 0.276(DEC_LONG) + 0.060(SMA).$$

The regression analysis reveals that the combined usage of management accounting systems explains 45.6% of the variance in relative competitive advantage ($R^2 = .456$, $F(9, 53) = 4.946$, $p < .001$). Notably, Decision Support System - Long-Term Analysis (DEC_LONG) ($B = .276$, $p = .009$) and Decision Support System - Short-Term Analysis (DEC_SHORT) ($B = -.281$, $p = .027$) are significant predictors of relative competitive advantage, with long-term analysis having a positive effect and short-term analysis

having a negative impact. Other predictors, such as Cost Collection System (CCS), Costing System (CS), Budgets (BUD), Budget Techniques (BUDTECH), Performance Evaluation - Financial (PERF_FIN), Performance Evaluation - Non-Financial (PERF_NONFIN), and Strategic Management Accounting (SMA), did not show significant individual effects. These results suggest that while implementing various management accounting practices substantially enhances competitive advantage, specific practices, particularly those related to long-term decision support, are more impactful.

5.9.2 Effect of management accounting on financial performance

In further addressing the third research objective, this section explores the evidence of a link between the implementation of management accounting practices and the financial performance of selected petroleum companies. A multiple linear regression analysis was conducted to analyse this relationship. All necessary assumptions of multiple regression were tested to ensure the validity and reliability of the results. These tests included checks for linearity, multicollinearity, homoskedasticity and independence of errors. The diagnostic tests confirmed that the dataset met the required assumptions, as detailed in Section 5.8 and Appendix B. The independent variables (IVs) include various management accounting systems such as Cost Collection Systems (CCS), Costing Systems (CS), Budgeting (BUD), Budget Techniques (BUDTECH), Financial Performance Evaluation (PERF_FIN), Non-Financial Performance Evaluation (PERF_NONFIN), Short-term Decision Support Systems (DEC_SHORT), Long-term Decision Support Systems (DEC_LONG), and Strategic Management Accounting (SMA). The dependent variable (DV) is the financial performance of the companies (CA_FP_FIN). The results are presented in Table 5.24.

Table 5. 24: Effects of management accounting on financial performance

IV	R ²	F	df1; df2	p- value	B (regression coefficient)	t	p- value
CCS	.173	1.234	9; 53	.295	.195	1.226	.226
CS					-.020	-.106	.916
BUD					.035	.195	.846
BUDTECH					-.241	-1.453	.152
PERF_FIN					.058	.272	.787
PERF_NONFIN					.062	.560	.578
DEC_SHORT					-.140	-.712	.480
DEC_LONG					.312	1.927	.059
SMA					.185	-1.192	.238

Source: Author's Compilation

The regression equation based on the results is as follows:

$$CA_FP_FIN = 0.000 + 0.195(CCS) - 0.020(CS) + 0.035(BUD) - 0.241(BUDTECH) + 0.058(PERF_FIN) + 0.062(PERF_NONFIN) - 0.140(DEC_SHORT) + 0.312(DEC_LONG) + 0.185(SMA).$$

The model was not statistically significant, with an R² value of .173 and an F-value of 1.234 (df1 = 9, df2 = 53) (p = .295). This indicates that the combined effect of the management accounting practices explained only 17.3% of the variance in financial performance, and this effect was not statistically significant.

The analysis of individual regression coefficients offers insights into the relationship between different management accounting techniques and financial performance. While most variables did not show significant effects, the long-term decision support system (DEC_LONG) was marginally significant with a regression coefficient (B = .305, t = 1.962,

$p = .052$). This suggests a potential positive relationship between the use of long-term decision support systems and financial performance, highlighting its possible importance in the strategic financial management of the surveyed petroleum companies.

In summary, the individual management accounting practices did not show a statistically significant effect on financial performance. However, some variables, like Long-term Decision Support Systems, hinted at a potential positive influence that warrants further investigation.

5.9.3 Effect of management accounting on non-financial performance

This section focuses on the impact of management accounting practices on non-financial performance. Non-financial performance indicators often provide a broader understanding of a company's competitive advantage, including customer satisfaction, innovation, and operational efficiency. A linear regression analysis explored this relationship, where various management accounting systems were considered independent variables (IVs), and non-financial performance was the dependent variable (DV). All necessary assumptions of multiple regression were tested to ensure the validity and reliability of the results. These tests included checks for linearity, multicollinearity, homoskedasticity and independence of errors. The diagnostic tests confirmed that the dataset met the required assumptions, as detailed in Section 5.8 and Appendix B. The regression model included predictors like Cost Collection System (CCS), Costing System (CS), Budgets (BUD), Budget Techniques (BUDTECH), Financial Performance (PERF_FIN), Non-financial Performance (PERF_NONFIN), Short-term Decision Support (DEC_SHORT), Long-term Decision Support (DEC_LONG), and Strategic Management Accounting (SMA). The results of this analysis are summarised in Table 5.25 below, highlighting the significance and impact of each management accounting practice on non-financial performance. This analysis aims to uncover which practices contribute most significantly to achieving competitive advantage through non-financial means.

Table 5. 25: Effects of management accounting on non-financial performance

IV	R ²	F	df1; df2	p- value	B (regression coefficient)	t	p- value
CCS	.397	3.869	9; 53	.001	.074	.766	.447
CS					-.024	-.213	.832
BUD					.004	.032	.974
BUDTECH					-.234	-2.339	.023
PERF_FIN					.295	2.312	.025
PERF_NONFIN					.101	1.509	.137
DEC_SHORT					-.147	-1.242	.220
DEC_LONG					.275	2.808	.007
SMA					.072	-.767	.446

Source: Author’s Compilation

The regression equation derived from this analysis is presented below:

$$CA_FP_NonFIN = 0.000 + 0.074(CCS) - 0.024(CS) + 0.004(BUD) - 0.234(BUDTECH) + 0.295(PERF_FIN) + 0.101(PERF_NONFIN) - 0.147(DEC_SHORT) + 0.275(DEC_LONG) + 0.072(SMA).$$

The model demonstrates a significant overall fit, with an R² value of .397 and an F-value of 3.869 (p = .001), indicating that the management accounting practices included in the model can explain approximately 39.7% of the variance in non-financial performance.

Several practices have shown significant impacts on the individual regression coefficients. Budget Techniques (BUDTECH) exhibit a negative regression coefficient (B = -0.234, t = -2.339, p = .023), suggesting that increased emphasis on budget techniques may be associated with lower non-financial performance. Conversely, Financial

Performance (PERF_FIN) positively influences non-financial performance ($B = 0.295$, $t = 2.312$, $p = .025$), highlighting its beneficial role. Long-term Decision Support (DEC_LONG) also significantly enhances non-financial performance ($B = 0.275$, $t = 2.808$, $p = .007$).

Other management accounting practices such as Cost Collection System (CCS), Costing System (CS), Budgets (BUD), and Strategic Management Accounting (SMA) did not show significant individual effects on non-financial performance, with p-values exceeding the threshold of .05. Nonetheless, the overall model underscores the importance of certain management accounting practices, particularly long-term decision support and financial performance metrics, in enhancing the non-financial aspects of competitive advantage in the petroleum industry.

5.10 The effect of confounding variables on management accounting engagement's link with competitive advantage, financial performance and non-financial performance

This section further addresses the third research objective of examining the link between management accounting practices and the relative competitive advantage of selected petroleum companies. Hierarchical regression analysis assessed the impact of confounding variables (years in operation and number of employees), various management accounting systems, and competitive advantage on financial and non-financial performance. This analysis proceeded in three steps: first, confounding variables, the number of years in operation and the number of employees, were included to control for baseline differences across companies. Second, various management accounting systems, including Cost Collection Systems (CCS), Budget Techniques (BUDTECH), Decision Support Systems for short-term (DEC_SHORT) and long-term (DEC_LONG) analysis, and Strategic Management Accounting (SMA), were incorporated to assess the impact of management accounting practices. Finally, the variable of relative competitive advantage (CA_RelComp) was added to evaluate whether competitive positioning within the industry influences financial performance beyond the effects of confounding variables and management accounting practices.

5.10.1 Hierarchical regression analysis: financial performance

The hierarchical regression analysis aimed to determine the effects of various factors on financial performance was carried out. Table 5.26 below shows the hierarchical regression analysis aimed to determine the effects of multiple factors on financial

performance, including confounding variables (age of business and number of employees), management accounting systems, and relative competitive advantage.

Table 5. 26: Hierarchical regression

IV	R²	F	df1; df2	p- value	B (regression coefficient)	t	p- value
Age of business	.062	1.984	2;60	.146	.028	.242	.810
Number of employees					.212	1.880	.065
Age of business	.221	1.317	11;51	.243	.066	.488	.119
Number of employees					.197	1.586	.119
CCS					.236	1.480	.145
CS					-.040	-.210	.834
BUD					.039	.217	.829
BUDTECH					.282	-1.699	.095
PERF_FIN					.025	.118	.907
PERF_NONFIN					.068	.616	.541
DEC_SHORT					-.161	-.799	.428
DEC_LONG					.237	1.369	.177
SMA					-0.91	-.560	.578
Age of							

business							
Number of employees					.164	1.332	.189
CCS					.264	1.686	.098
CS					-.100	-.537	.594
BUD	.269	1.536	12;50	.143	.014	-.078	.938
BUDTECH					.221	-1.333	.189
PERF_FIN					-.061	-.289	.774
PERF_NONFIN					.024	.219	.828
DEC_SHORT					.062	-.301	.765
DEC_LONG					.149	.844	.403
SMA					.126	.788	.434
CA_RelComp					.389	1.815	.076

Source: Author's Compilation

In the initial model, the confounding variables alone explained 6.2% of the variance in financial performance ($R^2 = .062$), but their impact was not statistically significant ($F(2,60) = 1.984$, $p = .146$). Specifically, the age of the business ($B = .028$, $t = .242$, $p = .810$) and the number of employees ($B = .212$, $t = 1.880$, $p = .065$) had limited influence.

When management accounting systems were added to the second model, the explained variance increased to 22.1% ($R^2 = .221$), although the model engagement in management accounting needs was statistically insignificant ($F(11,51) = 1.317$, $p = .243$). Among the systems, Cost Collection Systems (CCS) showed a positive but not significant effect ($B = .236$, $t = 1.480$, $p = .145$), while Budget Techniques (BUDTECH) had a negative but borderline effect ($B = -.282$, $t = -1.699$, $p = .095$). Other systems, such as Decision Support Systems for long-term analysis (DEC_LONG), showed positive but non-significant contributions ($B = .237$, $t = 1.369$, $p = .177$).

In the final model, adding the variable for relative competitive advantage (CA_RelComp) slightly increased the explained variance to 26.9% ($R^2 = .269$), but this model, too, was not statistically significant ($F(12,50) = 1.536$, $p = .143$). The competitive advantage variable approached significance with a positive coefficient ($B = .389$, $t = 1.815$, $p = .076$), suggesting a potential, though not definitive, influence on financial performance. Overall, while the hierarchical regression analysis showed incremental increases in explained variance with adding each set of variables, none of the models achieved statistical significance, indicating that these factors may not be strong predictors of financial performance in the context examined.

5.10.2 Hierarchical regression analysis: non-financial performance

The hierarchical regression analysis aimed to determine the effects of various factors on non-financial performance was carried out. Table 5.27 below presents the results from the hierarchical regression analysis exploring the influence of confounding variables, management accounting systems, and competitive advantage on non-financial performance.

Table 5. 27: Hierarchical regression: non-financial performance

IV	R²	F	df1; df2	p- value	B (regression coefficient)	t	p- value
Age of business	.071	2.279	2;60	.111	.068	.830	.410
Number of employees					.139	1.744	.086
Age of business	.424	3.412	11;51	.001	.008	-.102	.919
Number of employees					.117	1.547	.128
CCS					.092	.950	.347
CS					.025	.220	.827
BUD					.006	.052	.959
BUDTECH					-.252	-2.499	.016
PERF_FIN					.283	2.211	0.32
PERF_NONFIN					.107	1.594	.117
DEC_SHORT					-.142	-1.156	.253
DEC_LONG					.221	2.105	.040
SMA					-.021	-.218	.828
Age of business					.011	.145	.885

Number of employees					.088	1.225	.226
CCS					.116	1.257	.215
CS					-.077	-.695	.490
BUD					-.016	-.152	.880
BUDTECH	.493	4.050	12;50	<.000	-.200	-2.054	.045
PERF_FIN					.210	1.689	.097
PERF_NONFIN					.070	1.073	.289
DEC_SHORT					-.057	-.476	.636
DEC_LONG					-.146	1.414	.164
SMA					-.051	.544	.589
CA_RelComp					.329	2.608	.012

Source: Author's Compilation

Initially, the model incorporating confounding variables (age of business and number of employees) explained 7.1% of the variance in non-financial performance ($R^2 = .071$), but this was not statistically significant ($F(2,60) = 2.279$, $p = .111$). Specifically, the age of the business ($B = .068$, $t = .830$, $p = .410$) and the number of employees ($B = .139$, $t = 1.744$, $p = .086$) showed limited influence.

However, adding the management accounting systems in the second step increased the explained variance to 42.4% ($R^2 = .424$), making the model statistically significant ($F(11,51) = 3.412$, $p = .001$). Within this model, Budget Techniques (BUDTECH) had a significant negative impact ($B = -.252$, $t = -2.499$, $p = .016$), while Financial Performance metrics (PERF_FIN) showed a significant positive effect ($B = .283$, $t = 2.211$, $p = .032$). Additionally, Decision Support Systems for long-term analysis (DEC_LONG) contributed positively and significantly ($B = .221$, $t = 2.105$, $p = .040$).

The final model, which includes the competitive advantage variable (CA_RelComp)

further increased the explained variance to 49.3% ($R^2 = .493$), which was highly significant ($F(12,50) = 4.050, p < .000$). Relative competitive advantage (CA_RelComp) had a significant positive effect on non-financial performance ($B = .329, t = 2.608, p = .012$). Budget Techniques (BUDTECH) also had a significant but negative impact ($B = -.252, t = -2.499, p = .016$). Overall, the analysis demonstrated that while confounding variables had a limited effect, including management accounting systems and competitive advantage significantly improved the explanation of non-financial performance variations among the companies studied.

5.11 Engagement in management accounting and competitive advantage

The primary goal of this research is to assess which management accounting techniques are utilised and to what extent they are implemented, alongside evaluating their contribution to creating and sustaining competitive advantage. This section further addresses this core objective by determining the correlation between engagement in management accounting practices and competitive advantage within petroleum companies in Zimbabwe.

Two analytical approaches explore the correlation between engagement in management accounting and competitive advantage. Firstly, a simple Pearson's correlation is applied to determine the association between engagement in management accounting and three competitive advantage variables: relative competitive advantage (CA_RelComp), financial performance (CA_FP_FIN), and non-financial performance (CA_FP_NonFIN). Secondly, engagement in management accounting is categorised into three levels: none/small/very small extent, medium extent, and large/very large extent. This categorisation allows for a comparative analysis to determine if the values of CA_RelComp, CA_FP_FIN, and CA_FP_NonFIN significantly differ across these categories of management accounting engagement.

This section aims to provide a comprehensive understanding of whether petroleum companies more engaged in management accounting practices are better positioned to achieve and sustain competitive advantage by utilising these methods.

5.11.1 Simple Pearson's correlation

This section explores the correlation between management engagement in management accounting and competitive advantage (COMP ADV) variables among selected petroleum companies. Specifically, it examines the relationship between

engagement in management accounting and three key indicators of competitive advantage: relative competitiveness (CA_RelComp), financial performance (CA_FP_FIN), and non-financial performance (CA_FP_NonFIN). The analysis utilises Pearson's correlation to determine the strength and significance of these relationships. The results are as shown below.

Table 5. 28: Correlation Between Engagement in Management Accounting and Competitive Advantage Variables

Variable	CA_RelComp	CA_FP_FIN	CA_FP_NonFIN
Pearson's correlation coefficient (r)	0.550	0.122	0.415
p-value	<0.001	0.341	0.001
N	63	63	63

Source: Author's Compilation

Table 5.28 above reveals significant relationships between engagement in management accounting and various competitive advantage indicators. Engagement in management accounting shows a strong positive correlation with relative competitiveness (CA_RelComp) ($r = 0.550$, $p < 0.001$), suggesting that companies with higher engagement in management accounting tend to have greater competitive advantage. Conversely, no significant relationship was found between engagement in management accounting and financial performance (CA_FP_FIN) ($r = 0.122$, $p = 0.341$). However, a moderate positive correlation exists between engagement in management accounting and non-financial performance (CA_FP_NonFIN) ($r = 0.415$, $p = 0.001$), indicating that companies with higher non-financial performance are associated with higher management accounting engagement.

5.11.2 ANOVA/Welch tests.

This section analyses the differences in competitive advantage variables across different levels of engagement in management accounting using ANOVA/Welch tests. These tests are employed to determine whether there are significant differences in relative competitiveness (CA_RelComp), financial performance (CA_FP_FIN), and

non-financial performance (CA_FP_NonFIN) across three engagement in management accounting categories: none or small extent, medium extent, and large extent. By categorising engagement in management accounting, we can better understand how varying degrees of management accounting engagement among petroleum companies impact their competitive advantage. The results are as shown in Table 5.29.

Table 5. 29: Analysis of Variance (ANOVA) for Competitive Advantage Measures Across Different Levels of engagement in management accounting

Construct	Engagement in management accounting	N	Mean (SD)	F	df1; df2	p-value
Relative competitiveness	none/small extent	13	2.9 (.777)	10.958	2; 60	<.001
	medium extent	19	3.6 (.548)			
	large extent	31	3.9 (.704)			
Firm performance-financial	none/small extent	13	3.8 (1.113)	1.374	2;60	.261
	medium extent	19	3.7 (1.097)			
	large extent	31	4.1 (.877)			
Firm performance-non-financial	none/small extent	13	3.5 (.895)	6.118	2;60	.004
	medium extent	19	4.2 (.605)			
	large extent	31	4.3 (.566)			

Source: Author's Compilation

The results in Table 5.30 indicate significant differences in relative competitiveness and non-financial firm performance across the three levels of engagement in management accounting. Relative competitiveness differs significantly depending on the extent of usage of management accounting, $F(2, 60) = 10.958, p < .001$. Tukey's post hoc analysis indicates that there is more agreement that relative competitiveness is present for firms that engage in management accounting to a medium extent or a large extent than to a small extent, $p = .010$ and $p < .001$, respectively.

Non-financial firm performance differs significantly depending on the extent of usage of management accounting, $F(2, 60) = 6.118, p = .004$. Tukey's post hoc analysis indicates that non-financial firm performance has improved significantly more for firms that engage in management accounting to a medium extent or a large extent than to a small extent, $p = .001$ and $p = .004$, respectively.

5.12 Conclusion

Analysing management accounting practices within the selected petroleum companies employed diverse techniques. The survey results indicate that most companies employ a comprehensive range of management accounting practices. Specifically, the use of costing systems, that is, cost collection methods and specific costing techniques, is prevalent, suggesting a strong focus on accurate cost tracking and management. Budgeting systems are also widely adopted, with many companies implementing both traditional budget techniques and more advanced budgeting methods. Performance evaluation systems are commonly used, emphasising financial and non-financial performance metrics. Decision support systems for short-term and long-term analysis are evident, reflecting the importance of informed decision-making processes. Additionally, applying strategic management accounting techniques is observed, highlighting the strategic integration of accounting practices in driving long-term competitiveness.

These findings revealed that the companies perceive themselves as competitively advantaged and report tangible improvements in performance metrics for financial and non-financial performance. The petroleum companies are experiencing significant competitive advantages, as reflected in their perceived competitiveness and performance outcomes. The analysis also revealed significant differences in relative competitiveness and non-financial performance across different levels of

engagement in management accounting. Notably, companies with a large extent of engagement in management accounting practices consistently reported higher relative competitiveness and non-financial performance than those with lower engagement levels. This underscores the importance of comprehensive and sophisticated management accounting systems in fostering sustainable competitive advantage.

The results presented in this chapter provide significant insights into the relationship between engagement in management accounting practices and competitive advantage among selected petroleum companies in Zimbabwe. The findings highlight that companies with higher engagement in management accounting practices report stronger perceived relative competitiveness and better non-financial performance. Specifically, there is a strong positive correlation between engagement in management accounting and relative competitiveness and a moderate positive correlation between engagement in management accounting and non-financial firm performance. These correlations suggest that management accounting practices enhance a company's competitive edge and overall performance metrics. The next chapter delves into a detailed discussion of these findings and their implications.

CHAPTER 6

DISCUSSION OF FINDINGS

6.1 Introduction

This chapter aims to interpret and discuss the findings from the previous chapter within the context of existing literature on management accounting and competitive advantage. The discussion revisits the primary research objectives by exploring the role of management accounting practices in creating and sustaining competitive advantage within Zimbabwe's petroleum industry. The research sought to investigate the management accounting practices used by selected petroleum companies in Zimbabwe and evaluate their impact on achieving a competitive advantage. Specifically, the study aimed to identify the management accounting techniques employed by these companies, assess the extent to which they have realised a competitive advantage in the industry, and examine the relationship between their management accounting practices and the competitive advantage they have achieved.

6.2 Summary of Key Findings

The study identified several management accounting practices in Zimbabwe's petroleum industry, including budgetary control, performance measurement, and decision support systems. The findings show that the selected petroleum companies benefit from a competitive advantage. The findings also show that companies with higher engagement in management accounting practices benefit from relatively higher competitive advantage. The summary of the key findings is detailed below.

6.2.1 Management Accounting Practices Used in Selected Petroleum Companies

The most frequently used management accounting techniques included budgetary control, performance evaluation (both financial and non-financial) and decision support systems. The findings also reveal that strategic management accounting practices, such as target costing, strategic costing, and value chain analysis, were widely employed, highlighting their significance in strategic decision-making processes.

6.2.2 Evidence of Competitiveness in the Industry

The findings reveal that the selected petroleum companies were highly competitive, with improved financial and non-financial performance metrics. The companies' competitive strategies include low pricing, superior service offerings, adequate resource availability, and efficient management accounting techniques. The findings also reflect the firms' proactive market responsiveness, particularly in reacting to competitors' innovations and product portfolio adjustments. The results show that internal collaboration and resource complementarity, indicating that business units and resources work synergistically to enhance competitiveness. There were also significant improvements in various performance dimensions over the past three years, particularly in service quality, business flexibility, sales, and innovativeness.

6.2.3 The effect of Management Accounting practices on Competitive Advantage in selected petroleum companies

The findings reveal a strong positive relationship between the extent of management accounting practice engagement and competitive advantage indicators such as relative competitiveness and non-financial performance. It was found that long-term decision support systems were positively associated with a competitive advantage, while short-decision support systems were negatively associated with a competitive advantage.

6.3 Profile of Respondents

The questionnaire gathered detailed profile information from the respondents, focusing on two key aspects: their service length and employment level within the organisation. The respondents had a diverse range of service lengths, with a significant number having less than five years of service. Additionally, a notable portion had between 5 to 10 years, and many had been with their organisations for over a decade. A smaller segment of respondents reported extensive service durations exceeding 20 years. This variety in tenure reflects a mix of relatively new and seasoned employees within the industry.

The employment levels of participants indicated that a substantial portion holds senior management positions, followed by a considerable number in middle management. Respondents were also in supervisory roles, while a smaller group occupied non-management and non-advisory positions. This distribution shows that

most respondents are in strategic and operational decision-making roles, crucial for providing insights into management accounting practices and competitive strategies.

6.4 Profile of the Firm

This research collected information about the firms, including the years in operation, number of employees, and filling stations. This information provides a comprehensive view of the companies represented in the survey. The firms in the survey display a range of operational durations. Many businesses have been established for over five years, indicating stability and experience in the industry. Many firms have been operating for over a decade, with some having more than 15 years of presence. This suggests that most companies have developed and implemented sophisticated management accounting systems to support their operations.

Most firms have relatively small workforces, with most having fewer than 100 employees. However, there are also medium-sized firms with employee counts ranging between 101 to 200 and a few larger organisations with over 300 employees. This diversity in firm size highlights the varying capacities and resources available for implementing management accounting practices.

Regarding the number of filling stations, most firms operate between 1 and 25 stations, showcasing their widespread presence in the market. A smaller yet notable segment of firms manages 26 to 50 stations, while a few operate extensive networks with more than 50 stations. This variation indicates differing scales of operations and market reach within the industry.

6.5 Management Accounting Practices used in the selected Petroleum Companies

This section discusses findings on management accounting practices used in the selected petroleum companies. In this regard, the extent of using management accounting tools and techniques was a key research focus. An assessment of the use of the five primary management accounting practices, namely Management Accounting Staff, Costing Systems, Budget Systems, Performance Evaluation Systems, Decision Support Systems, and Strategic Management Systems, was done.

6.5.1 Management Accounting Staff

The findings highlight a strong presence of management accounting staff within most surveyed companies, emphasising the industry's recognition of the importance of management accounting roles. However, a minority of firms did not employ dedicated management accounting staff. The primary reasons included the perceived lack of necessity, cost constraints, the company's small size, and reliance on outsourced consultancy services. These insights reveal various strategic considerations and resource allocation decisions influencing the employment of management accounting staff.

The qualifications of the management accounting staff varied across the surveyed firms, with a notable preference for formal accounting education. Most staff held a bachelor's degree in accounting, while other standard qualifications included Accounting Diplomas and Honours Degrees in Accounting. Fewer staff members held professional certifications like the Chartered Institute of Management Accountants (CIMA). This distribution of qualifications indicates a strong emphasis on academic and professional standards in management accounting. The findings show that well-qualified staff will likely enhance the effectiveness of management accounting techniques, thereby supporting competitive positioning and overall firm performance in the industry.

6.5.2 Costing System

This section presents the analysis and interpretation of findings related to using costing systems within the surveyed firms. Akeem (2017) and Zhao et al. (2019) emphasise the importance of an effective costing technique in an increasingly competitive environment where demand is affected by the price of goods and services. Costing systems are also crucial for effective financial management and decision-making, offering a framework for accurate cost allocation, pricing strategies and financial control (Abdelraheem et al., 2017; Adigbole et al., 2022; Intakhan, 2021). The study highlights the prevalence and significance of these systems, along with the factors influencing their adoption, to provide a comprehensive understanding of how costing systems may have contributed to the competitive positioning of firms in Zimbabwe's petroleum industry.

6.5.2.1 Adoption of Costing Systems

The study reveals that most firms (76%) utilised costing systems, emphasising their importance in organisational operations. This widespread adoption indicates a strong recognition of the value and necessity of such systems for effective financial management and decision-making. This finding corresponds with Anita (2000) and Angelakis et al. (2015), who outline that management accounting techniques such as standard costing are popular. For the minority of firms that did not employ costing systems, the primary reasons cited were the lack of necessity, financial constraints, and the use of Enterprise Resource Planning (ERP) systems. These findings highlight different strategic considerations and resource allocation decisions impacting the use of costing systems.

6.5.2.2 Extent of Use of Specific Costing Techniques

Most respondents reported utilising variable costing to a medium or large extent, underscoring its critical role in their cost management practices. This prevalent adoption highlights the importance of variable costing in the financial operations of these firms. Variable costing has remained popular (Abdel-Kader and Luther, 2006; Shields et al., 1991; Wijewardena and De Zoysa, 1999), as it is a valuable technique when businesses want to consider short-period income statements that do not encompass the entire production and sales cycles (Dyhdalewicz, 2015). According to Horngren et al. (2007), variable costing became prominent when variable costs constituted a more significant portion of total production costs. The use of variable or marginal costing in the petroleum industry is prevalent because various factors, beyond just market forces, determine the supply and demand for energy (Bernstein Research, 2007). Geopolitical risks, weather conditions, and the intricate relationship between supply and demand make marginal costing suitable. This widespread adoption within the surveyed firms further corroborates the literature review.

While used by most respondents to a medium or large extent, standard costing did not achieve statistical significance. Conversely, Rashed (2013) notes that while standard costing theoretically covers all cost elements, its practical implementation in the upstream sector faces challenges. This sector typically focuses on complex financial aspects such as reserves evaluation, asset depletion, and revenue recognition (PWC, 2017), posing difficulties in setting universally applicable standards due to high project

risks like geological uncertainties. In the context of this study, despite the prevalence of standard costing in the industry as reported by respondents, its lack of statistical significance suggests that its effectiveness may be context-dependent rather than universally applicable. While the downstream sector benefits from a structured cost management approach, the unique challenges and variability inherent in upstream operations limit the feasibility and broad applicability of standard costing across all cost elements.

Other costing methods, including job costing, batch costing, contract costing, process costing, absorption costing, and activity-based costing, exhibited varied levels of adoption but needed to reach statistical significance. These findings indicate that while variable costing is widely and significantly adopted, other costing techniques are employed with varying frequencies, reflecting the diverse cost management strategies across the surveyed firms.

The findings support the research objective of determining the management accounting practices used in selected petroleum companies. The high adoption rate of costing systems underscores their importance in the petroleum industry. However, the diversity in adoption rates also highlights the necessity for firms to tailor their costing practices to their unique operational needs and strategic objectives.

6.5.3 Budgeting System

Scholars such as Akeem (2017) emphasise effective budgeting techniques' critical role in competitive business environments, where financial decisions heavily impact operational outcomes. Budgeting is especially crucial in the highly operational downstream petroleum sector (Ejededawe, 2014). The study examined the adoption rates of budgeting systems and the underlying factors influencing their implementation. By examining the extent to which different budgeting methods are employed, the research aimed to provide a comprehensive understanding of how budgeting systems may have contributed to firms' performance and competitive advantage in the Zimbabwean petroleum industry.

6.5.3.1 Adoption of Budgeting Systems

The study reveals that almost all surveyed companies utilise budgeting systems (94%), demonstrating that it is a highly prevalent management accounting technique. This finding agrees with Rashed (2013) and Alves et al. (2018), who

outline that budgeting in the petroleum industry is a popular management accounting tool. Those who did not use budgeting systems cited a perceived lack of necessity, suggesting they may have effective alternative financial management practices. This variation highlights the diverse financial management approaches and indicates that adopting budgeting systems is influenced by factors such as organisational complexity and specific financial needs.

6.5.3.2 Extent of Use of Specific Budgeting Techniques

The findings show a substantial adoption of various budgeting systems among the surveyed companies, highlighting their importance in financial planning and resource management. Specifically, most firms extensively use the sales budget (89%), purchasing budget (86%), and cash flow budget (90%). This widespread adoption underscores these budget types' critical role in helping organisations allocate resources effectively, monitor financial performance, and ensure liquidity. The significant reliance on budgeting aligns with the literature, emphasising its importance in setting financial targets and ensuring organisational alignment (Horngren et al., 2014). Similarly, Richards (2006) and CIMA (2007) discuss that budgets are now increasingly being used to assist in implementing the company's strategies. Saputra and Putrayasa (2018) identify the sales budget as a key one, as it serves as the foundation for preparing other types of budgets, such as production and cash flow budgets. The findings also agree with Ahmad et al. (2003), who identified cash flow budgets as one of the most popular budget types.

Flexible, activity-based, incremental, and continuous budgeting are used frequently. The prevalence of these systems suggests that companies recognise the value of adaptable and detailed budgeting methods. Jia (2023) outlines incremental budgeting as one of the popular budgeting techniques in the petroleum industry. Rashed (2013) identified activity-based budgeting as a widespread technique in the sector. Flexible budgeting allows for adjustments based on changing operational conditions, making it suitable for the dynamic nature of the petroleum industry. Activity-based budgeting focuses on the costs of specific activities, providing a more detailed financial picture. Continuous budgeting ensures that the budget is always up-to-date, reflecting the latest financial data and operational changes. These varied techniques underscore the industry's commitment to precise financial management and strategic adaptability, enhancing operational efficiency and competitiveness.

In contrast, production budgeting and zero-based budgeting show less widespread adoption. The mixed adoption rate for production budgeting indicates that while some firms find it essential for managing manufacturing processes and controlling production costs, others may require it less extensively, possibly due to differing operational scope characteristics. In addition, the surveyed companies are not producing petroleum products or their byproducts but rather procuring and wholesaling. Zero-based budgeting is less common, likely due to the resource-intensive nature of the Zimbabwean operational environment. The zero-based budgeting method requires a thorough justification of all expenses, making it time-consuming and potentially challenging to implement regularly (Jia, 2023).

The findings concerning budgeting adoption further support the research objective of investigating the extent and implementation of management accounting techniques in the petroleum industry. The high adoption rate of budgeting systems, in general, underscores their importance in the petroleum industry. However, the varied adoption of different budgets and budgeting techniques reflects firms' different operational needs and resource capabilities. The findings highlight the importance of tailored budgeting practices that align with specific organisational contexts.

6.5.4 Performance Evaluation

This section presents an analysis and interpretation of findings regarding utilising performance evaluation systems among the surveyed companies. Scholars such as Epstein (2018) emphasise the critical role of effective performance evaluation techniques in maintaining competitive advantage and driving organisational success. Performance evaluation ensures efficiency and strategic alignment in the highly competitive and operationally intensive petroleum sector (Kwakye et al., 2023). The study examined the adoption rates of various performance evaluation systems and the factors influencing their implementation. By assessing the extent to which different performance evaluation methods are employed, the research aimed to provide a comprehensive understanding of how these systems may have contributed to firms' performance and competitive advantage in the Zimbabwean petroleum industry.

6.5.4.1 Adoption of Performance Evaluation Systems

The findings revealed that most participating companies use performance evaluation systems to manage their performance, highlighting the critical role these systems play in the industry. This finding is in agreement with Epstein (2018), who discusses that there has been a widespread increase in the use of performance evaluation measurement systems in an increasingly competitive business environment. This widespread adoption aligns with the findings on budgeting systems, emphasising the importance of structured financial and operational oversight in the petroleum industry. For the few companies not using such systems, the perceived lack of necessity was the sole reason cited, suggesting that these firms may rely on alternative, perhaps less formal, performance assessment methods.

6.5.4.2 Extent of Use of Specific Performance Metrics

The findings illustrate that various performance metrics are extensively utilised across the surveyed firms, underscoring their importance in operational and strategic management. Key metrics such as operating income, return on investment, and sales growth are prominently used. These metrics are crucial for assessing profitability, investment efficiency, and market performance. This finding resonates with Botchkarev (2015b) findings that Return on Investment is one of organisations' most popular performance measurement and evaluation metrics. Mohd et al. (2013) outline that sales growth as a performance evaluation measure is used by most businesses, with 94% of the participating companies using it. The findings also show that monitoring cash flows is common, reflecting the critical need to maintain liquidity and financial stability. The findings also show that financial performance metrics were more popular than non-financial ones. This is in agreement with Al Sawalqa (2011), Ahmad (2012) and Geng et al. (2021), who outline that financial measures have remained popular in businesses despite the emergence of non-financial performance evaluation metrics.

The findings further show that metrics related to customer satisfaction, such as the number of customer complaints and customer satisfaction surveys, are also utilised. These metrics provide insights into service quality and customer experiences, vital for maintaining a competitive edge in the market. Employee turnover is another

important metric many firms track, highlighting its relevance in understanding workforce stability and organisational culture. Most of these non-financial performance metrics are part of the balanced scorecard. Kwakye et al. (2023) discuss that non-financial performance measures are increasingly becoming more popular through the increased use of the balanced scorecard as a performance management tool in the petroleum industry. Non-financial performance evaluation measures are increasingly crucial for managing long-term projects and significant investments in this highly volatile sector (Camilleri, 2020; Kwakye et al., 2023).

These findings are instrumental in addressing the research objective of determining the management accounting practices used in selected petroleum companies, particularly performance evaluation systems, in the petroleum industry. The high adoption rate of these systems underscores their essential role in enhancing operational efficiency and competitive advantage. The varied adoption rates of specific metrics reflect the diverse operational needs and strategic priorities of firms within the industry. For instance, the significant use of operating income, return on investment, and sales growth metrics indicates a strong focus on financial performance and market expansion. Meanwhile, metrics like customer complaints and employee turnover, though less universally adopted, are critical for maintaining service quality and workforce stability.

6.5.5 Decision Support System

This section presents the analysis and interpretation of findings related to using decision support systems within the surveyed organisations. Decision support systems (DSS) are essential for aiding decision-making processes, providing analytical frameworks and data-driven insights that enhance strategic planning and operational efficiency (Adedeji and Ituma, 2020; Koskinen et al., 2020). The study highlights the prevalence and significance of DSS, along with the factors influencing their adoption, to provide a comprehensive understanding of how these systems may have contributed to the competitive positioning of firms in Zimbabwe's petroleum industry.

6.5.5.1 Adoption of Decision Support Systems

The study revealed that most firms utilise decision support systems, emphasising their critical role in organisational operations. This widespread adoption indicates a

strong recognition of the value and necessity of such systems for effective decision-making and strategic management. These findings align with the literature, which underscores the importance of DSS in enhancing the decision-making capabilities of organisations (Alnasser et al., 2014). As for other firms that did not employ decision support systems, the primary reasons cited were a perceived lack of necessity and financial constraints. This suggests that while DSSs are highly valued, some organisations may not perceive their immediate need or face budgetary limitations that impede their adoption.

6.5.5.2 Extent of Use of Specific Decision Support Techniques

Among the surveyed firms, several decision support techniques were widely utilised. Stock control models (90%), break-even analysis (86%), and product profitability analyses (84%) emerged as particularly prominent, with most respondents indicating frequent use. Stock control models, in particular, are a critical management accounting technique in the petroleum industry. According to Izuakulom (2022), stock control is popular in the petroleum industry, a high-stock business that ensures constant product availability and enhanced customer satisfaction. These techniques are crucial for assessing financial viability, managing inventory levels, and determining the profitability of products, respectively. Their widespread adoption highlights their importance in these firms' financial and operational planning.

Customer profitability analysis and the payback period are also significantly utilised. In agreement with the findings, Mokabiri (2009) emphasises the importance of customer profitability analysis in the petroleum industry, where prices are usually regulated and hence cannot be used as a competitive tool. In this regard, companies must differentiate themselves through service provision, station location, and fuel brand. Customer profitability analysis helps firms understand the value generated by different customer segments, enabling targeted strategies to enhance profitability. The payback period, a straightforward financial metric, evaluates the time required to recoup an investment, aiding capital budgeting decisions. Despite being criticised for not measuring the overall project (Lucey, 2009), the payback period technique has remained popular due to its simplicity and allowing for capital decisions to be made faster (Loginovskiy and Gelrud, 2016). Customer profitability analysis and the payback period techniques provide essential insights that support

strategic and financial planning, reinforcing their importance in the surveyed organisations.

Other techniques, such as accounting rate of return (ARR) and net present value (NPV), also see substantial use, though slightly less. ARR is used to assess the potential return on investments, while NPV provides a comprehensive measure of investment viability by considering the time value of money. The use of these techniques underscores the firm's commitment to rigorous financial evaluation and investment planning. While some firms employ the internal rate of return (IRR), its use is less widespread than other techniques. This variation in adoption rates reflects the industry's diverse strategic and financial management approaches, suggesting that firms tailor their decision-support tools to their specific needs and contexts.

These findings support the research objective of investigating the extent and implementation of management accounting techniques in the petroleum industry. The high adoption rate of decision support systems underscores their importance in this sector, highlighting their role in enhancing decision-making capabilities and strategic planning. The diverse adoption rates of specific decision support techniques reflect firms' varied operational needs and strategic priorities. This diversity shows organisations' need to tailor their decision support practices to align with their unique contexts and objectives, maximising their strategic and operational effectiveness.

6.5.6 Strategic Management Accounting

This section presents and analyses the findings regarding adopting and utilising Strategic Management Accounting (SMA) practices within the surveyed organisations. SMA integrates management accounting with competitive strategy, enhancing strategic decision-making (Juras, 2014; Roslender and Hart, 2003; Simmonds, 1981). In this regard, SMA plays a crucial for organisations aiming to improve their long-term performance in dynamic business environments (Abdullah et al., 2022; Alamri, 2019a; Cinquini and Tenucci, 2010; Mohammed et al., 2019; Ojra, 2014; Zakaria, 2015). By assessing the extent to which different SMA tools are employed, the research aimed to comprehensively understand how SMA techniques may have contributed to firms' performance and competitive advantage in the

Zimbabwean petroleum industry.

6.5.6.1 Adoption of Strategic Management Accounting

The survey revealed that most organisations (79%) use SMA. This widespread adoption underscores the recognised importance of SMA in guiding strategic decisions and improving overall organisational performance. This finding resonates with Oyewo (2022) findings, which discuss the increasing use of SMA techniques, such as customer and competitor accounting. On the other hand, some organisations are not using SMA, citing reasons such as the perceived lack of necessity and financial constraints. This suggests that while SMA offers strategic benefits, such as enhanced cost management and competitive positioning, some organisations either prioritise other management practices or need help implementing SMA due to resource limitations.

6.5.6.2 Extent of Use of Specific Strategic Management Accounting Techniques

The survey also explored the extent to which specific SMA techniques are utilised within organisations. When making pricing decisions, most surveyed organisations consider strategic factors, such as industry competitiveness, highlighting the importance of incorporating external market conditions into pricing strategies. Techniques such as strategic costing and analysing costs across the value chain were reported to be extensively employed. The systematic collection of data on competitors' actions and market positioning was also noted as a common practice. These findings agree with Guilding et al. (2000), who outline that competitor accounting and strategic costing are the most popular SMA techniques.

The findings also revealed that analysing costs for each activity in the value chain is widely practised in the petroleum industry, with 73% of the respondents indicating they used this from a medium to a very large extent. This underscores the critical importance of value chain management in an industry characterised by its complexity and high value. Rusinga (2010) highlights that petroleum companies leverage value chain analysis to optimise operations and gain competitive advantage, often by strategically locating terminals near markets and outsourcing non-core activities. This approach likely enhances operational efficiency and strengthens the firms' market positioning.

These findings align with the research objective of identifying the management

accounting practices used by the selected petroleum companies, with a particular focus on strategic management accounting (SMA) in this context. The high adoption of SMA highlights its crucial role in guiding strategic decision-making and improving organisational performance. These findings indicate a strong recognition of SMA's value in integrating financial strategies with broader business objectives, which is essential for navigating the complexities of the petroleum industry. The extensive use of specific SMA techniques, such as strategic costing, value chain analysis, and systematic competitor data collection, demonstrates firms' varied approaches to enhance their strategic positioning. Overall, the findings emphasise the significant role of SMA in the petroleum industry and detail the prevalent management accounting practices within the selected companies.

6.5.7 Conclusion on the Prevalence of Management Accounting Techniques

The survey of selected petroleum companies in Zimbabwe reveals a distinct hierarchy in adopting and utilising management accounting techniques, reflecting their strategic importance and operational utility. Budgeting systems, particularly sales, purchasing, and cash flow budgets, emerged as the most widely used management accounting practice. These systems are critical for financial planning and resource management, enabling firms to allocate resources effectively, monitor financial performance, and ensure liquidity. The prominence of budgeting aligns with its critical role in setting financial targets and ensuring organisational alignment, as supported by Ahmad (2012), Lorenz (2015) and Vale et al. (2022).

Performance evaluation systems are also extensively adopted, emphasising financial metrics such as operating income, return on investment, and sales growth. These metrics are vital for assessing profitability, investment efficiency, and market performance, underscoring their importance in firms' operational and strategic management. This finding aligns with the literature, highlighting the continued popularity of financial performance measures in businesses (Ahmad, 2012; Al Sawalqa, 2011; Geng et al., 2021).

Short-term decision support systems, including break-even analysis, stock control, product profitability analysis, and specific project appraisal techniques, are prevalent among the surveyed companies. These tools are essential for tactical decision-making, reflecting the need for timely and actionable information in a rapidly evolving

and competitive industry. The literature corroborates the significant adoption of short-term decision support systems in the petroleum industry (Adedeji and Ituma, 2020; Shokouhi et al., 2024).

Strategic management accounting (SMA) techniques also show substantial integration, indicating a strategic orientation in management accounting practices. SMA focuses on external factors such as market trends and competitor analysis, aligning accounting practices with strategic objectives to enhance competitive positioning. This integration is critical in the petroleum industry, where external market conditions and competitive dynamics are crucial (Agostinho and Weijermars, 2017; Al-Hanshi et al., 2022; Roslender and Hart, 2003).

Costing systems exhibit varied usage levels, with variable costing being the most widely adopted technique. This method is essential for financial operations, particularly in an industry where supply and demand are influenced by numerous factors beyond market forces (Bernstein Research, 2007). While other costing techniques like job costing, batch costing, and process costing are employed with varying frequencies, which did not achieve statistical significance, reflecting the diverse cost management strategies across firms.

The findings indicate that budgeting systems and performance evaluation techniques are the most prevalent management accounting practices, emphasising their critical role in financial control and strategic planning. Short-term decision support systems are also widely used, highlighting the importance of timely information for operational decision-making. Integrating strategic management accounting practices suggests a strategic orientation in management accounting, aligning accounting functions with broader business goals. While varied in adoption, costing systems remain essential for financial management and cost control. These insights provide a comprehensive understanding of the management accounting practices in the Zimbabwean petroleum industry, reflecting their importance in enhancing competitive positioning and operational efficiency.

6.6 Evidence of Competitiveness in the Industry

This section presents and analyses the findings related to the evidence of selected petroleum companies benefiting from a relative competitive advantage within the petroleum industry. The data is derived from questionnaire responses designed to

measure various aspects of relative competitiveness and firm performance. The first part of this section explores respondents' perceptions of their firms' competitive positioning. In contrast, the second part evaluates changes in firm performance over the past three years across several dimensions. By examining both financial and non-financial performance metrics, this section seeks to identify the relative competitiveness of the participating firms and their level of performance.

6.6.1 Relative Competitiveness

The analysis of relative competitiveness aimed to assess firms' positioning based on key factors. The findings indicate a strong consensus among respondents regarding several competitive factors. Specifically, the results showed that companies perceive their prices as competitive, with a mean score of 3.46 (SD = 1.013) and a significant t-value of 3.606 ($p = .001$). Companies also reported offering superior services, such as fuel cards, with a mean score of 3.60 (SD = 1.225) and a t-value of 3.907 ($p < .001$). Additionally, firms noted having adequate resources (mean = 3.73, SD = 1.181, $t = 4.909$, $p < .001$) and efficient management accounting techniques (mean = 3.84, SD = 1.035, $t = 6.452$, $p < .001$).

Other areas where companies showed strong relative competitiveness included the use of standardised electronic interfaces (mean = 3.70, SD = 1.131, $t = 4.903$, $p < .001$) and the support of closely intertwined business units (mean = 4.03, SD = 0.933, $t = 8.780$, $p < .001$). Conversely, perceptions of the uniqueness of petroleum products and the range of alternative products developed were less significant (mean = 3.16, SD = 1.221, $t = 1.032$, $p = .306$; mean = 3.03, SD = 1.191, $t = .212$, $p = .833$, respectively). The findings underscore the importance of competitive pricing, superior services, resource availability, and effective management accounting techniques in enhancing relative competitiveness.

While these internal factors contribute significantly to competitive strategy, Porter's Five Forces framework (Porter, 1985) highlights external industry factors as crucial determinants. Firms must, therefore, analyse competitive forces such as threats of substitutes, barriers to entry, supplier power, buyer power, and industry rivalry to formulate robust strategies for sustaining competitive advantage. This framework underscores the importance of aligning internal capabilities with external market dynamics for strategic success.

The study identifies superior services as a critical factor contributing to the competitive positioning of petroleum firms. This aligns with the differentiation strategy discussed in the literature, where firms strive to enhance customer satisfaction through service excellence (Ashour, 2018; Porter, 1985). Superior services can encompass aspects such as reliability in delivery, responsiveness to customer needs, technical support, and post-sales service, all of which contribute to customer loyalty and satisfaction (Grant, 2018). This strategic approach enhances customer retention and supports premium pricing strategies, improving profitability and sustaining competitive advantage over time (Heskett et al., 1997; Spencer et al., 2009).

The analysis of relative competitiveness highlights that one of the critical strengths of the selected petroleum companies is the close interconnection and mutual support among their business and functional units (e.g., marketing, R&D, sales). The findings also show that the capabilities and resources within the petroleum companies complement each other, as well as the use of standardised electronic interfaces with customers and suppliers. These findings align well with the Capability-Based Theory of Competitive Advantage. According to this theory, a firm's internal capabilities, such as efficient coordination and integration of various business functions, are crucial for creating and sustaining a competitive advantage (Teece et al., 1997).

In a study by Saad et al. (2014a), dynamic capabilities were a source of competitive advantage in the Malaysian petroleum industry. Dynamic capabilities are defined as the capacity of the firm to integrate, create, and reconfigure internal and external skills to handle quickly changing contexts (Teece et al., 1997). These enable the firm to respond swiftly to market changes, innovate effectively, and deliver superior value to customers. The high level of integration and support among different units within the companies may result from robust internal processes and communication channels, which are essential capabilities in the petroleum industry.

The availability of adequate resources is another critical factor contributing to the competitiveness of petroleum companies, as shown in the findings. The Resource-Based View (RBV) framework emphasises that having access to valuable, rare, inimitable, and non-substitutable (VRIN) resources is essential for achieving a sustained competitive advantage (Wernerfelt, 1984). In the context of the petroleum

industry, resources such as advanced technology, skilled labour, and access to raw materials are fundamental to the firm's ability to operate efficiently and innovate. In this regard, adequate availability of these resources ensures that the companies can meet market demands, improve their production processes, and maintain high service levels, strengthening their competitive position.

The firms also demonstrated a proactive approach to market changes, with significant agreement that they react to competitors' innovations by adjusting their product portfolios. This comprehensive understanding of how firms perceive their competitive positions underscores the importance of strategic management practices and internal coordination in achieving and maintaining a competitive advantage.

6.6.2 Firm Performance

The analysis of firm performance over the past three years reveals significant improvements across various dimensions. Competitive advantage has been linked to improved company performance (Ma, 2000; Porter, 1991; Strandkov, 2006). The findings indicated perceived improvements across various performance metrics, including product quality (mean = 3.90, SD = 0.962, $t = 7.462$, $p < .001$), service quality (mean = 4.24, SD = 0.000, $t = 11.006$, $p < .001$), market share (mean = 3.92, SD = 1.091, $t = 6.636$, $p < .001$), sales (mean = 4.13, SD = 1.063, $t = 8.361$, $p < .001$), operating profit (mean = 3.90, SD = 1.211, $t = 5.874$, $p < .001$), cash flow (mean = 3.82, SD = 1.208, $t = 5.361$, $p < .001$), resource deployment (mean = 3.89, SD = 0.989, $t = 7.159$, $p < .001$), innovativeness (mean = 4.10, SD = 0.875, $t = 9.939$, $p < .001$), business unit synchronisation (mean = 4.10, SD = 0.863, $t = 10.008$, $p < .001$), and business flexibility (mean = 4.19, SD = 0.877, $t = 10.771$, $p < .001$). These improvements suggest that the surveyed firms have successfully leveraged their competitive strategies to enhance their overall performance.

Service quality exhibited the most significant improvement, with a mean score of 4.24 (SD = 0.000) and a t-value of 11.006 ($p < .001$). This enhancement aligns with the differentiation strategy discussed by Porter (1985), where firms seek to offer unique and high-value services that set them apart from competitors. High service quality in the petroleum industry can include reliable fuel delivery, exceptional customer service, comprehensive technical support, and efficient fuel card services.

By excelling in service quality, these firms can increase customer loyalty and satisfaction, which is critical for sustaining competitive advantage and achieving premium pricing (Grant, 2018).

Business flexibility is also perceived to have a notable improvement, evidenced by a mean score of 4.19 (SD = 0.877) and a t-value of 10.771 ($p < .001$). Business flexibility is essential for responding to market dynamics and customer needs effectively. The use of standardised electronic interfaces with customers and suppliers, as highlighted in the relative competitiveness discussion, contributes significantly to this flexibility. By integrating advanced technology and maintaining robust supply chain management, these firms can quickly adapt to changing market conditions, strengthening their competitive edge. The Dynamic Capabilities framework supports this view, positing that rapidly reconfiguring and adjusting resources and competencies is crucial for long-term success (Teece et al., 1997).

The findings demonstrated a significant increase in perceived sales (mean = 4.13, SD = 1.063, $t = 8.361$, $p < .001$) and market share (mean = 3.92, SD = 1.091, $t = 6.636$, $p < .001$), indicating that competitive strategies have effectively translated into tangible market performance gains. Effective competitive pricing and cost leadership strategies, as discussed in the relative competitiveness section, are likely contributors to these improvements. By minimising costs and offering competitive prices, the firms can attract a more extensive customer base, increasing sales and market share. This approach aligns with findings from Kamukama et al. (2017) and Nyauncho and Nyamweya (2015), which emphasise the importance of cost leadership in gaining market share and enhancing firm performance.

There is also perceived improvements in innovativeness (mean = 4.10, SD = 0.875, $t = 9.939$, $p < .001$) and business unit synchronisation (mean = 4.10, SD = 0.863, $t = 10.008$, $p < .001$). This demonstrates the dynamic and adaptable nature of the firms' operations. High innovativeness indicates that these firms continuously seek new ways to improve their products and services, which is essential for staying ahead in a competitive industry. The Capability-Based Theory of Competitive Advantage highlights the importance of developing and leveraging unique capabilities, such as innovation, to achieve sustained competitive advantage (Teece et al., 1997). Business unit synchronisation ensures that various departments (e.g., marketing, R&D, sales) work cohesively towards common goals, enhancing overall

organisational efficiency and effectiveness.

The findings showed enhancements in operating profit (mean = 3.90, SD = 1.211, $t = 5.874$, $p < .001$) and cash flow (mean = 3.82, SD = 1.208, $t = 5.361$, $p < .001$), reflecting improvements in financial health and stability. Efficient management accounting techniques, which received a high mean score in the relative competitiveness section, likely play a crucial role in optimising financial performance. By effectively managing costs and resources, these firms can improve their profitability and cash flow, vital for sustaining long-term growth and competitiveness. This financial stability allows firms to reinvest in their operations, further enhancing their capabilities and market position.

Adequate resource deployment was evident, with a mean score of 3.89 (SD = 0.989) and a t -value of 7.159 ($p < .001$). The Resource-Based View (RBV) framework emphasises that having access to valuable, rare, inimitable, and non-substitutable resources is essential for achieving a sustained competitive advantage (Wernerfelt, 1984). In the petroleum industry, effective resource deployment ensures that firms can meet market demands, innovate, and maintain high service levels, strengthening their competitive position.

6.6.3 Summary of Evidence of Competitive Advantage Findings

The competitive advantage analysis for the selected petroleum companies reveals a significant positive perception of their competitive positioning and improvements in firm performance across various dimensions. The evidence indicates that these companies have successfully leveraged competitive pricing, superior services, adequate resources, and efficient management accounting techniques to achieve and sustain competitive advantage. The high relative competitiveness, financial performance, and non-financial performance suggest that the companies perceive themselves as competitive and report tangible improvements in their operations. These findings align with the literature on competitive strategy, emphasising the importance of cost leadership, differentiation, and dynamic capabilities in achieving competitive advantage (Porter, 1985; Teece et al., 1997).

These findings support the research objective of identifying evidence of selected petroleum companies benefiting from a relative competitive advantage. The high level of perceived relative competitiveness and significant improvements in firm

performance demonstrate the strategic importance of competitive pricing, superior services, resource adequacy, and efficient management accounting techniques. The substantial perceived improvements in performance validate competitive strategies' effectiveness, demonstrating how they contribute to enhanced market positioning and operational success. In conclusion, the evidence indicates a clear competitive advantage for the surveyed petroleum companies.

6.7 Effect of Management Accounting on Competitive Advantage

This section discusses how management accounting practices impact competitive advantage within selected petroleum companies. By exploring the role of various management accounting practices—costing systems, performance measurement, and investment appraisal—this section aims to highlight how these practices contribute to a firm's competitive positioning and overall performance. The analysis is divided into two main parts (section 6.7.1 and section 6.7.2). First, Section 6.7.1 investigates the effects of individual management accounting systems on competitive advantage. This section deals with management accounting systems and their impact on competitive advantage. Section 6.7.2 examines the combined usage of management accounting systems. This section focuses on understanding how the overall engagement in management accounting practices affects competitive advantage. The section aims to determine the level of engagement in management accounting practices and the effect on competitive advantage.

Several statistical techniques were applied to uncover these insights. Regression analysis first explored the relationship between management accounting practices and competitive advantage. Following this, hierarchical regression analysis was used to assess the influence of confounding variables, systems usage, and their collective effect on both financial and non-financial performance. Pearson correlation analysis was then used to examine the relationship between engagement in management accounting and key competitive advantage variables, including relative competitiveness, financial performance, and non-financial performance. Lastly, the ANOVA/Welch test was conducted to identify any significant differences in competitive advantage across varying levels of engagement in management accounting practices. Through these analyses, this section aims to provide a comprehensive understanding of how different management accounting practices contribute to achieving and maintaining a competitive edge in the petroleum industry.

6.7.1 Impact of Individual Management Accounting Systems on Competitive Advantage

This section examines how management accounting practices contribute to creating and sustaining competitive advantage in Zimbabwe's petroleum industry. The study analysed the impact of various practices, including decision support systems, budgeting techniques, and performance measurement, on competitiveness and financial and non-financial outcomes.

The analysis revealed that long-term decision support systems had the most significant positive relationship with competitive advantage, with a coefficient of 0.276, a t-value of 2.708, and a p-value of 0.009. This indicates that greater use of these systems substantially enhances competitive positioning. Decision support systems such as investment appraisal techniques (e.g., payback period, net present value, and internal rate of return) foster competitive advantage. These findings are consistent with existing literature on the strategic importance of long-term planning in management accounting. Gitman et al. (2015) and Stamalevi (2015) highlight how advanced appraisal techniques like NPV and IRR, which account for the time value of money, support strategic decision-making and resource allocation, ultimately leading to competitive advantage.

While management accounting practices did not significantly predict overall financial performance, long-term decision support systems positively influenced financial performance and non-financial outcomes such as customer satisfaction and innovation. Conversely, traditional budgeting techniques had a negative impact on non-financial performance. The study also reveals that strong financial performance positively affects non-financial outcomes, supporting the idea that financial health can drive operational efficiency and innovation. These results align with Hornungová (2017), who found a strong link between non-financial metrics and company profitability. Detailed discussions of these findings are as follows in subsequent sections.

6.7.1.1 Management Accounting and Relative Competitiveness

The study's findings indicate that long-term decision support systems positively influence competitive advantage, with a coefficient of 0.276, a t-value of 2.708, and a p-value of 0.009. In contrast, short-term decision support systems have a negative

impact on competitive advantage, with a coefficient of -0.153, a t-value of -1.980, and a p-value of 0.053. This distinction underscores the strategic value of long-term planning and analysis in enhancing a firm's competitive positioning. Long-term decision support systems provide comprehensive insights into future trends, risks, and opportunities, enabling firms to make informed strategic decisions that align with their long-term objectives and market conditions (Gitman et al., 2015; Jory et al., 2016). In addition, practices such as long-term decision support systems are inherently aligned with strategic planning and long-term objectives as they facilitate forward-looking analysis and strategic decision-making, which is crucial for maintaining a competitive edge in dynamic markets (Dobrowolski and Drozdowski, 2022).

Relying on short-term decision support systems may lead to immediate financial gains but can undermine a firm's long-term competitive advantage. This short-term focus often restricts investments in critical areas like research and development, employee training, and strategic initiatives essential for sustainable growth (Owusu-Ansah et al., 2023; Stamalevi, 2015). Short-term strategies can result in cost-cutting measures such as reducing maintenance budgets or deferring new technology investments, which might offer immediate relief but compromise future operational capabilities and competitiveness (Kaplan and Norton, 2001).

In contrast, long-term planning and investment are vital in the petroleum industry, where technological advancements and innovation are crucial for maintaining a competitive edge. Short-term decision-making can stifle innovation by deprioritising essential investments in advanced drilling technologies or enhanced oil recovery techniques (Adedeji and Ituma, 2020). Investing in R&D, employee training, and sustainable practices is crucial for long-term growth and maintaining a competitive advantage, as these investments build unique resources and capabilities necessary for enduring success (Barney, 1991; Teece et al., 1997).

The analysis also revealed that other management accounting practices, such as cost control systems, budgeting, performance measurements and strategic management accounting, did not show significant individual effects on competitive advantage despite their collective impact on the competitive advantage. This suggests that while these practices contribute to the overall management accounting framework, their contributions might be less pronounced or easily

measurable in isolation. One possible explanation for this lack of significant individual effects is that these practices are often interdependent and function synergistically within a firm's broader strategic management system. For instance, budgeting and performance measurement systems are closely linked, and effective budgeting can set realistic performance targets, which are then monitored and managed through performance measurement systems. The integrated use of these practices can create a robust management accounting system that collectively enhances a firm's competitive advantage (Imegi and Nwokoye, 2015).

The findings suggest that while individual management accounting practices may not independently drive competitive advantage, their collective implementation within a strategic, long-term framework can significantly enhance a firm's competitive positioning. Long-term decision support systems, in particular, emerge as critical tools for achieving sustainable competitive advantage by aligning strategic objectives with comprehensive financial analysis and adaptive management practices. This underscores the importance of integrating management accounting practices within a cohesive strategic management system to realise their potential benefits fully.

6.7.1.2 Management Accounting and Financial Performance

The study's findings reveal that while individual management accounting practices generally did not significantly predict financial performance, specific practices such as long-term decision support systems demonstrated a significant impact. Regression analysis showed that long-term decision support systems had a coefficient of $B = 0.276$ with a t -value of 2.708 and a p -value of 0.009, indicating a significant positive effect on financial performance. This suggests that while management accounting practices are essential for providing accurate and relevant financial information, their direct impact on financial performance might be more complex.

Long-term decision support systems involve comprehensive financial planning and strategic analysis that span extended periods, allowing companies to anticipate market changes, allocate resources efficiently, and align strategic objectives with long-term goals (McLean et al., 2015). This proactive approach facilitates better decision-making and operational efficiency, which are crucial for sustaining a competitive advantage in

the dynamic petroleum industry (Adedeji and Ituma, 2020; Alnasser et al., 2014; Cooper and Kaplan, 1991; Gitman et al., 2015; Koskinen et al., 2020). In the context of the petroleum industry, Adedeji and Ituma (2020) and Alnasser et al. (2014) highlight the importance of long-term planning in managing the cyclical nature of oil prices and the substantial capital investments required for exploration and production.

In the context of the petroleum industry, aligning strategic objectives with long-term goals is particularly important due to the industry's inherent risks and long project lead times. Arezki et al. (2017) highlight the importance of long-term planning in ensuring that companies can withstand the financial pressures of fluctuating oil prices and regulatory changes. Clews (2016) further underscores the need for strategic alignment to manage the extensive timelines and capital investments associated with oil exploration and production projects.

Besanko et al. (2000) emphasise the importance of financial performance as an indicator of competitive advantage by arguing that a firm has a competitive advantage if it earns a higher rate of economic profit than the average rate of economic profit of other firms competing within the same market. However, other literature disputes this notion, highlighting that management accounting practices can create and sustain competitive advantage without necessarily translating into immediate financial performance gains (Oyewo, 2022). However, this contrasts with findings from Alamri (2019a), which demonstrated that using management accounting, particularly strategic management accounting (SMA), led to improved financial performance. This discrepancy underscores the complex and context-dependent relationship between management accounting practices and financial outcomes.

These findings also show that the effectiveness of management accounting practices may be contingent upon the specific context and implementation within the organisation. For example, the complexity of the petroleum industry, characterised by volatile markets, high capital intensity, and long investment cycles, may necessitate a more nuanced application of management accounting practices tailored to these unique conditions (Imegi and Nwokoye, 2015; Magni, 2016). Additionally, external factors such as market conditions, regulatory changes, and technological advancements can influence financial performance independently of management accounting practices.

The implications for strategic financial management are clear: adopting long-term decision support systems can provide a strategic advantage by enabling more accurate and forward-looking financial planning. Firms that integrate long-term decision support systems management accounting practices are likely to see more significant improvements in financial performance over time, even though this may not be so in the short term. While management accounting practices collectively may not directly and significantly impact financial performance, the marginal significance of decision-support long-term analysis underscores the importance of strategic, long-term financial planning. Firms that should focus on integrating long-term decision support systems may enhance their overall financial performance and achieve long-term competitive success.

However, although financial performance (FP) was not statistically significant in this study, prior research suggests that variations in financial indicators still contribute to long-term competitive advantage through strategic investments, cost control, and market positioning (Izuakulom, 2022). This suggests that while immediate financial gains may not always be evident, the cumulative effects of strategic financial management can drive sustainable performance over time. Future studies may refine FP measurement by incorporating additional financial metrics such as Return on Assets (ROA), Return on Equity (ROE) and EBITDA which may offer a more comprehensive assessment of the firm's financial performance.

The insignificance of financial performance (FP) as a predictor of competitive advantage suggests that in Zimbabwe's petroleum industry, non-financial factors play a greater role in sustaining market leadership. This aligns with research in similar economies where macroeconomic instability renders financial metrics unreliable for assessing long-term firm success (El Fallahi et al., 2023). A key explanation for this finding is the impact of government-imposed price controls on petroleum products, which limit firms' ability to compete on price and profitability. As a result, firms must differentiate themselves through operational excellence, customer loyalty programs, and efficient supply chain management (Izuakulom, 2022).

Moreover, in economies with frequent exchange rate fluctuations and hyperinflation, firms focus on non-financial performance indicators such as brand reputation, market reach, and service quality as measures of sustainable competitive

advantage (Amoako, 2022). Several empirical studies have highlighted how financial metrics may be misleading in unstable economies due to inflation-induced distortions and currency devaluations (Spitsin et al., 2020). Given the recurring economic crises in Zimbabwe, non-financial indicators such as operational efficiency, market agility, and customer retention may offer more reliable signals of competitive advantage than financial performance measures.

Moreover, Zimbabwe's foreign exchange shortages, excessive government intervention, and weak investor confidence further undermine financial performance as a primary driver of competitive advantage. Firms may focus on survival strategies—such as building strong supplier relationships and maintaining operational resilience rather than financial growth.

6.7.1.3 Management Accounting and Non-Financial Performance

The findings show that long-term decision support systems significantly enhance non-financial performance. Specifically, the coefficient for long-term decision support systems was $B = 0.275$, with a t -value of 2.808 and a p -value of 0.007, demonstrating a significant positive effect on non-financial performance. Other management accounting practices showed varying effects: Budgeting techniques had a significant negative effect with $B = -0.234$, $t = -2.339$, and $p = 0.023$. Financial performance measurement positively impacted non-financial performance with $B = 0.295$, $t = 2.312$, and $p = 0.025$. These results underscore the importance of long-term decision support systems in improving non-financial performance while highlighting that other management accounting practices may have limited or varying impacts.

This finding suggests that long-term decision support systems substantially improve non-financial outcomes. Long-term decision support systems, which include comprehensive financial planning and strategic analysis over extended periods, facilitate better resource allocation, informed decision-making, and enhanced strategic alignment (McLean et al., 2015). These capabilities are crucial for improving various non-financial performance metrics such as customer satisfaction, operational efficiency, and innovation (Greenwalt and Patt, 2021; Perkins et al., 2014). By enabling organisations to anticipate future challenges and opportunities, long-term decision support systems practices help foster a proactive and agile

organisational culture, essential for sustaining competitive advantage in dynamic market environments.

Long-term decision support systems also significantly facilitate better decision-making and operational efficiency, which is crucial for sustaining a competitive advantage in the dynamic petroleum industry (Al-Hanshi et al., 2022). By focusing on long-term goals, these systems help companies develop robust strategies that mitigate risks associated with market fluctuations and geopolitical uncertainties. For instance, Koskinen et al. (2020) emphasise that long-term strategic planning allows companies to invest in innovative technologies and sustainable practices, vital for maintaining competitiveness in a rapidly evolving market. By combining strategic foresight with effective resource management, long-term decision support systems empower organisations to meet current operational demands and position themselves for future success by improving resilience and adaptability.

Conversely, budgeting techniques significantly negatively affected non-financial performance ($B = -0.234$, $t = -2.339$, $p = 0.023$). This could be attributed to the rigid and short-term nature of traditional budgeting processes, which often emphasise cost control and adherence to predefined financial targets at the expense of flexibility and innovation (Lasyoud et al., 2018). Such practices can stifle creativity and responsiveness, leading to a decline in employee morale and operational agility, ultimately hindering improvements in non-financial performance metrics. However, the findings contradict other findings, such as those of Shah et al. (2011), who discuss that budgeting in the petroleum industry improves supply chain management due to its effect of enterprise-wide optimisation.

The study also identified a positive influence of financial performance measurement on non-financial performance ($B = 0.295$, $t = 2.312$, $p = 0.025$). Strong financial performance can create a favourable environment for enhancing non-financial aspects of the business. For instance, firms with robust financial health are better positioned to invest in employee development, customer relationship management, and innovation initiatives (Mohd et al., 2013). This alignment between financial and non-financial performance underscores the importance of a balanced approach to performance management, where financial success supports broader organisational goals.

Operational efficiency is one of the critical areas positively impacted by financial performance. Efficient operations often lead to cost savings, higher productivity, and improved service quality, increasing customer satisfaction and loyalty (Ismail, 2007a; Wirtz, 2003). Moreover, financial stability allows organisations to invest in new technologies and innovative processes, fostering a culture of continuous improvement and competitiveness.

The study found that other management accounting practices, such as cost control systems, traditional budgeting, non-financial performance measures, and SMA, did not show significant individual effects on non-financial performance. These findings contradict some of the literature reviews, which established a relationship between costing techniques, such as modern standard costing strategies, and non-financial performance indicators, such as improved decision-making (Abdullahj et al., 2016; Al-Shattarat et al., 2021). Mukuusi (2019), in their study on Kenya's petroleum industry, found that non-financial measures such as employee performance had a significant positive impact on competitive advantage, as firms using these measures invested more in their workforce through training, fair compensation and maintaining high levels of employee satisfaction, leading to increased productivity and innovation.

In a nutshell, the findings reveal the complex effects of various management accounting practices on non-financial performance. Long-term decision support systems notably enhance organisational performance, underscoring the value of strategic planning and support. Conversely, traditional budgeting techniques have a detrimental effect, suggesting that more adaptable budgeting methods might be necessary. Additionally, the positive link between financial performance and non-financial outcomes highlights the interconnectedness of financial health and overall success. The lack of significant impact from other practices points to the need for a more integrated and tailored approach to management accounting that addresses the industry's specific needs and challenges. These insights offer valuable guidance for organisations that use management accounting practices to boost non-financial performance and maintain a competitive edge.

6.7.2 Engagement in Management Accounting and Competitive Advantage

The primary objective of this research was to investigate how the implementation of management accounting techniques by Zimbabwe's petroleum companies has led

to the creation and sustaining of competitive advantage. This section focuses on how the level of engagement in management accounting practices has contributed to creating and sustaining competitive advantage.

The analysis reveals that extensive engagement in management accounting practices significantly correlates with higher relative competitiveness and improved non-financial performance. Specifically, Pearson correlation analysis showed a strong positive relationship between engagement in management accounting and relative competitiveness ($r = 0.550$, $p < 0.001$), as well as a moderate positive correlation with non-financial performance ($r = 0.415$, $p = 0.001$).

Additionally, the ANOVA/Welch tests supported these findings by showing significant differences in competitive advantage variables across different levels of management accounting engagement. The results indicate that companies with high engagement in management accounting practices exhibited notably better relative competitiveness and non-financial metrics performance. For instance, relative competitiveness scores were significantly higher for companies with extensive engagement ($F = 10.958$, $p < 0.001$), and non-financial performance also showed significant variation based on engagement levels ($F = 6.118$, $p = 0.004$).

These results underscore the importance of adopting a comprehensive approach to management accounting. Companies leveraging these practices gain valuable strategic insights, enhance operational efficiency, and improve non-financial performance, creating and sustaining a competitive advantage in the industry.

6.7.2.1 The Relationship between Management Accounting Engagement and Competitive Advantage

The findings reveal a strong positive correlation between engagement in management accounting practices and relative competitiveness (Pearson correlation coefficient $r = 0.550$, $r=0.550$, ($p < 0.001$)). The findings also reveal a moderate positive relationship between high engagement in management accounting and non-financial indicators of competitive advantage (Pearson correlation coefficient $r = 0.415$, $p = 0.001$). However, there was no significant relationship between management accounting engagement and financial performance (Pearson correlation coefficient ($r = 0.122$, ($p = 0.341$)). This indicates that companies with higher engagement in management accounting practices tend

to achieve a more significant competitive advantage. This finding is consistent with the notion that management accounting practices, such as strategic management accounting and advanced budgeting techniques, can contribute to the creation and sustaining of competitive advantage (Alamri, 2019a; Alcazar, 2021; Bhimani and Langfield-Smith, 2007; Chiekezie et al., 2014; Ditkaew, 2023; Eker and Aytaç, 2016; Nielsen et al., 2015; Oyewo, 2022).

Despite their collective influence, individual management accounting practices such as cost collection systems, budget techniques, and strategic management accounting did not significantly affect competitive advantage. The findings emphasise the importance of adopting a holistic approach to management accounting. Companies have long-term decision support systems while ensuring that other management accounting practices are aligned with strategic objectives and adapted to industry-specific requirements.

This lack of significant individual impact may be attributed to several factors, such as the need for effective integration and implementation of management accounting techniques. The effectiveness of management accounting practices often depends on their integration within the broader organisational framework. Isolated practices may yield substantial benefits if they are part of a cohesive management accounting system (Alsharari et al., 2015; Burns and Scapens, 2000; Goretzki et al., 2013a).

The study highlights the essential role of comprehensive management accounting practices in achieving a competitive advantage within the petroleum industry in Zimbabwe. Petroleum companies that invest in and effectively utilise management accounting practices are better equipped to navigate market volatility, optimise their operations, and sustain long-term success. This underscores the transformative potential of strategic management accounting in fostering resilience and competitiveness in challenging business environments.

6.7.2.2 The impact of levels of Management Accounting Engagement on Competitive Advantage

The study reinforces the importance of management accounting practices by showing significant differences in competitive advantage across different overall levels of engagement in management accounting. Companies with medium or high levels of engagement in management accounting show markedly higher relative

competitiveness ($F(2, 60) = 10.958, p < 0.001$) and non-financial performance ($F(2,60) = 6.118, p = 0.004$). These findings demonstrate that more extensive engagement in management accounting practices is associated with a more significant competitive advantage and enhanced non-financial performance. This suggests that a more profound integration of these practices correlates with improved performance metrics beyond immediate financial returns. This finding agrees with the literature that discusses that petroleum companies more engaged in management accounting are more competitive (Akenbor and Agwor, 2015; Alawadi et al., 2019; Petrenko et al., 2022).

This insight is particularly pertinent for the petroleum sector in Zimbabwe due to the highly volatile business environment. Non-financial performance metrics such as customer satisfaction, operational efficiency, and employee engagement are critical for sustaining long-term competitive advantage. Companies prioritising these aspects, as evidenced by higher engagement in management accounting, are likely to navigate the industry's challenges more effectively.

The findings also revealed that non-financial performance significantly varies with the level of engagement in management accounting, as evidenced by the ANOVA results ($F(2, 60) = 6.118, p = 0.004$). Firms engaging in management accounting to a medium or large extent demonstrate significantly higher non-financial performance compared to those with minimal engagement. This highlights the importance of comprehensive management accounting practices in improving non-financial aspects such as customer relations, operational processes, and employee satisfaction, which are crucial for long-term competitive advantage.

The companies identified in the medium and large-extent engagement categories in management accounting show the ability to leverage management accounting for strategic foresight and operational excellence, underscoring the transformative potential of these practices. This aligns with the broader theoretical framework that emphasises the importance of strategic management accounting in driving competitive advantage (Abdullah et al., 2022; Alamri, 2019a; Cinquini and Tenucci, 2010; Mohammed et al., 2019; Ojra, 2014; Zakaria, 2015). Moreover, the context of the petroleum industry in Zimbabwe, characterised by its volatility and capital intensity, underscores the necessity of such an approach.

The study's argument highlights that the petroleum companies in Zimbabwe that have achieved and sustained competitive advantage have a higher level of engagement in management accounting. By integrating financial planning, strategic analysis, and non-financial performance metrics, these companies have been able to navigate the challenges of the petroleum industry effectively and position themselves competitively. This underscores the critical role of management accounting practices in driving long-term success and sustainability in the sector.

6.8 Conclusion

The discussion of findings in this study has illuminated several critical insights into the link between management accounting practices and competitive advantage within Zimbabwe's petroleum industry. The study focused on understanding which companies benefited from relative competitive advantage and identifying the management accounting practices contributing to these outcomes.

The study also highlights significant differences in competitive advantage variables across different levels of engagement in management accounting. To a medium or large extent, companies engaged in management accounting showed higher relative competitiveness and better non-financial performance than those with minimal engagement. This reinforces that extensive management accounting practices can significantly enhance a company's strategic positioning.

The discussion in this chapter has integrated the research findings with relevant literature, contextualising Zimbabwe's petroleum industry's unique challenges and opportunities. The evidence points to the critical role of management accounting practices in creating and sustaining competitive advantage. It also underscores the necessity for petroleum companies in Zimbabwe to adopt and intensively utilise these practices to navigate the volatile business environment, mitigate political risks, and achieve sustainable growth. These insights contribute to a deeper understanding of the strategic value of management accounting and offer practical guidance for industry stakeholders aiming to enhance their competitiveness.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

The previous two chapters, chapter five and six have outlined the key results of this study, which sought to ascertain the relationship, if any, between management accounting practices and competitive advantage in the petroleum industry in Zimbabwe. This chapter concludes the study by summarising key research findings about the research aims, research objectives, and the value and contribution. The chapter synthesises the key findings, highlighting its contribution to existing knowledge, and offers practical recommendations for stakeholders in the petroleum industry in Zimbabwe. It also discusses the study's limitations and suggests directions for future research.

Based on a census involving petroleum companies and the quantitative analysis of management accounting practices in Zimbabwe's petroleum industry, it can be concluded that management accounting practices play a significant role in creating and sustaining competitive advantage. The findings show that companies more engaged in management accounting benefited from relative competitiveness in Zimbabwe's petroleum industry.

The study addressed a significant gap in understanding the role of management accounting practices in achieving competitive advantage within the volatile and politically charged environment of Zimbabwe's petroleum industry. The main aim was to evaluate the extent to which management accounting techniques are utilised in selected petroleum companies and their effectiveness in creating and sustaining competitive advantage. The study contributes to new knowledge by highlighting the differential impact of management accounting practices on relative competitiveness and the financial and non-financial performance of firms operating within a volatile, hyperinflationary, and politically unstable business environment.

7.2 Summary of Main Findings

The summary of the main findings are discussed in this section. The research's primary objective was to investigate how implementing management accounting techniques in Zimbabwean petroleum companies has created and sustained a

competitive advantage. This study explicitly addressed three key research objectives. Firstly, the study sought to determine the management accounting practices used in selected petroleum companies. By examining these practices, the research aimed to identify the various management accounting techniques implemented within the industry. Secondly, the study aimed to determine whether the selected petroleum companies benefit from a competitive advantage in the industry. This involved assessing the extent to which these companies experience a relative competitive advantage compared to their peers. Lastly, the research aimed to determine how management accounting practices affect competitive advantage in the selected petroleum companies. This objective focused on establishing the linkage between management accounting practices and these companies' competitive advantages. These objectives guided the investigation into the presence and impact of management accounting practices in the industry, the extent to which these companies experience competitive advantages, and the linkage between management accounting practices and competitive advantages.

7.2.1 Prevalent Utilisation of Management Accounting Practices in the Zimbabwean Petroleum Industry

The study found that the engagement in management accounting practices varies significantly among petroleum companies in Zimbabwe. The study reveals that the most frequently used management accounting techniques among the selected petroleum companies in Zimbabwe are performance evaluation (financial and non-financial), budgeting systems and decision support systems. These practices are crucial in financial control, strategic planning, and operational decision-making, directly contributing to the companies' ability to create and sustain competitive advantage. Furthermore, the widespread use of strategic management accounting practices, such as strategic costing and value chain analysis, underscores their importance in aligning accounting functions with broader business goals and strategic decision-making processes. The variability in the engagement of these practices among different companies highlights their context-specific role in navigating Zimbabwe's volatile business environment, characterised by political instability and hyperinflation. This variability suggests that companies selectively adopt management accounting practices based on their specific needs and circumstances. In other words, these practices are implemented where companies perceive them as necessary to

address particular challenges and opportunities within their operational context. This selective uptake underscores the strategic importance of management accounting techniques in enhancing competitiveness in a highly unstable environment.

7.2.2 The petroleum industry in Zimbabwe is highly competitive

The findings revealed that the selected petroleum companies in Zimbabwe are highly competitive. Petroleum companies in Zimbabwe have successfully implemented competitive strategies such as low pricing, superior service offerings, adequate resource availability, and efficient management accounting techniques. These strategies have led to proactive market responsiveness, enabling companies to react swiftly to competitors' innovations and product portfolio adjustments. Strong internal collaboration and resource complementarity also indicate that business units and resources work synergistically to enhance competitiveness. The findings show that there have been significant improvements in service quality, business flexibility, sales, and innovativeness among the surveyed companies.

The findings reflect that the companies' competitive positioning and firm performance have improved, aligning with literature that emphasises the importance of cost leadership, differentiation, and dynamic capabilities in achieving competitive advantage (Barney and Hesterly, 2015; Kamukama et al., 2017; Kurt and ZehİR, 2016; Spencer et al., 2009; Teece, 2007). These findings emphasise the strategic importance of competitive pricing, superior services, resource adequacy, and efficient management accounting techniques and their role in improving market positioning and operational success, affirming the companies' relative competitive advantage.

7.2.3 Petroleum Companies with a higher engagement in Management Accounting have a Competitive Advantage

The findings revealed that companies with higher engagement in management accounting practices achieve higher relative competitiveness. The critical roles of strategic planning, performance measurement, resource optimisation, communication, cost management, pricing, and product development are highlighted. Firms that integrate financial planning with strategic and operational goals can better forecast market trends and allocate resources efficiently. This finding aligns with Sunday and Onuoha (2023), who emphasise that management accounting techniques enable firms to set short and long-term goals and develop actionable plans. The findings also

show a moderate positive relationship between the extent of management accounting engagement and non-financial performance indicators such as customer satisfaction, operational efficiency, and employee engagement. Previous literature shows that non-financial performance indicators are crucial for creating and maintaining competitive advantage (Akhtar et al., 2013; Mukuusi, 2019). The findings suggest that improvements in non-financial performance metrics often precede financial gains, underscoring the importance of focusing on these areas for long-term success.

The evidence shows that specific management accounting practices are pivotal in creating and sustaining competitive advantage, with long-term decision support systems emerging as particularly influential. This finding is supported by Gitman et al. (2015) and Stamalevi (2015), who highlight the strategic importance of advanced appraisal techniques like NPV and IRR in supporting resource allocation and decision-making. However, while individual management accounting practices may not independently drive competitive advantage, their collective implementation within a strategic, long-term framework significantly enhances a firm's competitive positioning. This underscores the importance of integrating management accounting practices within a cohesive strategic management system to realise their potential benefits and achieve sustainable competitive advantage. This holistic approach is consistent with the views of Burns and Scapens (2000) and Goretzki et al. (2013b), who suggest that the integrated use of management accounting practices creates a robust system that enhances a firm's competitive advantage.

7.3 Study's Contribution to Knowledge

This section summarises the study's contributions to the existing body of knowledge in management accounting, particularly within the petroleum industry in Zimbabwe. The contributions are organised under three themes: theoretical, methodological, and practical contributions.

7.3.1 Theoretical Contribution

This study significantly enhances the theoretical understanding of the role of management accounting practices in the petroleum industry, specifically within the context of Zimbabwe. Previous literature has extensively documented the impact of management accounting on organisational performance (Alimoradi and Borzoupour, 2017; Bhimani and Langfield-Smith, 2007; Nielsen et al., 2015); however, this study

uniquely focuses on the petroleum sector within the unique context of Zimbabwe. Zimbabwe's petroleum industry operates within a highly volatile business environment characterised by political instability, a highly politicised fuel sector, and hyperinflation. These factors create a challenging backdrop for sustaining competitive advantage. This research validates and extends existing theories on strategic management accounting and competitive advantage by demonstrating the strong positive correlation between engagement in management accounting practices and relative competitiveness (Alcazar, 2021; Ditkaew, 2023).

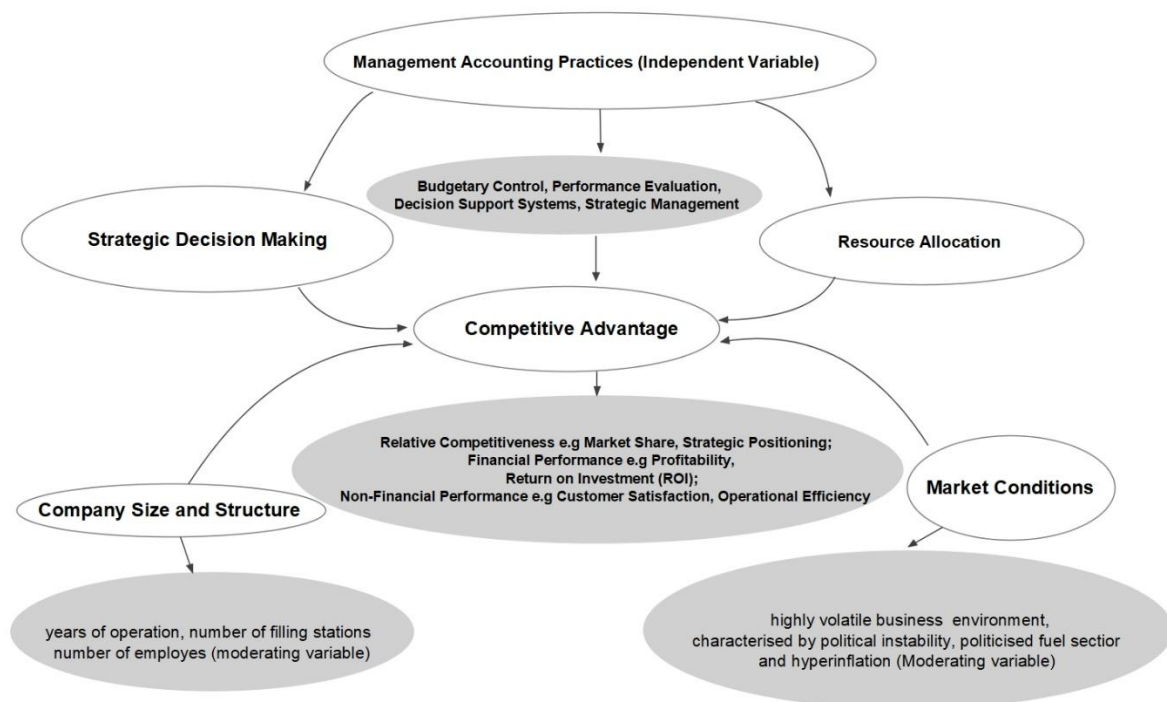


Figure 7. 1: Competitive Advantage through Management Accounting Framework (CAMAF)

Source: Author's Compilation

The CAMAF above begins with the implementation of Management Accounting Practices, which are crucial for providing the necessary data and insights for strategic decision-making. These practices directly impact Competitive Advantage Indicators, resulting in improved financial and non-financial performance and overall

competitiveness. However, the effectiveness of these practices is also influenced by External Factors, which necessitates a dynamic and adaptive approach. The Feedback Loop ensures that companies continuously evaluate and enhance their management accounting practices, responding to changes in the external environment and internal performance metrics. Through this comprehensive framework, the CAMAF demonstrates how strategic management accounting can be leveraged to achieve and sustain competitive advantage in the petroleum industry.

Thus, the model is structured around four key components: Management Accounting Practices, Competitive Advantage Indicators, External Factors, and Feedback Loop.

- i. **Management Accounting Practices:** This component includes essential techniques such as budgetary control, performance evaluation (financial and non-financial), and long-term decision support systems. These practices are fundamental in providing companies with detailed financial insights, facilitating strategic decision-making, and ensuring efficient resource allocation.
- ii. **Competitive Advantage Indicators:** These indicators measure the effectiveness of management accounting practices in creating competitive advantages. The key indicators in the CAMAF are improved financial performance, enhanced non-financial performance, and increased overall competitiveness. Companies that effectively implement management accounting practices tend to show better performance across these indicators.
- iii. **External Factors:** External factors such as market conditions, regulatory environment, and industry trends influence the effectiveness of management accounting practices. The CAMAF recognises and integrates these external influences into the model to provide a realistic and comprehensive view of the competitive landscape.
- iv. **Feedback Loop:** The feedback loop in CAMAF emphasises the importance of continuous improvement and adaptation. By regularly assessing performance against the competitive advantage indicators, companies can refine their management accounting practices to better align with changing

external factors and internal goals. This iterative process ensures sustained competitive advantage over time.

The CAMAF framework's strength lies in its components' interdependence and complementarity. The interaction between management accounting practices, competitive advantage indicators, external factors, and the feedback loop ensures that firms can develop a holistic approach to enhancing their competitiveness. A discussion of this is done below:

- i. **Management Accounting Practices and Competitive Advantage Indicators:** The direct link between management accounting techniques and competitive advantage indicators underscores their importance. For instance, budgetary control enhances financial discipline, while performance evaluation mechanisms improve decision-making and operational efficiency.
- ii. **The Role of External Factors:** While management accounting practices are fundamental, their success depends on external influences such as market competition, government regulations, and industry dynamics. The framework acknowledges this interdependence by incorporating external factors as a mediating force that shapes how management accounting is implemented and its ultimate impact.
- iii. **Feedback Loop as an Adaptive Mechanism:** The framework highlights the need for continuous assessment and refinement of management accounting practices. This means that firms should consistently evaluate their competitive positioning and adjust their management accounting approaches to ensure long-term sustainability.

This interconnectedness ensures that no component of the framework operates in isolation. Instead, management accounting practices, competitive advantage indicators, external factors, and feedback mechanisms work together to create a dynamic and evolving system that sustains competitive advantage. This interplay is particularly relevant in Zimbabwe's petroleum industry, where firms must continuously adapt to economic volatility and regulatory uncertainties.

The study highlights the differential impact of management accounting on financial and non-financial performance, suggesting that while the financial benefits may not be immediately apparent, non-financial metrics such as operational efficiency and

customer satisfaction play a crucial role in sustaining long-term competitive advantage. These findings challenge traditional views prioritising immediate financial outcomes and underscore the importance of a balanced approach to performance measurement.

Moreover, the study highlights the differential impact of management accounting on financial and non-financial performance, suggesting that while the financial benefits may not be immediately apparent, non-financial metrics such as operational efficiency and customer satisfaction play a crucial role in sustaining long-term competitive advantage. These findings challenge traditional views prioritising immediate financial outcomes and underscore the importance of a balanced approach to performance measurement.

7.3.2 Methodological Contributions

This study employs a robust methodological framework that combines hierarchical regression analysis and Pearson's correlation to examine the relationship between management accounting practices and competitive advantage. The categorisation of engagement in management accounting into distinct levels (none or small extent, medium extent, and large extent) and the subsequent use of ANOVA or Welch tests to analyse these categories provide a nuanced understanding of how varying degrees of management accounting engagement impact competitive advantage.

In addition, by integrating both quantitative analyses and post hoc tests, the study offers a comprehensive examination of the data, ensuring that the results are statistically significant and practically relevant. This methodological approach can serve as a model for future research in similar contexts, providing a structured way to assess the multifaceted impacts of management accounting practices.

7.3.3 Practical Contributions

The practical implications of this study are particularly relevant for managers and practitioners in the petroleum industry. The strong correlation between high engagement in management accounting practices and enhanced competitive advantage suggests that companies should invest in and prioritise these practices. Specifically, the findings advocate for implementing long-term decision support systems and advanced budgeting techniques to anticipate market trends better, allocate resources efficiently, and align strategic objectives with long-term goals.

For companies operating in volatile environments like Zimbabwe, the emphasis on non-financial performance metrics highlights the need to focus on customer satisfaction, operational efficiency, and employee engagement. By doing so, firms can build a more resilient and sustainable competitive position, even in the face of market uncertainties.

Furthermore, the study provides actionable insights for policymakers and industry stakeholders. By understanding the critical role of management accounting in driving competitive advantage, they can develop supportive policies and frameworks that encourage adopting these practices across the industry, ultimately contributing to the sector's overall growth and stability.

In summary, this study makes significant theoretical, methodological, and practical contributions, offering a comprehensive understanding of how management accounting practices influence competitive advantage in the petroleum industry. It provides a valuable framework for both academic researchers and industry practitioners to further explore and apply these insights in various contexts.

7.4 Conclusion

This study has provided valuable insights into the role of management accounting in creating and sustaining competitive advantage within Zimbabwe's petroleum industry. By employing a quantitative research approach, this study established that firms with greater engagement in management accounting techniques demonstrated superior competitive positioning. The research demonstrated that management accounting practices, particularly long-term decision support systems and budgeting techniques play a significant role in the creation and sustaining of competitive advantage. Notably, non-financial performance indicators, such as operational efficiency, customer satisfaction, and supply chain management, are more critical than financial performance in driving competitive advantage in the Zimbabwean petroleum sector. This aligns with existing literature that suggests firms operating in volatile economies must adopt adaptive strategies beyond financial metrics to sustain competitiveness.

From a theoretical perspective, the findings largely reinforce the resource-based view (RBV) of competitive advantage, which posits that firms gain a competitive edge by leveraging internal capabilities, including management accounting techniques, to create value. While the results are consistent with this theoretical framework, they also

challenge the universality of financial performance as a dominant predictor of competitive advantage, particularly in economies with high volatility and government intervention.

The study's implications extend to both academia and industry. For scholars, it offers a foundation for further exploration of management accounting's strategic role in developing economies. both financial and non-financial performance measures. For practitioners and policymakers, the study underscores the necessity of investing in sophisticated management accounting systems that enhance long-term decision-making, particularly in unpredictable economic conditions. By addressing the unique challenges of Zimbabwe's business environment, this research expands the existing body of knowledge and provides a contextualized understanding of how firms navigate competitive pressures.

While the study provides meaningful contributions, it also opens up new avenues for future research. Further investigations could explore how digital transformation in management accounting, such as AI-driven analytics and enterprise resource planning (ERP) systems affect competitive advantage in emerging economies. Additionally, cross-industry comparisons could help validate the findings and assess the generalizability of management accounting's role in sustaining competitiveness across different economic contexts.

In conclusion, this research has successfully demonstrated the pivotal role of management accounting in shaping competitive advantage, reinforcing key theoretical frameworks while also presenting new perspectives on the limitations of financial indicators in volatile economies. The study's findings serve as a roadmap for industry practitioners and policymakers seeking to enhance firm performance through effective management accounting practices, ensuring resilience and sustainability in Zimbabwe's petroleum sector.

7.5 Implications and Recommendations of the Study

This section presents and discusses the practical implications of the study. Management accounting practices are pivotal in enhancing operational efficiency, strategic decision-making and improving non-financial performance metrics. Management accounting techniques can significantly enhance competitive advantage in a volatile economic environment. This section explores the critical roles that long-

term decision support systems and strategic cost management play in anticipating market trends, resource allocation and strategic planning. Furthermore, the section underscores the importance of non-financial performance metrics such as customer satisfaction, operational efficiency, and employee engagement in sustaining long-term competitive advantage. Finally, it addresses the need for supportive frameworks from policymakers and industry stakeholders to foster the adoption of robust management accounting practices, thereby contributing to the growth and stability of Zimbabwe's petroleum industry.

7.5.1 Enhancing Strategic Decision-Making

The study highlights the importance of integrating advanced management accounting practices into strategic decision-making processes. In the Zimbabwean business environment marked by economic volatility and political instability, anticipating market trends and allocating resources efficiently becomes crucial for creating and sustaining competitive advantage. The current economic landscape in Zimbabwe is characterised by hyperinflation, currency fluctuations, and regulatory unpredictability, making strategic foresight and meticulous planning indispensable.

Petroleum companies should prioritise investments in long-term decision-support systems. These systems, including advanced forecasting models, scenario analysis, and strategic planning tools, enable firms to navigate the complexities of the market with greater precision. These systems allow companies to forecast market trends more accurately, anticipate supply chain disruptions, and adjust their strategies proactively. This is particularly important in Zimbabwe, where market conditions can shift rapidly due to internal and external factors, such as inflation rates, GDP growth, global oil prices and international trade policies. Inflation rates, GDP growth, and economic health affect consumer spending power and demand for petroleum products. In addition, Zimbabwe imports most of its petroleum products, and thus, fluctuations in global oil prices will directly influence costs and profitability for local companies. The changes in international trade agreements or tariffs will also affect the cost and availability of petroleum products in Zimbabwe. Long-term decision support systems provide a framework for evaluating various strategic options, ensuring that the firms are better prepared to respond to unforeseen challenges and capitalise on emerging opportunities.

Strategic cost management is another essential practice that petroleum companies should integrate into their decision-making processes. This involves not only controlling costs but also optimising the allocation of resources to align with strategic objectives. Implementing strategic cost management techniques like value chain analysis allows companies to identify inefficiency and facilitates allocating resources to high-impact activities. In Zimbabwe's economic environment, where resource scarcity and cost pressures are prevalent, such practices can significantly enhance a company's ability to maintain operational efficiency and competitive pricing. Efficient cost management ensures that companies can sustain profitability despite economic downturns and fluctuating market conditions.

7.5.2 Focus on Non-Financial Performance

The findings underscore the crucial role of non-financial performance metrics in the petroleum industry in Zimbabwe. The findings show that customer satisfaction, operational efficiency, and employee engagement are pivotal for sustained competitive advantage. These metrics gain heightened significance in the context of Zimbabwe's petroleum industry, characterised by fluctuating economic conditions and evolving political landscapes. Customer loyalty is crucial, as consumer trust and satisfaction greatly influence market share amidst economic uncertainties. Prioritising customer satisfaction metrics will enhance customer retention rates and increase the company's resilience against market volatility. Operational efficiency, another key metric, becomes essential in optimising resource utilisation and maintaining profitability amidst economic challenges.

In addition, employee engagement emerges as a critical factor in fostering operational resilience and innovation. In Zimbabwe's petroleum sector, where workforce morale and productivity are pivotal amid economic pressures, investing in employee engagement initiatives can enhance organisational agility and adaptability. Overall, prioritising non-financial performance metrics enhances operational effectiveness and positions petroleum companies in Zimbabwe to navigate the complexities of its current economic and political environment. By focusing on these metrics; companies can fortify their competitive edge and sustain growth in an increasingly competitive and uncertain market landscape.

7.5.3 Policy and Industry Stakeholder Engagement

Policymakers and industry stakeholders must foster supportive frameworks for advanced management accounting practices for the growth and stability of Zimbabwe's petroleum sector, especially within its current political and economic context. In Zimbabwe, the petroleum industry operates amidst a challenging financial landscape marked by currency volatility, regulatory changes, and infrastructural limitations. Effective management accounting practices, with supportive policies and stakeholder engagement, play a pivotal role in the industry navigating these challenges.

Policymakers can drive industry growth by creating regulations that promote transparency, efficiency, and accountability in financial reporting and management. Clear guidelines on cost control, risk management, and compliance can help petroleum companies in Zimbabwe optimise operational performance and mitigate financial risks. Moreover, fostering an environment conducive to advanced management accounting encourages investment and innovation within the sector and will enhance its competitiveness.

Industry stakeholders, including petroleum companies and industry associations, play a vital role in shaping these policies and practices. It is essential to engage with stakeholders to ensure that regulations are practical and reflect industry needs. It is also necessary for the industry stakeholders to foster collaboration and trust between the public and private sectors. This collaboration can lead to tailored solutions that address challenges Zimbabwe's petroleum industry faces, such as infrastructure development, market expansion, and environmental sustainability.

Adopting robust management accounting practices supported by proactive policy frameworks and stakeholder engagement is essential for fostering a resilient and sustainable petroleum sector in Zimbabwe. By prioritising these efforts, policymakers and industry leaders can contribute significantly to the sector's long-term growth, stability, and contribution to the national economy.

7.6 Limitations of the Study

This section critically discusses the limitations inherent in the study's methodologies, data sources, and contextual constraints. By acknowledging these limitations, the study provides a transparent assessment of the scope and reliability of our findings.

Understanding these constraints is crucial for interpreting the implications of our research within the context of the Zimbabwean petroleum industry. Through a comprehensive discussion, this section strives to enhance the clarity and validity of our conclusions while highlighting avenues for future research and methodological refinement.

7.6.1 Sample Size and Generalisability

The study's sample size was restricted to a selected group of petroleum companies operating within Zimbabwe, which may limit the generalisability of the findings to the broader industry context. However, it is worth noting that most of the industry's procurement and wholesale petroleum companies participated in the survey. Future research could enhance generalisability by expanding the sample size to include a more diverse array of categories of petroleum companies, such as the inclusion of fuel retail companies. The broadening of the scope will allow the researchers to validate better and extend the findings, offering a more robust basis for comparative analysis and strategic decision-making in the petroleum industry.

7.6.2 Reliance on Perceptual Data

A significant limitation of this study is that it relies heavily on firms' perceptions of competitiveness and improved financial performance. The subjective nature of these perceptions can introduce bias, as the respondents' views may be influenced by various internal and external factors that are not directly measured in the study. While these perceptions provide valuable insights into the companies' competitive positioning and financial outcomes, they may not fully capture the objective reality of their performance. This reliance on self-reported data can affect the accuracy and generalisability of the findings. Future research could benefit from incorporating more objective measures of competitiveness and financial performance, such as market share data, profitability metrics, and industry benchmarks, to validate and complement the perceptual data collected from firms.

7.6.3 Scope of Management Accounting Practices

The research focused on a specific subset of management accounting practices prevalent in Zimbabwe's petroleum sector, thus presenting a focused perspective. These management accounting techniques are prevalent in most industries. The study's scope may not encompass all relevant practices that could influence

competitive advantage and operational efficiency within the petroleum industry. Future studies are encouraged to delve into a broader spectrum of management accounting practices, including emerging methodologies, environmental management accounting and technological applications. By exploring these additional dimensions, researchers can better understand how diverse management accounting practices contribute to organisational performance in various contexts. This expanded exploration is essential for informing strategic management decisions and fostering innovation within the petroleum industry and beyond.

7.7 Potential for Future Research

This section explores avenues for future research that could build upon the findings and insights presented in this study, offering opportunities to further advance knowledge in management accounting within the context of the petroleum industry, particularly in Zimbabwe.

7.7.1 Comparative Studies

Comparative studies across different countries or regions could offer valuable insights into the cultural, regulatory, and economic factors influencing the adoption and effectiveness of management accounting practices. Comparing practices between Zimbabwe and other emerging or developing economies could identify transferable best practices and adaptive strategies that promote sustainability and competitiveness in the global petroleum market. In addition, the comparative studies across different countries or industries can validate the findings and provide broader insights into the role of management accounting in various contexts. Such studies highlight best practices and offer a global perspective on strategic management accounting.

7.7.2 Longitudinal Studies

Future research could explore the longitudinal effects of management accounting practices on organisational performance in Zimbabwe's petroleum sector. A longitudinal study would provide insights into how these practices evolve and their sustained impact on financial stability, operational efficiency, and strategic decision-making amidst economic fluctuations and regulatory changes. Longitudinal studies could help understand the long-term impact of management accounting practices on competitive advantage, especially in volatile environments like Zimbabwe.

7.7.3 Intersection of sustainability practices and management accounting

Moreover, future research could explore the intersection of sustainability practices and management accounting within the petroleum industry. Investigating how environmental, social, and governance (ESG) metrics are integrated into management accounting frameworks can shed light on their role in promoting sustainable development goals while enhancing corporate governance and stakeholder engagement.

7.7.4 Exploring the role of management accounting in fostering innovation and resilience

Lastly, exploring the role of management accounting in fostering innovation and resilience in the face of geopolitical and economic uncertainties can provide valuable insights. Examining how adaptive management accounting practices contribute to strategic agility and organisational resilience could provide actionable insights for Zimbabwean petroleum companies navigating dynamic market conditions.

7.7.5 Advanced analytical techniques to address endogeneity relationships

While this study has provided valuable insights into the role of management accounting practices in shaping competitive advantage, methodological improvements can be made. The research relied on correlation-based inferences, which, while useful, do not establish definitive causal relationships. To address this, future research should employ instrumental variable regression (IVR) and structural equation modeling (SEM) to mitigate potential endogeneity concerns and enhance the robustness of empirical findings.

Instrumental variable regression provides a robust approach for addressing potential biases stemming from omitted variables and reverse causality. By selecting appropriate instruments, which are variables that are strongly correlated with management accounting practices but uncorrelated with the error term more effective isolation of the true causal impact of management accounting techniques on firm performance can be done. This approach would be particularly useful in distinguishing whether improved firm performance drives greater adoption of management accounting practices or whether these practices, in fact, enhance competitive advantage.

Similarly, structural equation modeling (SEM) offers a more comprehensive analytical framework that simultaneously evaluates multiple relationships among observed and latent variables. Given the multi-dimensional nature of competitive advantage, SEM would enable future studies to explore the indirect effects of management accounting practices, such as their influence on decision-making processes, strategic adaptability, and resource allocation efficiency. This technique would provide deeper insights into the interconnected pathways through which management accounting contributes to sustained competitive advantage.

References

- Abah, A. J. & Onuoha, B. C. (2020). Branding and consumer behaviour of selected petroleum products in Port Harcourt, Rivers State. *International Journal of Advanced Academic Research (Business and Economic Development)*, 6(11).
- Abdel-Maksoud, A., Asada, T. & Nakagawa, M. (2008). Performance measures, managerial practices and manufacturing technologies in Japanese manufacturing firms: state-of-the-art. *International Journal Business Performance Management*, 10(1), 1-16.
- Abdel-Maksoud, A., Dugdale, D. & Luther, R. (2005a). Non-financial performance measurement in manufacturing companies *The British Accounting Review*, 37(3), 261–297.
- Abdel-Maksoud, A., Dugdale, D. & Luther, R. (2005b). Non-financial performance measurement in manufacturing companies. *The British Accounting Review*, 37(3), 261–297.
- Abdel-Kader, M. & Luther, R. (2006). Management accounting practices in the British food and drinks industry. *British Food Journal*, 108(5), 336–357.
- Abdelraheem, A. A. E., Serajeldin, B. E. A. & Jedo, A. A. A. (2017). Strategic cost and activating competitive advantage. *International Journal of Trend in Scientific Research and Development*, 1(4), 337-342.
- Abdullah, N., Herda, N., Shamala, K., Zakaria, M., Azrah, A. & Morris, G. (2022). Strategic management accounting practices in business: A systematic review of the literature and future research directions. *Cogent Business & Management*, 9(1), 1-21.
- Abdullahj, S. R., Oni, I., Ahmeb, M. D. & Shakur, F. I. (2016). Effects of standard costing on the profitability of telecommunication companies. *Information and Knowledge Management*, 6(8), 39-43.
- Abdulwase, R., Ahmed, F., Nasr, F., Abdulwase, A., Alyousofi, A. & Yan, S. (2021). The role of business strategy to create a competitive advantage in the organization. *Open Access Journal of Science*, 4(4), 135-138.
- Abideen, S. O., Olusola, O. J., Olufunmilayo, O. A. & Bolatito, O. (2018). Entrepreneurship, innovation and sustained competitive advantage in the

- Nigeria manufacturing firms. *American Journal of Business, Economics and Management*, 6(2), 16-28.
- Abugalia, M. & Mehafdi, M. (2018). The influence of external environment and business strategy on the effectiveness of management accounting practices: a contingency theory perspective. *Scientific Research Journal*, 6(2), 87-99.
- Acheampong, T., Ashong, M. & Svanikier, V. C. (2016). An assessment of local-content policies in oil and gas producing countries. *The Journal of World Energy Law & Business*, 9(4), 282 – 302.
- Ada, Ş. & Ghaffarzadeh, M. (2015). Decision making based on management information system and decision support system. *European researcher, Series A(4)*, 260 - 269.
- Adedeji, E. A. & Ituma, N. K. (2020). Break even analysis as a management tool for decision making in Babcock University Water Corporation. *European Journal of Business and Management*, 12(21), 159 - 181.
- Adigbole, E., Segun, A., Adegbola, E., Oladipo, O. & Samuel, F. (2022). Strategic cost management and competitive advantage in selected Nigerian manufacturing companies. *Nigerian Journal of Accounting and Finance*, 14(2), 139-165.
- Adler, R., Everett, A. M. & Waldron, M. (2000). Advanced management accounting techniques in manufacturing: utilization, benefits and barriers to implementation. *Accounting Forum, Volume 2*. 131-150.
- Adom, D., Yeboah, A. & Ankra, A. K. (2016). Constructivism philosophical paradigm. implication for research, teaching and learning. *Global Journal of Arts, Humanities and Social Sciences*, 4(10), 1 – 9.
- Agostinho, M. & Weijermars, R. (2017). Petroleum business strategies for maintaining positive cash flow and corporate liquidity under volatile oil and gas prices as the sustainable energy transition unfolds. *Journal of Functional Analysis*, 5(1), 34-55.
- Agus, A. & Shukri Hajinoor, M. (2012). Lean production supply chain management as driver towards enhancing product quality and business performance. *International Journal of Quality & Reliability Management*, 29(1), 92-121.
- Ahmad, K. (2012). *The use of management accounting practices in Malaysian SMEs*. University of Exter.

- Ahmad, M. (2018). *The standard costs system and its role in cost control*. Shendi University.
- Ahmad, N. N., Sulaiman, M. & Alwi, N. M. (2003). Are budgets useful? A survey of Malaysian companies. *Managerial Auditing Journal*, 9, 717-724.
- Ahmadi, Z. & Mirabi, V. (2015). The study of the brand building strategies in the oil industry and related industries. *Global Journal of Management and Business Research: B Economics and Commerce*, 15(3), 1-13.
- Ahn, H., Clermont, M. & Schwetschke, S. (2018). Research on target costing: past, present and future. *Management Review Quarterly*, 68(3), 321–354.
- Akan, D. C. & Ewiwile, S. (2022). Marginal costing and the performance of manufacturing companies in Nigeria. *Journal of Accounting, Finance and Management Discovery*, 5(1), 113-130.
- Akeem, L., B (2017). Effect of cost control and cost reduction techniques in organizational performance. *International Business and Management*, 14(3), 19-26.
- Akenbor, C., O & Agwor, T., C (2015). Standard costing and cost control in Nigerian oil and gas industry. *Journal of Modern Accounting and Auditing*, 11(4), 185-193.
- Akhtar, I., M (2016). *Research in social science: interdisciplinary perspectives*. 1st Edition ed.
- Akhtar, N., Khan, R. A. & Mujtaba, B. G. (2013). Exploring and measuring organizational learning capability and competitive advantage of petroleum industry firms. *International Business and Management*, 6(1), 89-103.
- Al-Awawdeh, W. M. & Al-Sharairi, J. A. (2012). The relationship between target costing and competitive advantage of Jordanian private universities. *International Journal of Business and Management*, 7(8).
- Al-Fattah, S., M (2013). The role of national and international oil companies in the petroleum industry. *SSRN Electronic Journal*.
- Al-Hanshi, M. A. M., Ojiako, U. & Williams, T. (2022). Managing strategic resources in petroleum industry projects. *Production Planning & Control*, 33(11), 1043-1060.
- Al-Hibari, A., A & Al-Matari, E., M (2019). Role of Time-Driven Resource-Consumption Accounting in Strategic Cost Reduction and Support of

- Supply Chain Management. *International Journal of Supply Chain Management* 8(2), 771.
- Al-Kawaz, S. M. J., Al-Daami, A. N. A. & Abbas, A. A. (2023). The role of integration between target costing and time-driven activity-based budgeting techniques in managing time and cost and its reflection in achieving competitive advantage. *Foundations of Management*, 15, 187-208.
- Al-Khasawneh, R. O. H. (2019). Cost - driving strategy under the use of e-business to achieve a competitive advantage in a digital economy environment. *Research Journal of Finance and Accounting*, 10(22), 27-32.
- Al-Omiri, M. & Drury, C. (2007). A survey of factors influencing the choice of product costing systems in UK organizations. *Management Accounting Research*, 18(4), 399 – 424.
- Al-Qubaisi, S., S & Ajmal, M. (2018). Determinants of operational efficiency in the oil and gas sector: a balance scorecards perspective. *Benchmarking: An International Journal*, 00(00).
- Al-Shattarat, B., Al-Shattarat, H. & Dannoun, Z. (2021). The impact of the standard costing system on the performance of industrial companies in Jordan. *Academy of Strategic Management Journal*, 20(1), 1-10.
- Al Sawalqa, F., A., H (2011). *The changing role of management accounting: assessment of the impact of financial and non-financial performance measures usage on organizational performance in Jordan*. Murdoch University.
- Alamri, A., M (2019a). Association between strategic management accounting facets and organizational performance. *Baltic Journal of Management*, 14(2), 212 – 234.
- Alamri, A., M (2019b). Association between strategic management accounting facets and organizational performance. *Baltic Journal of Management* 14(2), 212 – 234.
- Alamri, A. M. (2018). Strategic Management Accounting and the Dimensions of Competitive Advantage: Testing the Associations in Saudi Industrial Sector. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 8(2), 48-64.
- Alawadi, S., Alrajawy, I. & Bhaumik, A. (2019). Effect of value chain analysis and activity-based costing on performance of UAE petroleum firms. *International*

- Journal of Innovative Technology and Exploring Engineering*, 8(8S2), 500 - 508.
- Albalaki, F. M. (2018). Customer profitability analysis, cost system purposes and decision making process: A research framework. *Account and Financial Management Journal*, 3(5), 1547-1552.
- Alcazar, R. (2021). *Management accounting systems for small business's competitive advantage*. Walden University.
- Alexander, A. & Martin, D. (2013). Intermediaries for open innovation: A competence-based comparison of knowledge transfer offices practices. *Technological Forecasting & Social Change*, 80, 38–49.
- Alexander, J., R (2002). *History of Accounting*. Association of Chartered Accountants. . Available at: <https://www.uctoonline.sk/home/images/history%20of%20accounting.pdf> (accessed 09 April).
- Ali-Momoh, B. O., Shaka, A., Olagbuyiro, O. E., Olowokere, T. S. & Ayodele, F. (2022). Effect of absorption and marginal costing on corporate performance in Nigeria. *KIU Interdisciplinary Journal of Humanities and Social Sciences*, 3(1), 412-432.
- Ali, M. F. E. (2016). A proposed model for applying Customer Profitability Analysis (CPA) in the pharmaceutical sector: Evidence from Egypt. *Journal of Empirical Research in Accounting & Auditing*, 3(2), 105-120.
- Aliaga, M. & Gunderson, B. (2002). *Interactive statistics*. Thousand Oaks: Sage.
- Alimoradi, A. & Borzoupour, S. (2017). Strategy, management accounting systems, and performance of Iranian petrochemical companies in the light of contingency theory. *Iranian Journal of Oil & Gas Science and Technology*, 6(2), 61-74.
- Alkababji, M. W. (2023). The impact of applying the target cost and continuous improvement (Kaizen) on achieving the sustainable competitive advantage of Palestinian industrial companies. *Journal of Business and Socio-economic Development*, 3(4), 372-387.
- Allen, R. S. & Helms, M. M. (2006). Linking strategic practices and organizational performance to Porter's generic strategies. *Business Process Management Journal*, 12(4), 433-454.

- Almoguera, P. A., Douglas, C. C. & Herrera, A. M. (2011). Testing for the cartel in OPEC: non-cooperative collusion or just non-cooperative? *Oxford Review of Economic Policy*, 27(1), 144-168.
- Alnasser, N., Shaban, O. S. & Al-Zubi, Z. (2014). The effect of using break-even-point in planning, controlling, and decision making in the Industrial Jordanian companies. *International Journal of Academic Research in Business and Social Sciences*, 4(5), 626 - 636.
- Alsayegh, M., F (2020). Activity based costing around the world: Adoption, implementation, outcomes and criticism. *Journal of Accounting and Finance in Emerging Economies*, 6(1), 251-262.
- Alsharari, N., M, Dixon, R. & Youssef, M., A (2015). Management accounting change: critical review and a new contextual framework. *Journal of Accounting & Organizational Change*, 11(4), 476-502.
- Álvarez, E., Bravo, M., Jiménez, B., Mourão, A. & Schultes, R. (2018). The oil and gas value chain: a focus on oil refining.
- Alves, R. J. V., Etges, A. P. B. d. S., Neto, G. B. & Polanczyk, C. A. (2018). Activity-based costing and time-driven activity-based costing for assessing the costs of cancer prevention, diagnosis, and treatment: A systematic review of the literature. *Value in Health Regional Issues*, 17, 142-147.
- Ambashe, M. & Alurawi, H. A. (2013). The development of accounting through history. *International Journal of Advances in Management and Economics*, 2(2), 95-100.
- Ambrosini, V., Bowman, C. & Collier, N. (2009). Dynamic capabilities: An exploration of how firms renew their resource base. *British Journal of Management*, 20(s1), S9-S24.
- Amit, R. & Schoemaker, P. J. H. (1993). Strategic assets and organizational rent. *Strategic Management Journal*, 14(1), 33-46.
- Amoako, G. K. (2021). Distribution intensity and purchase behavior-mediating role of brand equity in Oil Marketing Companies (OMCs): An emerging markets perspective. *Business Perspectives and Research*, 10(1), 46 –64.
- Amoako, G. K. (2022). Distribution Intensity and Purchase Behavior-mediating Role of Brand Equity in Oil Marketing Companies (OMCs): An Emerging Markets Perspective. *Business Perspectives and Research*, 10(1), 46-64.

- Amuzu, M., S (2010). *Cash flow as a measure of performance of listed companies in emerging economies: The Ghana example*. St Clemets University, Turks and Caicos Islands.
- Anderson, D., R, Williams, T., A & Cochran, J., J (2020). *Statistics for business & economics*. Cengage Learning.
- Angelakis, G., Theriou, N., Floropoulos, I. & Mandilas, A. (2015). *International Journal in Economics and Business Administration*, 3(3), 52-87.
- Anita, A. (2000). Management accounting change. *Management Accounting*. 54-56.
- Ansari, S., Bell, J. & Klammer, T. (2004). *Management accounting: A strategic focus (A modular series)*. Boston: Houghton Mifflin.
- Ansari, S., Bell, J. & Okano, H. (2006). Target costing: Uncharted research territory. *Handbooks of Management Accounting Research*, 2, 507-530.
- Ansoff, H. L. (1965). *Corporate strategy*. New York: McGraw-Hill.
- Antill, N. & Arnott, R. (2004). Creating value in the oil industry. *Journal of Applied Corporate Finance*, 16(1), 18-31.
- Antonelli, V., Boyns, T. & Cerbioni, F. (2009). The development of cost accounting in Italy, c.1800 to c.1940. *Accounting History*, 14(4), 465–507.
- Anuforo, P. U., Ayoup, H., Mustapha, U. A. & Abubakar, A. H. (2019). The Implementation of balance scorecard and its impact on performance: Case of Universiti Utara Malaysia. *International Journal of Accounting & Finance Review*, 4(1), 1-16.
- Arezki, R., Jakab, Z., Laxton, D., Matsumoto, A., Nurbekyan, A., Wang, H. & Yao, J. (2017). Oil prices and the global economy. Report: International Monetary Fund.
- Arndt, F., Galvin, P., Jansen, R. J. G., Lucas, G. J. M. & Su, P. (2022). Dynamic capabilities: New ideas, microfoundations, and criticism. *Journal of Management & Organization*, 28(3), 423-428.
- Arnold, M. C. & Gillenkirch, R. M. (2015). Using negotiated budgets for planning and performance evaluation: An experimental study. *Accounting, Organizations and Society*, 43, 1-16.
- Arslan, I. K. (2020). The importance of creating customer loyalty in achieving sustainable competitive advantage. *Eurasian Journal of Business and Management*, 8(1), 11-20.

- Ashour, M. L. (2018). Schools thought of competitive advantage. *International Journal of Business and Management Invention*, 7(2), 1-7.
- Asllanaj, R. (2010). Kontabiliteti financiar/Financial accounting. Prishtinë: Këshilli botues i Universitetit të Prishtinës.
- Asoloko, I. Z., Egbunike, F. C. & Anah, A. S. (2019). Strategic management accounting and competitive advantage: A survey of manufacturing firms in Anambra State, Nigeria. *Journal of Global Accounting*, 6(2), 188-205.
- Atkinson, A., Kaplan, R., S, Matsumura, E., M & Young, S., M (2012). *Management accounting: Information for decision making and strategy execution: Readings and cases*. Boston: Pearson.
- Atkinson, A., Kaplan, R., Matsumura, E. & Young, S. (2011). *Management accounting*. New York: Prentice Hall.
- Atrill, P. & McLaney, E. J. (2015). *Management accounting for decision makers*. Harlow: Pearson Education.
- Ayensu, F. (2018). *Cost and management accounting II*.
- Azadnia, A. H., Saman, M. Z. M. & Wong, K. Y. (2015). Sustainable supplier selection and order lot-sizing: an integrated multi-objective decisionmaking process. *International Journal of Production Research*, 53(2), 383 - 408.
- Azlika, S., Diana, K., Gumilang, M., Sihotang, E., Indrayani, Khaddafi, M. & Damsar (2023). The importance of capital budgeting in long term investment decision making. *Journal of Accounting Research, Utility Finance and Digital Assets*, 1, 602-606.
- Back, M. J. (2001). A discussion on the impact of information technology on the capital investment decision process in the petroleum industry. *SPE Annual Technical Conference and Exhibition*.
- Baddour, J. W. (1997). The international petroleum industry: Competition, structural change and allocation of oil surplus. *Energy Policy*, 25(2), 143-157.
- Baird, K., Nuhu, N. & Jiao, L. (2024). The effect of Porter's competitive forces on competitive advantage and organisational performance and the moderating role of management accounting practices. *Journal of Management Control*, 35(2), 303-332.
- Bambang, H. & Ali, M. A. (2020). Innovative Management Accounting Practices and Organizational Performance. *Proceedings of the 23rd Asian Forum of Business Education(AFBE 2019)*. Atlantis Press, 384-392.

- Bandaranayake, I., W, M, & Pushpakumari, M., D (2021). How to measure sustainable competitive advantage: A literature review. In: *10th International Conference on Management And Economics: Embracing Change and Recalibrating Business & Economics in a Post-Pandemic Context*, University of Ruhuna, Sri Lanka. University of Ruhuna.
- Bandeira, G., Trindade, D., Sodario, M. & Ferronato, G. (2023). Creating sustainable value: An ESG framework for the petroleum industry. *Offshore Technology Conference Brasil*. OTC, D021S019R006.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Barney, J., B (2002). *Gaining and sustaining competitive advantage*. Reading, Mass: Addison-Wesley.
- Barney, J., B & Hesterly, W., S (2015). *Strategic management and competitive advantage: concepts and cases*. Harlow: Pearson.
- Barney, J. B. & Clark, D. N. (2007). *Resource-based theory: Creating and sustaining competitive advantage*. Oup Oxford.
- Barney, J. B., Ketchen, D. J., Wright, M., Molloy, J. C., Chadwick, C., Ployhart, R. E. & Golden, S. J. (2011). Making Intangibles “Tangible” in Tests of Resource-Based Theory:A Multidisciplinary Construct Validation Approach. *Journal of Management*, 37(5), 1496-1518.
- Barney, J. B. & Zajac, E. J. (1994). Competitive organizational behavior: Toward an organizationally-based theory of competitive advantage. *Strategic Management Journal*, 15(S1), 5-9.
- Barrios Álvarez, C., Adhikari, P. & Gómez Mejía, A. (2021). Management accounting practices and efficiency in a Colombian multi-utility conglomerate. *Journal of Accounting in Emerging Economies*, 11(5), 714-734.
- Barsky, N. P. & Marchant, G. (2012). What really happens with performance management systems. In: Gregoriou G. N. and Finch N. (eds) *Best Practices in Management Accounting*. London: Palgrave Macmillan UK, pp.52-71.
- Barton, L., T & Macarthur, J., B (2003). Activity-based costing and predatory pricing: The case of the petroleum retail industry. *Management Accounting Quarterly Spring*, 4(3), 1-7.
- Basher, F. (2010). *The use of target costing method for cost reduction in oil and gas companies in the Republic of Libya under environmental*

- developments and quality requirements*. Arab Academy for Financial and Banking Science, Jordan.
- Bastl, M., Grubic, T., Templar, S., Harrison, A. & Fa, I.-S. (2010). Inter-organisational costing approaches: the inhibiting factors. *The International Journal of Logistics Management*, 21(1), 65-88.
- Bayraktar, C. A., Hancerliogullari, G., Cetinguc, B. & Calisir, F. (2017). Competitive strategies, innovation, and firm performance: an empirical study in a developing economy environment. *Technology Analysis & Strategic Management*, 29(1), 38-52.
- BBP Publishing (2000). Management accounting decision-making. . Report: BPP.
- Beheshti, H. M. (2004). Gaining and sustaining competitive advantage with activity based cost management system. *Industrial Management & Data Systems*, 104(5), 377-383.
- Bento, A. I. & Ferreira, W. L. (2006). Budgeting, performance evaluation, and compensation: A performance management model. In: Epstein M. J. and Lee J. Y. (eds) *Advances in Management Accounting*. Emerald Group Publishing Limited, pp.51-79.
- Berisha, V. (2017). Strategic management of costs: A new tool to gain competitive advantage. *Springer Proceedings in Business and Economics*. DOI: 10.1007/978-3-319-48454-9_17. 239–254.
- Bernstein Research (2007). What is the marginal cost? And why does it matter? *Black Book - Cost-o-philia in the Oil Patch*. 20-29.
- Besanko, D., Dranove, D., Shanley, M. & Schaefer, S. (2000). *Economics of Strategy*. New York: John Wiley & Sons.
- Bhimani, A., Horngren, C. T., Datar, S. M. & Rajan, M. V. (2019). *Management & cost accounting*. Pearson Education Limited.
- Bhimani, A. & Langfield-Smith, K. (2007). Structure, formality and the importance of financial and non-financial information in strategy development and implementation. *Management Accounting Research*, 18(1), 3-31.
- Bhimani, A. & Willcocks, L. (2014). Digitisation, “Big Data” and the transformation of accounting information. *Accounting and Business Research*, 44(4).
- Bimha, H., Hoque, M. & Munapo, E. (2017). Supply chain management practices in the petrolrum industry of Zimbabwe. *International Business Management*, 11(12), 2210-2223.

- Bingxin Li, C. & Juan Li, J. (2008). Achieving superior financial performance in China: Differentiation, cost leadership, or both? *Journal of International Marketing*, 16(3), 1-22.
- Bistriceanu, G., D (2001a). *Finances, banks and insurances thesaurus*. Bucharest: Economica Publishing.
- Bistriceanu, G., D (2001b). *Finances, banks and insurances thesaurus*, . Bucharest: Economica Publishing.
- Blanchard, B., Verma, D. & Peterson, E. (1995). *Maintainability*. John Wiley & Sons, Inc.
- Bogdanoiu, C. (2009). Activity based cost from the perspective of competitive advantage. *Journal of Applied Economic Sciences*, 4(1), 5-11.
- Bose, S., Dey, S. K. & Bhattacharjee, S. (2023). Big data, data analytics and artificial intelligence in accounting: An overview. *Handbook of big data research methods*. 32-51.
- Botchkarev, A. (2015a). Estimating the accuracy of the return on investment (ROI) performance evaluations. *Interdisciplinary Journal of Information, Knowledge, and Management*, 10, 217-233.
- Botchkarev, A. (2015b). Estimating the accuracy of the return on investment (ROI) performance evaluations. *Interdisciplinary Journal of Information, Knowledge, and Management*, 10, 217-233.
- Bouquin, H. (2004). *Comptabilité de gestion*. Paris: Economica.
- Boyns, T. & Edwards, J., R (2006). The development of cost and management accounting in Britain. *Handbooks of Management Accounting Research*. 969-1034.
- Boyns, T. & Edwards, J. R. (2013). *A history of management accounting: The British experience*. Routledge.
- BP (2019). Statistical review of World Energy 2019. Report: BP.
- BP (2020). *Statistical review of world energy: Oil*. Available at: <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/oil.html> (accessed 21 July).
- Braim, S., J (2020). *The role of management accounting in the decision making process*. Near East University.

- Brand Finance (2017). *Global 500 2017*. Available at: <http://brandfinance.com/knowledge-centre/reports/brand-finance-global-500-2017/> (accessed 21 February 2018).
- Brand Finance (2019). Oil & Gas 50: The annual report on the most valuable and strongest oil & gas brands. Report: Brand Finance.
- Brierley, J., A (2016). An examination of the use of profitability analysis in manufacturing industry. *International Journal of Accounting, Auditing and Performance Evaluation*, 12(1).
- Bromiley, P. & Rau, D. (2016). Operations management and the resource-based view: Another view. *Journal of Operations Management*, 41(1), 95-106.
- Bruner, R., F (2012). *Stuck in the middle*. Available at: <https://blogs.darden.virginia.edu/brunerblog/2012/01/stuck-in-the-middle/>.
- Bryant, L. (2003). Relative value relevance of the successful efforts and full cost accounting methods in the oil and gas industry. *Review of Accounting Studies*, 8(1), 5 - 28.
- Brycesson, D. (2002). Petrol pumps and economic slumps rural – Urban linkages in Zimbabwe globalisation process. *Tijdschrift voor Economische en Sociale Geografie*, 94(3), 335-349.
- Burns, J. & Baldvinsdottir, G. (2005). An institutional perspective of accountants' new roles – the interplay of contradictions and praxis. *European Accounting Review*, 14(4), 725-757.
- Burns, J. & Scapens, R. (2000). Conceptualising management accounting change: an institutional framework. *Management Accounting Research*, 11(1), 3-25.
- Busco, C., Quattrone, P. & Riccaboni, A. (2007). Management accounting: issues in interpreting its nature and change. *Management Accounting Research*, 18(2), 125-149.
- Busco, C. & Scapens, R., W (2011). Management accounting systems and organisational culture: interpreting their linkages and processes of change. *Qualitative Research in Accounting & Management*, 8(4), 320-357.
- Butterfield, E. (2016). *Managerial decision-making and management accounting information*. Helsinki Metropolia University of Applied Sciences.
- Cadez, S. & Guilding, C. (2008). An exploratory investigation of an integrated contingency model of strategic management accounting. *Accounting, Organizations and Society*, 33(7-8), 836–863.

- Caglio, A. (2003). Enterprise resource planning systems and accountants: Towards hybridization? . *European Accounting Review*, 12(1), 123 - 153.
- Cagwin, D. & Bouwman, M., J (2002). The association between activity-based costing and improvement in financial performance. *Management Accounting Research*,, 13(1), 1-39.
- Cagwin, D. & Ortiz, D. (2005). The context-specific benefit of use of activity-based costing with supply chain management and technology integration. *Academy of Accounting and Financial Studies Journal*, 9(2), 47-70.
- Calantone, R. J., Randhawa, P. & Voorhees, C. M. (2014). Breakeven time on new product launches: An investigation of the drivers and impact on firm performance. *Journal of Product Innovation Management*, 31(S1), 94-104.
- Camilleri, M. A. (2020). Using the balanced scorecard as a performance management tool in higher education. *Management in Education*, 089202062092141, 1–12.
- Campbell-Hunt, C. (2000). What have we learned about generic competitive strategy? A meta-analysis. *Strategic Management Journal*, 21(2), 127-154.
- Cardoş, I. & Cardoş, V. (2014). Measuring customer profitability with activity-based costing and balanced scorecard. *Annales Universitatis Apulensis Series Oeconomica*, 16(1), 52-60.
- Carmona, S. (2006). The history of management accounting in France, Italy, Portugal, and Spain. In: Chapman C. S., Hopwood A. G. and Shields M. D. (eds) *Handbooks of Management Accounting Research*. Elsevier, pp.905-922.
- Carr, C. & Ng, J. (1995). Target cost control: Nissan and its UK supplier partnerships. *Management Accounting Research*, 6, 347-365.
- Casteel, A. & Bridier, N., L (2021). Describing populations and samples in doctoral student research. *International Journal of Doctoral Studies*, 16(339-362).
- Caude, S. (2015). *Balanced scorecard*. Available at: <http://www.hsaj.org/?fullarticle=4.3.2> (accessed 17 February 2018).
- CCSI (2014). *Local content laws & contractual provisions*. Available at: <http://ccsi.columbia.edu/work/projects/local-content-laws-contractual-provisions/> (accessed 13 August).

- Celayir, D. (2020). Target costing as a strategic cost management tool and a survey on its implementation in the Turkish Furniture Industry. *Journal of Business Research - Turk*, 12(2), 1308–1321.
- Cenamor, J. (2021). Complementor competitive advantage: A framework for strategic decisions. *Journal of Business Research*, 122, 335-343.
- CEPR (2023). *The design and implementation of the price cap on Russian oil*. Available at: <https://cepr.org/voxeu/columns/design-and-implementation-price-cap-russian-oil> (accessed 29 June 2024).
- CGMA (2020). *What is CGMA*. Available at: <https://www.cgma.org/aboutcgma/whatiscgma.html> (accessed 09 May).
- Chartered Institute of Management Accountants (2008). Standard costing and variance analysis. *Topic Gateway Series*, 24.
- Chavan, M. (2009). The balanced scorecard: a new challenge. *Journal of Management Development*, 28(5), 393 – 406
- Chayita, R. & Kaseke, N. (2021). Survival business strategies in the petroleum industry in Zimbabwe. *South East Asia Journal of Contemporary Business, Economics and Law*, 24(5), 202-208.
- Chayita, R. & Kaseke, N. (2022). Impact of government policy interventions on the survival strategies being implemented by companies in the petroleum sector in Zimbabwe. *International Journal of Business, Economics and Law*, 24(5), 195-202.
- Chayita, R. & Kaseke, N. (2023). Effects of Turbulent Environments on Business Strategies: A Case of Zimbabwe's Petroleum Industry. *The Fountain: Journal of Interdisciplinary Studies.*, 7(1), 59-74.
- Check, J. W. & Schutt, R. K. (2012). *Research methods in education*. Thousand Oaks, Calif.: Sage Publications.
- Chenhall, R. H. & Langfield-Smith, K. (1998). Adoption and benefits of management accounting practices: an Australian study. *Management Accounting Research*, 9(1), 1-19.
- Chiekezie, N., R, Egbunike, P., A & Odum, A., N (2014). Adoption of competitor focused accounting methods in selected manufacturing companies in Nigeria. *Asian Journal of Economic Modelling*, 2(3), 128-140.

- Chong, V., K & Cable, R. (2002). A study on the implementation of an activity-based costing (ABC) system in an Australian oil and gas company. *Asian Review of Accounting*, 10(2), 81 - 99.
- Chongruksut, W. & Brooks, A. (2005). The adoption and implementation of activity-based costing in Thailand. *Asian Review of Accounting*, 13(2), 1-17.
- Chopper, R. & Chew, B., W (1996). Control tomorrow's cost through today's designs. *Harvard Business Review*.(January-February), 88-97.
- Chowdhury, E. K. (2023). Integration of Artificial Intelligence Technology in Management Accounting Information System: An Empirical Study. *Novel financial applications of machine learning and deep learning: algorithms, product modeling, and applications*. Springer, pp.35-46.
- CIMA (2006). Brand management. Report: CIMA.
- CIMA (2007). Beyond budgeting. *Topic Gateway Series*.
- CIMA (2008). Activity based costing. Report.
- CIMA (2009). Customer profitability analysis. Report.
- CIMA (2018). *What is management accounting*. Available at: <https://www.cimaglobal.com/Starting-CIMA/Why-CIMA/what-is-management-accounting/> (accessed 18 January 2018).
- CIMA Official Terminology (2005). Report, London: Chartered Institute of Management.
- Cinquini, L. & Tenucci, A. (2010). Strategic management accounting and business strategy: a loose coupling? *Journal of Accounting & Organizational Change*, 6(2), 228 - 259.
- Ciobanasu, O. (2012). Management Strategies in the Banking Sector *Business Excellence and Management* 2(2), 5-12.
- Clews, R. J. (2016). Chapter 5 - Fundamentals of the petroleum industry. In: Clews R. J. (ed) *Project Finance for the International Petroleum Industry*. San Diego: Academic Press, pp.83-99.
- Clulow, V., Gerstman, J. & Barry, C. (2003). The resource-based view and sustainable competitive advantage: the case of a financial services firm. *Journal of European Industrial Training*, 27(5), 220-232.

- Communication Controlling (2018). *Brand evaluation*. Available at: <http://www.communicationcontrolling.de/index.php?id=45&L=3> (accessed 21 February 2018).
- Cooper, C. L. (2015). *Wiley encyclopedia of management*.
- Cooper, P. & Dart, E. (2009). Changes in the management accountant's role, drivers and diversity. University of Bath.
- Cooper, R. & Chew, W. B. (1996). Control tomorrow's costs through today's designs. *Harvard Business Review*, 88-97.
- Cooper, R. & Kaplan, R. S. (1991). Profit priorities from activity-based costing. *Harvard Business Review*, 69(May - June), 130-135.
- Costa, L. A., Cool, K. & Dierickx, I. (2013). The competitive implications of the deployment of unique resources. *Strategic Management Journal*, 34(4), 445-463.
- Costa, Luís A. & Dierickx, I. (2005). The strategic deployment of quality-improving innovations. *The Journal of Business*, 78(3), 1049-1072.
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed methods*. London: Sage Publications.
- Cruz, P. L., Iribarren, D. & Dufour, J. (2019). Life cycle costing and eco-efficiency assessment of fuel production by co-processing biomass in crude oil refineries. *Energies*, 12(24), 4664.
- Dai, J. & Vasarhelyi, M. A. (2023). Management accounting 4.0: The future of management accounting. *Journal of Emerging Technologies in Accounting*, 20(1), 1-13.
- Datar, S. M. & Rajan, M. V. (2021). *Horngrén's cost accounting: a managerial emphasis*. Pearson.
- Daunfeldt, S.-O. & Hartwig, F. (2014). What determines the use of capital budgeting methods? Evidence from Swedish listed companies. *Journal of Finance and Economics*, 2(4), 101-112.
- David, F. R. (2017). *Strategic management: concepts and cases*. Upper Saddle River: Pearson Prentice Hall.
- Davidson, S. (2001). Seizing the competitive advantage. *Community Banker*, 10(8), 32-34.
- Davies, G. (2007). Employer branding and its influence on managers. *European Journal of Marketing*, 42(5/6), 667 - 681.

- Davies, S., Nangih, E. & Egbai, E. (2014). Cost Implications of Upstream Activities on the Financial Performance of Oil and Gas Companies in Nigeria. *International SAMANM Journal of Finance and Accounting*, 2(1), 25 - 38.
- Davis, C., E (2012). *Managerial accounting*. Hoboken: N.J: John Wiley & Sons.
- De Geuser, F., Mooraj, S. & Oyon, D. (2009). Does the balanced scorecard add value? Empirical evidence on its effect on performance. *European Accounting Review*, 18(1), 93-122.
- De Loo, I., Bots, J., Louwrik, E., Meeuwssen, D., van Moorsel, P. & Rozel, C. (2013). The effects of ERP-implementations on the non-financial performance of small and medium sized enterprises in the Netherlands. *The Electronic Journal Information Systems Evaluation*, 16(2), 103 - 116.
- De Vos, A. S., Strydom, H., Schulze, S. & Patel, L. (2011). The sciences and the profession. In: De Vos A., S, Strydom H., Fouché C., B and Delport C., S, L (eds) *Research at the grass roots for the social sciences and human service professions*. 4th ed. Pretoria: JL Van Schaik Publishers.
- De Zoysa, A. & Kanthi Herath, S. (2007). Standard costing in Japanese firms: Reexamination of its significance in the new manufacturing environment. *Industrial Management & Data Systems*, 107(2), 271-283.
- Dechezleprêtre, A. & Sato, M. (2017). The Impacts of Environmental Regulations on Competitiveness. *Review of Environmental Economics and Policy*.
- Dekker, H. & Smidt, P. (2003). A survey of the adoption and use of target costing in Dutch firms. *International Journal of Production Economics*, 84(3), 293-299.
- Delis, M., Iosifidi, M. & Tsionas, E. G. (2014). On the Estimation of Marginal Cost. *Operations Research*, 62(3), 543-556.
- Denzin, N. K. & Lincoln, Y. S. (2003). Introduction: The discipline and practice of qualitative research. In: Denzin N. K. and Lincoln Y. S. (eds) *Strategies of qualitative inquiry*. 2nd ed. Thousand Oaks, CA: Sage, pp.1 - 45.
- Devarajan, D. & Jayamohan, M. S. (2016). Stock control in a chemical firm: combined FSN and XYZ analysis. *Procedia Technology*, 24, 562-567.
- Ditkaew, K. (2023). Strategic management accounting on competitive advantage. *International Journal of Asian Business and Information Management*, 14(1), 1-17.
- Dixon, R. (1998). Accounting for strategic management: A practical application. *Long Range Planning*, 31(2), 272-279.

- Dobrowolski, Z. & Drozdowski, G. (2022). Does the Net Present Value as a financial metric fit investment in green energy security? *Energies*, 15(1), 353.
- Domingo, T. (2007). *The application of activity based cost and management to support competitive strategy in the banking sector : a South African case study*. University of Cape Town, Cape Town.
- Dooley, B. (2007). Using activity based costing techniques to drive supply chain process improvement and business profitability. *Supply Chain Europe*, 16(2), 32-35.
- Doric, B. & Dimovski, V. (2018). Managing petroleum sector performance – a sustainable administrative design. *Economic Research-Ekonomska Istraživanja*, 31(1), 119-138.
- Downes, L. (1997). Beyond Porter. *Context Magazine*.
- Drucker, P. F. (2007). *The practice of management*. Butterworth-Heinemann.
- Drury, C. (1992a). *Management and cost accounting*. Boston, MA: Springer.
- Drury, C. (1992b). *Standard costing*. London: Academic Press.
- Dubey, S., Singh, R., Singh, S., Mishra, A. & Singh, N. (2020). A brief study of value chain and supply chain. *Agriculture Development and Economic Transformation in Global Scenario.*: Mahima Publications, pp.177-183.
- Dugar, A. (2007). Marketing of Petrol in India - Transformation of an Undifferentiated Low Involvement Commodity into High Involvement Brands. *Innovative Marketing* 3(4), 52-59.
- Dunk, A. S. (2012). Assessing the Contribution of Product Life Cycle Cost Analysis, Customer Involvement, and Cost Management to the Competitive Advantage of Firms. *Advances in Management Accounting*, 20, 29–45.
- Dyhdalewicz, A. (2015). The Implementation of Variable Costing in the Management of Profitability of Sales in trade Companies. . *Financial Internet Quarterly*, 11(3), 116–127.
- Easterby-Smith, M., Lyles, M. A. & Peteraf, M. A. (2009). Dynamic capabilities: Current debates and future directions. *British Journal of Management*, 20(s1), S1-S8.
- Edgar, T., W & Manz, D., O (2017). *Research methods for cyber security*. Syngress.
- Edwards, J., R, Byns, T. & Matthews, M. (2002). Standard costing and budgetary control in the British iron and steel industry: A study of accounting change. *Accounting, Auditing & Accountability Journal*, 15(1), 12 - 45.

- Edwards, R. & Boyns, T. (2012). *A history of management accounting : The British experience*. London, United Kingdom: Taylor & Francis Group.
- Eichholz, J., Hoffmann, N. & Schwering, A. (2024). The role of risk management orientation and the planning function of budgeting in enhancing organizational resilience and its effect on competitive advantages during times of crises. *Journal of Management Control*. DOI: 10.1007/s00187-024-00371-8.
- Eisenhardt, K. M. & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21, 1105-1121.
- Ejededawe, A. (2014). Assessment of accounting procedures in the oil and gas Sector in the Nigerian economy. *International Journal of Scientific and Research Publications*, 4(4), 1 - 5.
- Eker, M. & Aytaç, A. (2016). Effects of interaction between ERP and advanced managerial accounting techniques on firm performance: Evidence from Turkey. *The Journal of Accounting and Finance*, October, 187-209.
- Ekern, S. (1988). An option pricing approach to evaluating petroleum projects. *Energy Economics*, 10(2), 91-99.
- Ekkaphol, S. & Wichitsathian, S. (2024). Strategic management accounting and sustainable performance: The serial mediating role of business strategies and competitiveness. *Journal of Infrastructure, Policy and Development*, 8(6), 1-20.
- El Fallahi, F., Ibenrissoul, A. & El Amri, A. (2023). Defining and Measuring Overall Performance in Emerging Countries: A Comprehensive Financial Perspective Review. *Financial Markets, Institutions and Risks*, 7(3), 81-93.
- ElGammal, W., Zakka, J., S & El-Kassar, A., N'andash, G (2016). Reasons behind the non-application of the activity based costing system in developing countries, case of Lebanon. *The Journal of Developing Areas*, 50(3), 417 – 435.
- Elhossade, S. S., Zoubi, A. A. & Zagoub, A. A. (2022). Barriers of environmental management accounting practices in developing country. *Risk Governance and Control: Financial Markets & Institutions*, 12(1), 8–20.
- Elkamel, A., Ba-Shammakh, M., Douglas, P. & Croiset, E. (2008). An optimization approach for integrating planning and CO₂ emission reduction in the petroleum refining industry. *Industrial & Engineering Chemistry Research*, 47(3), 760-776.

- Eloranta, V. & Turunen, T. (2015). Seeking competitive advantage with service infusion: a systematic literature review. *Journal of Service Management*, 26(3), 394-425.
- Emami, M., Amini, A. & Emami, A. (2013). Utilizing activity based costing model for cost management in Iranian gas companies. *Finance Management*, 59, 15928-15937.
- Emhjellen, M. & Alaouze, C. M. (1999). A comparison of oil project NPV's in the North Sea obtained using the Weighted Average Cost of capital discounting method and a Modern Asset Pricing Method. The University of New South Wales.
- Encyclopedia of Production and Manufacturing Management (2000). Standard costing. In: Swamidass P. M. (ed) *Encyclopedia of Production and Manufacturing Management*. Boston, MA: Springer US, pp.718-718.
- Enz, C. (2010). *Commentary: Competitive dynamics and creating sustainable advantage*. Thousand Oaks: Sage Publications.
- Epstein, M. J. (2018). Performance measurement and management control: Challenges for applications and research in new settings. In: Epstein M. J., Verbeeten F. H. M. and Widener S. K. (eds) *Performance Measurement and Management Control: The Relevance of Performance Measurement and Management Control Research*. Emerald Publishing Limited, pp.3-12.
- Erhomosele, O. & Rahim, L. J. (2021). Full Cost Vs Successful Efforts Accounting: A Systematic Review. *International Journal of Academic Research in Accounting Finance and Management Sciences*, 11(3), 145–156.
- Erikawati (2023). The philosophy of realism in education. *Journal of Innovation in Teaching and Instructional Media*, 4(1), 70-79.
- Etikan, I. & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, 5(6), 215-217.
- Etim, E. O., Confidence, I. & Umoffong, N. J. (2020). Financial Performance Determinants at the Nigerian Oil and Gas Sector. *East African Scholars Journal of Economics Business and Management*, 3(12), 941-951.
- European Central Bank (2017). The oil market in the age of shale oil. Report.
- Evangelista de Barros, O. J. & Wanderley, C. d. A. (2016). Adaptation of the balanced scorecard: Case study in a fuel distribution company. *Revista Contabilidade & Finanças*, 27, 320-333.

- Fainshmidt, S., Wenger, L., Pezeshkan, A. & Mallon, M. R. (2019). When do dynamic capabilities lead to competitive advantage? The importance of strategic fit. *Journal of Management Studies*, 56(4), 758-787.
- Farazmand, A. (2019). *Global encyclopedia of public administration public policy and governance*. Springer International Publishing AG.
- Farrokhi, F. (2012). Rethinking convenience sampling: Defining quality criteria. *Theory and Practice in Language Studies*, 2(4), 784-792.
- Fattouh, B. & Mahadeva, L. (2013). OPEC: What difference has it made? *Annual Review of Resource Economics*, 5(1), 427-443.
- Fattouh, B. & Sen, A. (2016). The past, present, and future role of OPEC. In: Van de Graaf T., Sovacool B., Ghosh A., Kern F. and Klare M. (eds) *The Palgrave Handbook of the International Political Economy of Energy*. London: Palgrave Macmillan.
- Ferri, S., Tron, A., Fiume, R. & Della Corte, G. (2020). The relation between cash flows and economic performance in the digital age: An empirical analysis. *Corporate Ownership & Control*, 17(3), 84 - 91.
- Finch, J. H., Macmillan, F. E. & Simpson, G. S. (2002). On the diffusion of probabilistic investment appraisal and decision-making procedures in the UK's upstream oil and gas industry. *Research Policy*, 31(6), 969-988.
- Fink, D. & Laupase, R. (2000). Perceptions of web site design characteristics: a Malaysian/Australian comparison. *Internet Research*, 10(1), 44-55.
- Fisher, J. G., Maines, L. A., Peffer, S. A. & Sprinkle, G. B. (2002). Using budgets for performance evaluation: Effects of resource allocation and horizontal information asymmetry on budget proposals, budget slack, and performance. *The Accounting Review*, 77(4), 847-865.
- Flatt, S., J & Kowalczyk, S., J (2008). Creating competitive advantage through intangible assets: The direct and indirect effects of corporate culture and reputation. *Advances in Competitiveness Research*, 16, 13.
- Fleischman, R., K, Boyns, T. & Tyson, T., N (2008). The search for standard costing in the United States and Britain. *A Journal of Accounting, Finance and Business Studies*, 44(4), 341 - 376.
- Fonseka, M., M, Jiaotong, X., X & Tian, G. (2013). Does accessibility to different sources of financial capital affect competitive advantage and sustained

- competitive advantages? Evidence from a highly regulated Chinese market. *The Journal of Applied Business Research* 29(4), 963-982.
- Foss, N. J. & Knudsen, T. (2003). The resource-based tangle: towards a sustainable explanation of competitive advantage. *Managerial and Decision Economics*, 24(4), 291-307.
- Fotache, G. & Bucsa, R.-C. (2024). The Integration of Artificial Intelligence in Managerial Accounting: A Literature Review. *Economy Transdisciplinarity Cognition*, 27(1), 5-15.
- Garrison, R. H., Noreen, E. W. & Brewer, P. C. (2021). *Managerial accounting*. McGraw-Hill.
- Garrison, R. S. & Noreen, E. (2005). *Managerial accounting*. Irwin, New York: McGraw-Hill Irwin.
- Gawankar, S., Kamble, S. S. & Raut, R. (2015). Performance measurement using balance scorecard and its applications: A review. *Journal of Supply Chain Management Systems*, 4(3), 6-21.
- Gellweiler, C. (2018). Cohesion of RBVC and Industry View for Competitive Advantage *Strategic Management Journal*, 23(2), 3 - 12.
- Geng, S., Suyu, L. & Xuelin, L. (2021). Operating performance of tourism listed companies in China: The perspective of Economic Value Added. *SAGE Open*. 1 - 10.
- Gerhard, T. (2008). Bias: Considerations for research practice. *American Journal of Health-System Pharmacy*, 65(22), 2159-2168.
- Geroski, P. A., Ulph, A. M. & Ulph, D. T. (1987). A model of the crude oil market in which market conduct varies. *Economics Journal*, 97, 77 - 86.
- Gerrard, B. (2005). A Resource-Utilization Model of organizational efficiency in professional sports teams. *Journal of Sport Management*, 19(2), 143-169.
- Ghafeer, N. A. M., Rahman, A. A. A. & Mazahrih, B. J. (2014). The impact of target cost method to strengthen the competitiveness of Industrial companies. *International Journal of Business and Social Science*, 5(2), 250-263.
- Ghuri, P. & Gronhaug, K. (2005). *Research methods in business studies*. Harlow: FT/Prentice Hall.
- Gichuhi, L. (2023). *Effect of competitive strategies on the performance of oil marketing companies in Kenya*. Strathmore University.

- Gitman, L. J., Juchau, R. & Flanagan, J. (2015). *Principles of Managerial Finance*. Pearson Australia.
- Gloy, B. A., Akridge, J. T. & Preckel, P. V. (1997). Customer lifetime value: An application in the rural petroleum market. *Agribusiness*, 13(3), 335–347.
- Gluch, P. & Baumann, H. (2004). The Lifecycle Costing (LCC) approach: A conceptual discussion of its usefulness for environmental decision making. *The building and Environmental Journal*, 39, 571-580.
- Goretzki, L., Strauss, E. & Weber, J. (2013a). An institutional perspective on the changes in management accountants' professional role. *Management Accounting Research*, 24(1), 41 - 63.
- Goretzki, L., Strauss, E. & Weber, J. (2013b). An institutional perspective on the changes in management accountants' professional role. *Management Accounting Research*, 24(1), 41 - 63.
- Granlund, M. & Malmi, T. (2002). Moderate impact of ERPS on management accounting: a lag or permanent outcome? *Management Accounting Research*, 13(3), 299-321.
- Grant, R. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California Management Review* 33(3), 114-135.
- Grant, R. M. (2018). *Contemporary strategy analysis*. 10th ed.: Wiley.
- Greenwalt, W. & Patt, D. (2021). *Competing in time: Ensuring capability advantage and mission success through adaptable resource allocation*. Hudson Institute.
- Grigorescu, I. L. (2015). Value Chain Analysis – Basic element of an organization's competitive advantage. *International Conference: Knowledge Based Organisation*, 21(2), 318–324.
- Grunert, K. & Hildenbrandt, I. (2004). Success factors, competitive advantage and competence development. *Journal of Business Research*, 55(5), 459-461.
- Gubio, Z. D., Mustapha, L. O. & Agbi, S. E. (2022). The effect of break-even-point analysis in decision making in some selected block industries within Kaduna Metropolis. *Journal of Research in Business and Management*, 10(5), 22 - 32.
- Guerreiro, R., Rodrigues Bio, S. & Vazquez Villamor Merschmann, E. (2008). Cost-to-serve measurement and customer profitability analysis. *The International Journal of Logistics Management*, 19(3), 389–407.

- Guiding, C., Cravens, K. & Tayles, M. (2000). An international comparison of strategic management accounting practices. *Management Accounting Research*, 11, 113-135.
- Guiding, C., Lamminmak, D. & Drury, C. (1998). Budgeting and Costing Practices in New Zealand and the United Kingdom. *The International Journal of Accounting* 33(5), 569 - 588.
- Guilford, M. C., Hall, C. A. S., O'Connor, P. & Cleveland, C. J. (2011). A new long term assessment of Energy Return on Investment (EROI) for U.S. oil and gas discovery and production. *Sustainability*, 3(10), 1866-1887.
- Guix, M. & Font, X. (2020). The materiality balanced scorecard: A framework for stakeholder-led integration of sustainable hospitality management and reporting. *International Journal of Hospitality Management*, 91, 102634.
- Gunday, G., Ulosoy, G., Kilic, K. & Alpkan, L. (2011). Effects of innovation types on firm performance. *International Journal of Production Economics*, 133(1), 662 - 676.
- Guo, R., Chen, Y., Lo, K. L. & Mi, J. J. (2022). The influence of international crude oil price on the crude oil spot price in China. *Procedia Computer Science*, 199, 1144-1151.
- Gwinji, W., A (2018). *Internal marketing as a strategy to achieve sustainable competitive advantage. A case of the Construction Industry in Gauteng, South Africa*. University of the Witwatersrand.
- Haarla, A. (2003). *Product differentiation: Does it provide competitive advantage for a printing company*. Oxford: Oxford University Press.
- Haas, M., R & Hansen, M., T (2005). When using knowledge can hurt performance: The value of organizational capabilities in a management consulting company. *Strategic Management Journal*, 26(1), 1-24.
- Hallberg, N. L. & Felin, T. (2017). Untangling infinite regress and the origins of capability. *Journal of Management Inquiry*, 29(1), 17-32.
- Handfield, R., Monczka, R., Giunipero, L. C. & Patterson, J. L. (2011). *Sourcing and supply chain management*. Ontario: South-Western.
- Hansen, E. G. & Schaltegger, S. (2012). Pursuing sustainability with the balanced scorecard: Between shareholder value and multiple goal optimisation.

- Haqiqi-nasab, M., Yazdani, H., R & Moradi, A. (2011). The effect of brand values on the relationship performance of B2B markets. . *Commercial Management Outlook*, 8, 27-45.
- Harahap, Y. C. S., Kudadiri, M. S. & Muda, I. (2023). Cost Volume Profit (CPV) Analysis on PT Aneka Gas Industri Tbk. *European Chemical Bulletin*, 12(8), 3157-3164.
- Hardan, A. S. & Shatnawi, T. M. (2013). Impact of applying the ABC on improving the financial performance in telecom companies. *International Journal of Business and Management*, 8(12), 48-61.
- Harnani, S. (2022). Examining the Evolution of Management Accounting: A Qualitative Review. *Atestasi : Jurnal Ilmiah Akuntansi*, 5(2), 755–772.
- Hasan, R. U. & Chyi, T. M. (2017). Practical application of balanced scorecard - A literature review. *Journal of Strategy and Performance Management*, 5(3), 87-103.
- Hasan, S. (2015). Variable costing and its implications in a manufacturing company. *International Scholar of Accounting and Finance*, 1(1), 1-10.
- Hatami, E. & Navid, B. J. (2013). Design and implementation of balanced scorecard system in Iran's gas and oil industries (A case study in ButanGas company in Ahvaz). *Journal of Basic and Applied Scientific Research*, 3(3), 918-923.
- Helfat, C. E. & Peteraf, M. A. (2003). The dynamic resource-based view: capability lifecycles. *Strategic Management Journal*, 24(10), 997-1010.
- Henderson, R. & Mitchell, W. (1997). The interactions of organisational and competitive influences on strategy and performance. *Strategic Management Journal*, 18(S1), 5-14.
- Hendricks, J. A. (1988). Applying cost accounting to factory automation. *Management Accounting*, LXX(6), 24430.
- Heskett, J. L., Sasser, W. E. J. & Schlesinger, L. A. (1997). *The Service Profit Chain*. New York: NY: Free Press.
- Hilton, R. W. & Platt, D. E. (2020). *Managerial accounting: creating value in a dynamic business environment*. McGraw-Hill.
- Hofer, C. W. & Schendel, D. (1978). *Strategy formulation: Analytical concepts*. St. Paul: West Pub. Co.

- Hojna, R. & Stryckova, L. (2018). Absorption costing analysis and its use by Czech manufacturing companies. *International Multidisciplinary Scientific Conference on Social Sciences & Arts SGEM*, 5, 19-26.
- Hopwood, A. G. & Miller, P. (1994). *Accounting as social and institutional practice*. Cambridge: Cambridge University Press.
- Hoque, Z. (2014). 20 years of studies on the balanced scorecard: Trends, accomplishments, gaps and opportunities for future research. *The British Accounting Review*, 46(1), 33-59.
- Horngren, C., T, Sundem, G., L & Stratton, W., O (2007). *Introduction to management accounting* Upper Saddle River, New Jersey: Pearson Hall.
- Horngren, C. T., Datar, S. M. & Rajan, M. V. (2014). *Cost accounting*. Pearson Education Limited.
- Hornungová, J. (2017). Nonfinancial performance evaluation as significant area of strategic business management. *Business: Theory and Practice*, 18(0), 71-78.
- Hoskin, K. W. & Macve, R. H. (2000). Knowing more or knowing less? Alternative histories of cost and management accounting in the US and the UK. *Accounting Historians Journal*, 27(1), 91 – 149.
- Hossain, M., S, Hasan, M., S & Safiuddin, M. (2015). Adoption of International Reporting Standards in Bangladesh: Benefits and Challenges. *IOSR Journal of Business and Management* 17(8), 16-24.
- Huang, K.-F., Dyerson, R., Wu, L.-Y. & Harindranath, G. (2015). From temporary competitive advantage to sustainable competitive advantage. *British Journal of Management*, 26(4), 617-636.
- Huang, R. & Sarigollu, E. (2012). How brand awareness relates to market outcome, brand equity and the marketing mix. *Journal of Business Research*, 65(1), 92-99.
- Hynek, J., Janeček, V. & Lefley, F. (2015). An Exploratory study of a comparison between the UK and Czech Republic of the financial models used in the appraisal of ICT and non-ICT capital projects. *Business Administration and Management*, 18(2), 89 –102.
- IEA (2020). The oil and gas industry in energy transitions: Insights from IEA analysis. Report, Paris: IEA.
- IMA (1996). Value chain analysis for assessing competitive advantage. Report.

- IMA (2008). *What is management accounting*. Available at:
<https://www.imanet.org.cn/uploads/resource/2015-11/1447061510-17551.pdf>
 (accessed 18 January 2018).
- Imegi, J. C. & Nwokoye, G. A. (2015). The effectiveness of capital budgeting techniques in evaluating project's profitability. *African Research Review*, (2), 1 - 22.
- Inkpen, A. & Moffet, M., H (2011). *The global oil and gas industry management, strategy and finance*. Tulsa, Oklahoma: PennWell Corporation.
- Innes, J. & Mitchell, F. (1995). A survey of activity-based costing in the U.K.'s largest companies. *Management Accounting Research*, 6(2), 137-153.
- Institute of Chartered Accountants (2002). Customer profitability analysis. Report, Canada.
- Institute of Management Accountants (2008). Statement of management accounting: Definition of management accounting. Report: Institute of Management Accountants.
- Institute of Management Accounting (1998). Implementing activity-based management: Avoiding the pitfalls. Report.
- Intakhan, P. (2021). Effects of strategic cost management on cost advantage and firm performance: evidence from firms to be recognized in Good Manufacturing Practice (GMP). *KKBS Journal of Business Administration and Accountancy*, 5(3), 25-44.
- Interbrand & JP Morgan (2002). *Valuation approaches and the financial crisis*. Available at: <http://kluwerarbitrationblog.com/blog/2011/11/29/valuation-approaches-and-the-financial-crisis-part-1-%E2%80%93-market-methods/>
 (accessed 31 January 2015).
- International Federation of Accountants Committee (1998). Management accounting concepts. Report: International Federation of Accountants Committee.
- Islami, X., Mustafa, N. & Topuzovska Latkovikj, M. (2020). Linking Porter's generic strategies to firm performance. *Future Business Journal*, 6(1), 1-15.
- Ismail, M. & Reddy, B. A. K. (2018). Impact of Activity-based Costing (ABC) on competitive advantage in the Jordanian Telecommunication Industry. *Research Journal of Finance and Accounting*, 8, 1-6.
- Ismail, T., H (2007a). Performance evaluation measures in the private sector: Egyptian practice. *Managerial Auditing Journal*, 22(5), 503-513.

- Ismail, T., H (2007b). Performance evaluation measures in the private sector: Egyptian practice. *Managerial Auditing Journal*, 22(5), 503-513.
- ISO (2001). *ISO 15663-3:2001(en) Petroleum and natural gas industries — Life-cycle costing* Available at: <https://www.iso.org/obp/ui/#iso:std:iso:15663:-3:ed-1:v1:en> (accessed 13 November 2020).
- Ittner, C. D., Lanen, W. N. & Larcker, D. F. (2002). The association between activity-based costing and manufacturing performance. *Journal of Accounting Research*, 40(3), 711-726.
- Ittner, C. D. & Larcker, D. F. (1998). Are nonfinancial measures leading indicators of financial performance? An analysis of customer satisfaction. *Journal of Accounting Research*, 36, 1-35.
- Izuakulom, N. S. (2022). Effective supply chain management through inventory control management in Nigeria's downstream petroleum sector. *International Journal of Academic Accounting, Finance & Management Research*, 6(2), 56-65.
- Jackling, B. & Spraakman, G. (2006). The Impact of Enterprise Resource Planning Systems on Management Accounting: an Australian Study In: *ICAFT 2006*, University of South Australia, South Australia. University of South Australia.
- Jamaludin, A. Analysis of break-even point in Bata Cikarang Indonesia. *International Journal of Research*, 7(9), 259 – 267.
- Janghorban, R., Latifnejad Roudsari, R. & Taghipour, A. (2014). Pilot study in qualitative research: The roles and values. *Journal of Hayat*, 19(4), 1-5.
- Jankala, S. & Silvola, H. (2012). Lagging effects of the use of activity-based costing on the financial performance of small firms. *Journal of Small Business Management*, 50(3), 498-523.
- Jay, H. & Barry, R. (2006). *Principles of operations management*. New Jersey: Pearson Prentice-Hall, Education Inc.
- Jia, Q. (2023). Research and countermeasures on the comprehensive budget management of oil field industry. *Frontiers in Business, Economics and Management*, 9(1), 89-93.
- Jiao, H., Wei, J. & Cui, Y. (2010). An empirical study on paths to develop dynamic capabilities: From the perspectives of entrepreneurial orientation and organizational learning. 4(1), 47-72.

- Johnson, T. S. & Kaplan, R. S. (1987). The rise and fall of management accounting. *Management Accounting*, 68(7), 22 - 30.
- Jory, S. R., Benamraoui, A., Boojihawon, D. R. & Madichie, N. O. (2016). Net present value analysis and the wealth creation process: A case illustration. *The Accounting Educators' Journal*, 26, 85 - 99.
- Joshi, P. (2001). The international diffusion of new management accounting practices: the case of India. *Journal of international Accounting*, 10, 85-109.
- Joudeh, A. M., Al-Attar, K. A. & Alsoboa, S. S. (2016). The extent of using the target costing technique by Jordanian Industrial shareholding companies. *European Journal of Business and Management*, 8(8), 85 - 93.
- Juras, A. (2014). Strategic management accounting – what is the current state of the concept? *Economy Transdisciplinarity Cognition*, 17(2), 76-83.
- Jusoh, R. & Parnell, J. A. (2008). Competitive strategy and performance measurement in the Malaysian context. *Management Decision*, 46(1), 5-31.
- Kabaila, P., Farchione, D., Alhelli, S. & Bragg, N. (2021). The effect of a Durbin–Watson pretest on confidence intervals in regression. *Statistica Neerlandica*, 75(1), 4-23.
- Kahar, A. A. M., Tampang, T., Masdar, R. & Masrudin, M. (2022). Value chain analysis of total quality control, quality performance and competitive advantage of agricultural SMEs. *Uncertain Supply Chain Management*, 10(2), 551-558.
- Kalifa, A. M., Triuwono, I., Irianto, G. & Prihatiningtias, Y. W. (2020). The use and benefit of management accounting practices in Libyan oil companies. *Asian Journal of Accounting Research*, 5(1), 91-102.
- Kamukama, N., Kyomuhangi, D. S., Akisimire, R. & Orobia, L. (2017). Competitive advantage: Mediator of managerial competence and financial performance of commercial banks in Uganda. *African Journal of Economic and Management Studies*, 8(2), 221-234.
- Kaplan, R. & Anderson, S. (2004). Time-driven activity-based costing. *Harvard Business Review*, 82(11), 136.
- Kaplan, R., S (1994a). Management accounting (1984-1994): development of new practice and theory. *Management Accounting Research*, 5(3-4), 247 – 260.
- Kaplan, R., S (2010a). Conceptual Foundations of the Balanced Scorecard Harvard University: Harvard Business School

- Kaplan, R., S (2010b). Conceptual Foundations of the Balanced Scorecard. Harvard University: Harvard Business School.
- Kaplan, R., S & Norton, D., P (1992). The balanced scorecard: measures that drive performance. *Harvard Business Review*, Jan - Feb.
- Kaplan, R. S. (1983). Measuring Manufacturing Performance: A New Challenge for Managerial Accounting Research. *The Accounting Review*, 58(4), 686-705.
- Kaplan, R. S. (1994b). Management accounting (1984-1994): development of new practice and theory. *Management Accounting Research*, 5(3-4), 247 – 260.
- Kaplan, R. S. & Norton, D. P. (2001). Transforming the balanced scorecard from performance measurement to strategic management: Part I. *Accounting Horizons*, 15(1), 87 - 104.
- Kaplan, R. S. & Norton, D. P. (2004). *Strategy maps: Converting intangible assets into tangible outcomes*. Harvard Business School Press.
- Karombo, T. (2018). *The politics of petrol in Zimbabwe*. Available at: <https://www.businesslive.co.za/fm/features/africa/2018-12-13-the-politics-of-petrol-in-zimbabwe/> (accessed 08 April).
- Kathleen, R. C. (1991). A historical comparison of Resource-Based Theory and Five Schools of Thought within industrial organization economics: Do we have a new theory of the firm? *Journal of Management*, 17(1), 121-154.
- Kawauchi, Y. & Rausand, M. (1999). Life Cycle Cost (LCC) analysis in oil and chemical process industries. Report.
- Kawauchi Y. & Rausand, M. (1999). Life Cycle Cost (LCC) analysis in oil and chemical process industries Report.
- Kay, J. A. (1995). *Foundations of corporate success: How business strategies add value*. Oxford: Oxford University Press.
- Kazzazi, A. & Nouri, B. (2012). A conceptual model for local content development in petroleum industry. *Management Science Letters*, 2(6), 2165 – 2174.
- Keller, K. L. (2012). *Strategic Brand Management*. Tehran: Siteh.
- Kennedy, T. & Affleck-Graves, J. (2001). The impact of activity-based costing techniques on firm performance. *Journal of Management Accounting Research*, 13(1), 19-45.
- Kinyuira, D. (2014). Effects of Porter's Generic Competitive Strategies on the Performance of Savings and Credit Cooperatives (SACCOs) in Murang'a County, Kenya. *IOSR Journal of Business and Management*, 16(6), 93-105.

- Kleinberg, R. L., Paltsev, S., Ebinger, C. K. E., Hobbs, D. A. & Boersma, T. (2018). Tight oil market dynamics: Benchmarks, breakeven points, and inelasticities. *Energy Economics*, 70, 70-83.
- Klepper, S. (1996). Entry, exit, growth, and innovation over the product life cycle. *The American Economic Review* 86(3), 562-583.
- Klychova, G., Faskhutdinova, M. & Sadrieva, E. (2014). Budget efficiency for cost control purposes in management accounting system. *Mediterranean Journal of Social Sciences*.
- Knauer, T. & Möslang, K. (2018). The adoption and benefits of life cycle costing. *Journal of Accounting & Organizational Change*, 14(2), 188-215.
- Korpi, E. & Ala-Risku, T. (2008). Life cycle costing: a review of published case studies. *Managerial Auditing Journal*, 23(3), 240-261.
- Koskinen, J., Mustonen, E., Harkonen, J. & Haapasalo, H. (2020). Product-level profitability analysis and decision-making: opportunities of IT application-based approach. *International Journal of Product Lifecycle Management*, 12(3).
- Koyama, K. (2004). The energy Dimension in Russian global strategy: Reorganisation of Russian petroleum industry and irte effects on business strategy. Report: The James A Baker III Institute of for Public Policy of Rice University.
- KPMG (2021). Oil market quarterly review: Deal Advisory. Report: KPMG.
- Král, B. (2010). *Manažerské účetnictví*. Czech Republic: Management Press.
- Krumwiede, K. R. & Charles, S. L. (2014). The use of activity-based costing with competitive strategies: Impact on firm performance. *Advances in Management Accounting*, 23, 113 – 148.
- Kumar, S., Lim, W. M., Sureka, R., Jabbour, C. J. C. & Bamel, U. (2024). Balanced scorecard: trends, developments, and future directions. *Review of managerial science*, 18(8), 2397-2439.
- Kumar, V., Jones, E., Venkatesan, R. & Leone, R. P. (2011). Is market orientation a source of sustainable competitive advantage or simply the cost of competing? *Journal of Marketing*, 75(1), 16-30.
- Kurt, A. & ZehİR, C. (2016). The relationship between cost leadership strategy, Total Quality Management applications and financial performance. *Dogus University Journal*, 17(1), 97-110.

- Kurt, A. & Zehoir, C. (2016). The relationship between cost leadership strategy, Total Quality Management applications and financial performance. *Dogus University Journal*, 17(1), 97-110.
- Kwakye, T. O., Bekoe, R. A., Appiah, K. O. & Nyamori, R. O. (2023). *Performance management in the oil and gas industry*. Routledge.
- Lagassé, A. (2010). *A tale of two standards: An exploration of US GAAP and IFRS*. Bryant University.
- Laitinen, E. K. (2014). Influence of cost accounting change on performance of manufacturing firms. *Advances in Accounting*, 30(1), 230-240.
- Lamminmaki, D. & Drury, C. (2001). A comparison of New Zealand and British product-costing practices. *The International Journal of Accounting*, 36(6), 329–347.
- Lasyoud, A., Haslam, J. & Roslender, R. (2018). Management accounting change in developing countries: evidence from Libya. *Asian Review of Accounting*, 26(3), 278-313.
- Lavrakas, P. J. (2008). *Encyclopedia of survey Research methods*. Thousand Oaks, CA: Sage Publications.
- Lazăr, S. (2016). Determinants of firm performance: evidence from Romanian listed companies. *Review of Economic and Business Studies*, 9(1), 53–69.
- Lee, C. C., Wang, C. W. & Ho, S. J. (2020). Financial innovation and bank growth: The role of institutional environments. *The North American Journal of Economics and Finance*, 53.
- Lefley, F. (1996). The payback method of investment appraisal: A review and synthesis. *International Journal of Production Economics*, 44(3), 207-224.
- Lev, B. (2017). Evaluating sustainable competitive advantage. *Journal of Applied Corporate Finance*, 29(2), 70-75.
- Ling Sim, K. & Chye Koh, H. (2001). Balanced scorecard: a rising trend in strategic performance measurement. *Measuring Business Excellence*, 5(2), 18–27.
- Litman, J. & Welling, G. (2002). Why great stocks aren't always great companies. *Strategic Finance*, 83(9), 8 –12.
- Liyanage, M. L., Noopewa, P. U., Perera, S. A. & Nuwan, G. (2014). Implementing activity based costing: The case of a Central Bank of a South Asian country. *International Journal of Information Technology and Business Management*, 25(1), 1 - 11.

- Loginovskiy, O. V. & Gelrud, Y. D. (2016). Use of an investment payback period in order to analyze project effectiveness. *Bulletin of the South Ural State University. Ser. Computer Technologies, Automatic Control & Radioelectronics*, 16(4), 132-135.
- Lorenz, A. (2015). *Contemporary management accounting in the UK service sector*. University of Gloucestershire.
- Lucey, T. (2009). *Costing*. London: South-Western Cengage Learning.
- Ma, H. (2000). Competitive advantage and firm performance. *Competitiveness Review: An International Business Journal*, 10(2), 15 - 32.
- Maduekwe, C. C. & Kamala, P. (2016). Performance measurement by small and medium enterprises in Cape Metropolis, South Africa. *Problems and Perspectives in Management*, 14(2), 46-55.
- Magni, C. A. (2016). An average-based accounting approach to capital asset investments: The case of project finance. *European Accounting Review*, 25(2), 275-286.
- Magni, C. A. (2021). Internal rates of return and shareholder value creation. *The Engineering Economist*. DOI: 10.1080/0013791x.2020.1867679. 1-23.
- Mahlberg, B. & Url, T. (2009). Single market effects on productivity in the German insurance industry. *Journal of Banking & Finance*, 34(7), 1540-1548.
- Makina, I. & Oundo, J. N. (2020). Effect of competitive strategies on organization performance in relation to Sugar Industry in Kenya. *Universal Journal of Management*, 8(5), 220-230.
- Malburg, C. (2000). Competing on costs. *Industry Week*, 249(17), 31.
- Marie, A., Cheffi, W., Louis, R., J & Rao, A. (2010). Is standard costing still relevant? Evidence from Dubai. *Management Accounting Quarterly*, 11(2), 1 - 10.
- Márkus, G. & Rideg, A. (2020). Understanding the connection between SMEs' competitiveness and cash flow generation: An empirical analysis from Hungary. *Competitiveness Review: An International Business Journal Incorporating Journal of Global Competitiveness*, 31(3), 397-419.
- Marshall, G. & Jonker, L. (2010). An introduction to descriptive statistics: A review and practical guide. *Radiography*, 16(4), 1-7.
- Mashange, K. (2002). The turbulent liquid fuel industry in Zimbabwe: options for resolving the crisis and improving supply to the poor. *Energy Policy*, 30, 1047-1055.

- Mattessich, R. (2007). *Two hundred years of accounting research*. Taylor & Francis.
- McCracken, M. & Wallance, M. (2000). Towards a redefinition of strategic HRD. *Journal of European Industrial Training*, 24(5), 281-290.
- McGee, J., Wilson, D. & Thomas, H. (2010). *Strategy: Analysis and practice*. Maidenhead: McGraw-Hill.
- McIntyre, A. D. & Coulthurst, N. J. (1986). *Capital budgeting practices in medium-sized businesses: A research report*. London: Institute of Cost and Management Accountants.
- McLean, S., Charles, D. & Rajkumar, A. (2021). Navigating transfer pricing risk in the oil and gas sector: essential elements of a policy framework for Trinidad and Tobago and Guyana. *Studies and Perspectives series-ECLAC Subregional Headquarters for the Caribbean*,. Santiago: Economic Commission for Latin America and the Caribbean (ECLAC).
- McLean, T., McGovern, T. & Shanta, D. (2015). Management accounting, engineering and the management of company growth: Clarke Chapman, 1864–1914. *The British Accounting Review*, 47(2), 177 - 190.
- Mcsweeney, B. (2006). Net present value: the illusion of certainty. *Strategic Change*, 15(1), 47 – 51.
- McWilliams, A. (2018). Sustainable competitive advantage. In: Augier M. and Teece D. J. (eds) *The Palgrave Encyclopedia of Strategic Management*. London: Palgrave Macmillan UK, pp.1686-1687.
- Mekić, E. & Mekić, E. (2014). Supports and critiques on porter's competitive strategy and competitive advantage. *Regional Economic Development*, 24, 651.
- Melo, S., M & Ribeiro, J., A (2008). The two-way relationship between the Balanced Scorecard and Management Control Systems in organizations Lessons from a Case Study. *Contabilidade e Gestão*, 6, 9 – 31.
- Memon, A. A., Afshan, G., Memon, A. A. & Oad Rajput, K. K. (2021). War for competitive advantage – ‘Porter’s generic strategies past – present – future - A review.
- Merchant, K. A. & Van der Stede, W. A. (2011). *Management control systems: Performance measurement, evaluation, and incentives*. London: Prentice Hall.
- Mgbame, C. O., Donwa, P. A. & Omozuwa, E. R. (2015). An evaluation of financial accounting issues in the midstream and downstream segments. *International Journal of Multidisciplinary Research and Development*, 2(9), 20 - 24.

- Mhlanga, P. (2015a). Fuel retailers face collapse. *The Financial Gazette*, 19 March 2015.
- Mhlanga, P. (2015b). Petroleum industry hit hard by taxes. *The Financial Gazette*.
- Micheli, P. & Mari, L. (2014). The theory and practice of performance measurement. *Management Accounting Research*, 25(2), 147-156.
- Miller, D. & Shamsie, J. (1996). The resource-based view of the firm in two environments: the Hollywood film studios from 1936-1965. *The Academy of Management Journal*, 39(3), 519-543.
- Millward Brown (2018). *2018 BrandZ Top 100 Global Brands*. Available at: <http://www.millwardbrown.com/brandz/top-global-brands/2018> (accessed 10 September 2018).
- Ministry of Energy and Labour Development (2012). Zimbabwe energy policy. Report, Harare: Ministry of Energy and Labour Development.
- Mitchell, J. V. & Mitchell, B. (2014). Structural crisis in the oil and gas industry. *Energy Policy*, 64, 36-42.
- Mittal, V. (2010). *Wiley International Encyclopedia of Marketing*. John Wiley & Sons Ltd.
- Mogorosi, T. (2016). *An analysis of the inventory management and controls at Glencore: A case of Rustenburg smelter*. North-West University.
- Mohaddes, K. & Pesaran, M. H. (2016). Oil prices and the global economy: Is it different this time around? : International Monetary Fund.
- Mohammed, B. A. H., Maelah, R. & Amir, A. M. (2019). Strategic management accounting information and performance of private hospitals in Malaysia. *International Journal of Economics, Management and Accounting*, 27(2), 473 – 502.
- Mohd, S., Mohd, F. & Hoshino, Y. (2013). Sales growth, profitability and performance: Empirical study of Japanese ICT industries with three ASEAN countries. *Interdisciplinary Journal of Contemporary Research in Business*, 4(11).
- Mokabiri, G. (2009). *Customer loyalty towards brands within Botswana's petroleum industry*. Cape Peninsula University of Technology.
- Morelli, B. & Wiberg, C. (2002). *The standard costing system at SKF: A case study of a Swedish manufacturing company*. Göteborg University.

- Mostafa, S. A. & Ahmad, I. A. (2017). Recent developments in systematic sampling: A review. *Journal of Statistical Theory and Practice*. DOI: 10.1080/15598608.2017.1353456.
- Motta, R., Caloba, G., Almeida, L., Moreira, A., Nogueira, M., Cardoso, L. & Berlink, L. (2000). Investment and risk analysis applied to the petroleum industry. In: *SPE Asia Pacific Oil and Gas Conference and Exhibition*, Brisbane, Australia. Society of Petroleum Engineers.
- Mukuusi, E. W. (2019). *Role of organizational resources on the sustainability of competitive advantage in the oil industry in Kenya*. Jomo Kenyatta University of Agriculture and Technology.
- Mulder, M. & Zwart, G. (2006). Market failures and government policies in gas markets. Report, 03/01. Netherlands: CPB Netherlands Bureau for Economic Policy Analysis.
- Muras, A. D., Calhoun, D. D. & Stripling, W. S. (2000). The ABC's of Activity Based Management (ABM) in the petroleum industry. *Petroleum Accounting and Financial Management Journal*, 19(2), 79-100.
- Muronzi, C. (2015). *Zimbabwe: Foreign giants take over fuel sector*. Available at: <https://allafrica.com/stories/201501231531.html> (accessed 22 February).
- Murphy, H., Collacott, R., Campbell, J. A. & Padilla, A. (2017). Social performance indicators in the update of the oil and gas industry guidance on sustainability reporting. In: *SPE Asia Pacific Health, Safety, Security, Environment and Social Responsibility Conference*, Kuala Lumpur, Malaysia. Society of Petroleum Engineers.
- Musa, A. & Ibrahim, W. (2023). The role of activity-based costing and target cost in achieving competitive advantage in sudanese industrial companies. *Financial and credit activity problems of theory and practice*, 6(53), 158-168.
- Muspratt, A. (2019). *Introduction to oil and gas industry*. Available at: <https://www.oilandgasiq.com/strategy-management-and-information/articles/oil-gas-industry-an-introduction> (accessed 24 May 2020).
- Mustonen, E., Tolonen, A., Härkönen, J. & Haapasalo, H. (2019). Constructing a joint product portfolio to support commercial cooperation. *International Journal of Management, Knowledge and Learning*, 8(1), 3 - 23.
- Muthiani, C. N. (2008). *Product differentiation strategies adopted by oil companies in Kenya*. University of Nairobi, Nairobi.

- Muthini, J. N., Namusonge, G. S., Wario, G. & Noor, I. S. (2017). Role of government economic regulations on petroleum supply chain management. *Journal of Business and Economic Development*, 2(2), 131-139.
- Mutruc, C. (2018). *Probabilistic evaluation of the Net Present Value of an oil and gas project through Monte Carlo simulation*. Politecnico Di Torino.
- Mwangi, M. Y. (2007). *Strategies by major oil companies to create competitive advantage for their service stations in Nairobi*. University of Nairobi.
- Naoum (2012). *Dissertation Writing for Construction Students*. Oxon: Routledge.
- Narain, P. & Subramanian, J. (2008). *Inventory management principles and practices* New Delhi Excel Books
- Nayak, B., Bhattacharyya, S. S. & Krishnamoorthy, B. (2021). Explicating the role of emerging technologies and firm capabilities towards attainment of competitive advantage in health insurance service firms. *Technological Forecasting and Social Change*, 170, 120892.
- Nayak, B., Bhattacharyya, S. S. & Krishnamoorthy, B. (2023). Integrating the dialectic perspectives of resource-based view and industrial organization theory for competitive advantage – a review and research agenda. *Journal of Business & Industrial Marketing*, 38(3), 656-679.
- Neely, A. (2004). *Business performance measurement: Theory and practice*. Cambridge: Cambridge University Press.
- Neuman, W. L. (2006). *Social research methods: Qualitative and quantitative approaches*. Boston: Sage.
- Newbert, S. L. (2007). Empirical research on the resource-based view of the firm: an assessment and suggestions for future research. *Strategic Management Journal*, 28(2), 121-146.
- Ngari, M. M. (2014). *Application of balanced scorecard as a strategy management process tool by Kenya Petroleum Refineries Limited*. University of Nairobi.
- Nicolae, T. & Anca, C. (2010). The Budget, An Instrument for Planning *Annals of the University of Oradea : Economic Science*, 1, 919 - 924.
- Nielsen, L. B., Mitchell, F. & Nørreklit, H. (2015). Management accounting and decision making: Two case studies of outsourcing. *Accounting Forum*, 39(1), 64-82.
- Nikkeh, N. S., Hasan, S. I., Saeed, H. S. & Flayyih, H. H. (2022). The Role of Costing Techniques in Reduction of Cost and Achieving Competitive

- Advantage in Iraqi Financial Institutions. *International Journal of Economics and Finance Studies*, 14(04), 62-79.
- Nirel, R. & Glickman, H. (2009). Sample surveys and censuses. *Handbook of Statistics - Sample Surveys: Design, Methods and Applications*, 29(A), 539–565.
- Niven, P. R. (2014). *Balanced scorecard svolution : A dynamic approach to strategy execution*. Somerset, United States of America: John Wiley & Sons, Incorporated.
- Noone, B. & Griffin, P. (1999). Managing the long-term profit yield from market segments in a hotel environment: a case study on the implementation of customer profitability analysis. *International Journal of Hospitality Management*, 18, 111 – 128.
- Nortjé, C., Middelberg, S. L., Oberholzer, M. & Buys, P. (2014). Developing a sustainable balanced scorecard for the oil and gas sector. *Environmental Economics*, 5(4), 52-60.
- Nuroh, Z. E., Kurnia, F. D. & Mustofa, A. (2020). REALISM IN EDUCATION PERSPECTIVE: Epistemological and ontological conception; Axiology of realism; Realism in Education. *Education and Human Development Journal*, 5(1), 43-52.
- Nuryani, N. N. J., Gorda, A. A. N. O. S., Trisnawati, N. L. D. E., Septiari, K. F. & Wandira, K. A. (2023). Analysis of cashflow capability and profits for banking sustainability. *International Journal of Application on Economics and Business*, 1(4), 2408–2415.
- Nyauncho, M., J & Nyamweya, I., N (2015). Assessment of the effect of cost leadership strategy on the performance of Liquefied Petroleum Gas companies in Eldoret town, Uasin Gishu County, Kenya. *International Journal of Business and Management Invention*, 4(4), 01 - 07.
- O'Mahony, A. & Doran, J. (2008). The Changing Role of Management Accounting. Evidence from the Implementation of ERP Systems in large organisations. *International Journal of Business Management* 3(8), 109 - 115.
- O'Shannassy, T. (2008). Sustainable competitive advantage or temporary competitive advantage: Improving understanding of an important strategy construct. *Journal of Strategy and Management*, 1(2), 168-180.

- Obara, L. C. & Nangih, E. (2017). Accounting practices and performance of oil and gas industry (upstream sector) in Nigeria: An empirical analysis. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7(2), 215-222.
- Oberholzer, L. (2020). *Oil and gas regulation in South Africa: Overview*. Available at: [https://uk.practicallaw.thomsonreuters.com/w-010-7341?transitionType=Default&contextData=\(sc.Default\)&firstPage=true](https://uk.practicallaw.thomsonreuters.com/w-010-7341?transitionType=Default&contextData=(sc.Default)&firstPage=true)
- Odhiambo, E. & Wanjira, J. (2019). Strategic Positioning and Competitive Advantage of Commercial Banks in Uasin Gishu County, Kenya. *International Journal of Current Aspects*, 3(2), 83-97.
- Ojra, J. (2014). *Strategic management accounting practices in Palestinian companies: Application of Contingency Theory Perspective*. University of East Anglia, United Kingdom.
- Okafor, T. G., Okoye, H., Osisioma, B. C., Egbunike, P. A. & Onyebuchi, H. (2021). Empirical investigation into target costing and competitors focused accounting practices of selected firms in oil and gas industry in Nigeria. *Contemporary Journal of Management*, 1(1), 120-135.
- Oncioiu, I., Căpușneanu, S., Topor, D. I., Ifrim, A. M., Silvestru, R. C. & Toader, M. I. (2021). Improving business processes in a construction project and increasing performance by using target costing. *SAGE Open*, 11(1), 2158244021997808.
- OPEC (2020a). *Brief History*. Available at: https://www.opec.org/opec_web/en/about_us/24.htm (accessed 19 July).
- OPEC (2020b). *OPEC Share of World Crude Oil Reserves*. Available at: https://www.opec.org/opec_web/en/data_graphs/330.htm (accessed 20 July).
- Osintseva, M. A. (2021). Differentiation of oil production break-even level among world oil companies. *International Journal of Energy Economics and Policy*, 11(4), 249-256.
- Ouassini, I. (2018). An introduction to the concept of incremental budgeting and beyond budgeting. *SSRN Electronic Journal*. DOI: 10.2139/ssrn.3140059.
- Ovunda, A. S. (2015). Accounting: A historical perspective. *European Journal of Humanities and Social Sciences*, 34(1), 1884 – 1899.
- Owusu-Ansah, A., Addico, N. & Amewu, G. (2023). Firm characteristics and the use of investment decision techniques in the global south: Evidence from Ghana. *Cogent Business & Management*, 10(1).

- Oyewo, B. (2022). Contextual factors moderating the impact of strategic management accounting on competitive advantage. *Journal of Applied Accounting Research*, 23(5), 921-949.
- Oyewo, B., Moses, O. & Erin, O. (2022). Balanced scorecard usage and organizational effectiveness: evidence from manufacturing sector. *Measuring Business Excellence*, 26(4), 558-582.
- Oyewo, B., Olowo, R. & Obanor, A. (2021). Is the use of integrated Performance Measurement System by Banks really “integrated”? A structural equation modeling approach. *Journal of East-West Business*, 27(3), 259–290.
- Pacheco-de-Almeida, G. & Zemsky, P. (2007). The timing of resource development and sustainable competitive advantage. *Management Science*, 53(4), 651-666.
- Padoveze, C. L. (2015). *Basic cost accounting management course*. São Paulo: Cengage Learning.
- Pajrok, A. (2020). Application of target costing method in the hospitality industry. *Journal of Education Culture and Society*, 5(2), 154-165.
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N. & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533–544.
- Park, Y. S., Konge, L. & Artino, A. R., Jr. (2020). The positivism paradigm of research. *Academic Medicine*, 95(5).
- Patton, M. (2015). *Qualitative research and evaluation methods*. Thousand Oaks, Calif.: Sage Publications.
- Pavlou, P. A. & El Sawy, O. A. (2011). Understanding the elusive black box of dynamic capabilities. *Decision Sciences*, 42(1), 239-273.
- Perkins, M., Grey, A. & Remmers, H. (2014). What do we really mean by “Balanced Scorecard”? *International Journal of Productivity and Performance Management*, 63(2), 148 – 169.
- Persaud, N. (2020). Adopting tool from cost and management accounting to improve the manner in which costs in social programs are analysed and evaluated. *Journal of MultiDisciplinary Evaluation*, 16(34), 1 - 13.
- Pertusa-Ortega, E., M, Molina-AzorÃ-n, J., F & Claver-Corte´s, E. (2009). Competitive strategies and firm performance: a comparative analysis of pure,

- hybrid and 'stuck-in-the-middle'. *British Journal of Management* 20(4), 508–523.
- Petcavage, S. (2016). *Applying costing models for competitive advantage*. Walden University.
- Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14(3), 179-191.
- Peteraf, M. A. & Barney, J. B. (2003). Unraveling the resource-based tangle. *Managerial and Decision Economics*, 24(4), 309-323.
- Petrenko, Y., Denisov, I. & Metsik, O. (2022). Foresight Management of National Oil and Gas Industry Development. . *Energies*, 15(1), 491.
- Pham, D. C., Nguyen, L. S., Doan, T. N. T. T. & Pham, H. L. (2021). The Influence of Activity- Based Costing Implementation on Firm Performance: An Empirical Evidence from Vietnam”,. *Montenegrin Journal of Economics*, 17(4), 167-179.
- Pizzini, M. J. (2006). The relation between cost-system design, managers' evaluations of the relevance and usefulness of cost data, and financial performance: an empirical study of US hospitals. *Accounting, Organizations and Society*, 31(2), 179-210.
- Pokorna, J. (2016). Impact of activity-based costing on financial performance in the Czech Republic. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 64(2), 643-652.
- Pollard, S. (1965). *The genesis of modern management: A study of the industrial revolution in Great Britain*. London: Edward Arnold.
- Popesko, B. (2009). *Moderní metody řízení nákladů*, . Czech Republic: Grada Publishing.
- Porta, M. A. (2008). *Dictionary of epidemiology*. New York: Oxford University Press.
- Porter, M., E (1991). Towards a dynamic theory of strategy. *Strategic Management Journal, Winter Special Issue*(12), 5–29.
- Porter, M. E. (1985). *The competitive advantage: Creating and sustaining superior performance*. New York: Free Press.
- Poth, S. (2014). *Competitive advantage in the service industry. The importance of strategic congruence, integrated control and coherent organisational structure – A longitudinal case study of an insurance company*. Uppsala universitet.
- Prahalad, C. K. & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, 68(3), 79-91.

- Prakash, M. (2007). Evolution and Changes in Management Accounting Practices *International Research Journal of Management Science and Technology* 4(2), 1009 - 1017.
- Pundziene, A., Nikou, S. & Bouwman, H. (2022). The nexus between dynamic capabilities and competitive firm performance: the mediating role of open innovation. *European Journal of Innovation Management*, 25(6), 152-177.
- PWC (2016). Rethinking value chain analysis. Report.
- PWC (2017). International financial reporting standards. Report: PWC.
- PWC (2018). Africa oil & gas review. Report: PWC.
- Quesado, P., Aibar Guzmán, B. & Lima Rodrigues, L. (2018). Advantages and contributions in the balanced scorecard implementation. *Intangible Capital*, 14(1), 186-201.
- Quint, D. & Venditti, F. (2020). The Influence of OPEC+ on oil prices: a quantitative assessment. Report: European Central Bank.
- Ramezani, C., Soenen, L. & Jung, A. (2002). Growth, corporate profitability and value creation. *Financial Analysts Journal*, 58(2), 58 – 67.
- Rashed, H. (2013). Cost management and performance measurements for petroleum upstream industry – Part B. *Cost Management and analysis for performance evaluation*, 1(1).
- Ratnatunga, J. & Montali, L. (2008). Performance management measures that enhance organisational value: A review. *Journal of Applied Management Accounting Research*, 6(2), 1 - 16.
- Rautiainen, A., Scapens, R. W., Järvenpää, M., Auvinen, T. & Sajasalo, P. (2024). Towards fluid role identity of management accountants: A case study of a Finnish bank. *The British Accounting Review*. 101341.
- Ray, G., Barney, J. B. & Muhanna, W. A. (2004). Capabilities, business processes, and competitive advantage: choosing the dependent variable in empirical tests of the resource-based view. *Strategic Management Journal*, 25(1), 23-37.
- Rayan, E. (2012). The evolution of accounting software: past, present, future. *The Journal of the Global Accounting Alliance*.
- Rebrowa, N., Kovalev, A., Frik, O. & Sargsyan, G. (2020). Budgeting as an instrument of increasing competitiveness and sustainability of mining enterprise. *E3S Web of Conferences*, 174, 04054.

- Recklies, D. (2015). *Beyond Porter – A critique of Porter*. Available at: <http://www.themanager.org/2015/11/critique-of-porter/> (accessed 13 October 2023).
- Rhea, J. E. (2005). Privatization in the international petroleum industry: The interplay privatization in the international petroleum industry: The interplay between politics, economics, and reliance between politics, economics, and reliance. *Denver Journal of International Law and Policy*, 33(4), 609-639.
- Richards, R. C. (2006). Beyond budgeting: boom and boondoggle? *Investment Management and Financial Innovations*, 3(2), 62-76.
- Robinson, C. (1993). *Energy Policy: Errors, Illusions and Market Realities*. Report, London: the Institute of Economic Affairs.
- Robson, C. (2002). *Real world research*. Oxford: Oxford: Blackwell.
- Rödger, J.-M., Kjær, L. L. & Pagoropoulos, A. (2018). Life cycle costing: An introduction. *Life cycle assessment: Theory and practice*. 373-399.
- Roslender, R. & Hart, S., J (2002). Integrating Management Accounting and Marketing in the Pursuit of Competitive advantage: the case for strategic management accounting. *Critical Perspectives on Accounting*, 13(2), 255–277.
- Roslender, R. & Hart, S., J (2003). In search of strategic management accounting: theoretical and field study perspectives. *Management Accounting Research*, 14(3), 255 - 279.
- Rumman, G., Alkhazali, A., Barnat, S., Alzoubi, S., AlZagheer, H., Dalbough, M., Alibraheem, M., Ahmad, A. & Darawsheh, S. (2024). The contemporary management accounting practices adoption in the public industry: Evidence from Jordan. *International Journal of Data and Network Science*, 8(2), 1237-1246.
- Rusinga, N. (2010). *Value chain analysis along the petroleum supply chain*. University of Cape Town, Cape Town.
- Saad, S., Udin, Z. & Hasnan, N. (2014a). Dynamic supply chain capabilities: A case study in oil and gas Industry. *International Journal of Supply Chain Management*, 3(2), 170-176.
- Saad, S., Udin, Z. & Hasnan, N. (2014b). Dynamic supply chain capabilities: A case study in Oil and Gas Industry *International Journal of Supply Chain Management*, 3(2), 170-176.

- Sabir, R. A., Xinping, X. & Sabr, S. A. (2011). Using target costing to investigate competitive pricing. *World Academy of Science, Engineering and Technology*, 59, 631-638.
- Sachitra, K. M. V. (2017). Review of competitive advantage measurements: reference on agribusiness sector. *Journal of Scientific Research & Reports*, 12(6), 1-11.
- Sahaf, M., A (2013). *Management accounting: Principles & practice, 3rd Edition*. Vikas Publishing House.
- Sánchez-Rodríguez, C. & Spraakman, G. (2012). ERP systems and management accounting: a multiple case study. *Qualitative Research in Accounting & Management*, 9(4), 398–414.
- Sandu, G. (2019). Non-financial performance -Dimension of business way to be. *Anuarul Universității "Petre Andrei" din Iași, Fascicula: Drept, Științe Economice, Științe Politice*, 24, 239-245.
- Saputra, M. D. & Putrayasa, M. A. (2018). Analysis of sales budget and actual sales at CV Sumberjaya. *Proceedings*. 141-146.
- Sarbapriya, R. (2012). Relevance and applicability of Activity Based Costing: An appraisal. *Journal of Expert Systems*, 1(3), 71-78.
- Sartorius, K., Eitzen, C. & Kamala, P. (2007). The design and implementation of Activity Based Costing (ABC): a South African survey. *Meditari Accountancy Research*, 15(2), 1– 21
- Satari Yuzbashkandi, S. & Aghaei Sadi, M. (2020). Petroleum production impacts on the economic growth of the OPEC countries: panel ARDL approach. *SN Applied Sciences*, 2(4), 693.
- Saunders, M., Lewis, P. & Thornhill, A. (2016). *Research methods for business students*. Harlow, England: Financial Time Prentice Hall.
- Saunders, M., Lewis, P. & Thornhill, A. (2019). *Research methods for business students*. Harlow: Financial Times Prentice Hall.
- Savić, B., Milojević, I. & Petrović, V. (2019). Cost optimization in agribusiness based on life cycle costing. *Ekonomika Poljoprivrede*, 66(33), 823–834.
- Scapens, R. (1994). Never mind the gap: towards an institutional perspective of management accounting practice. *Management Accounting Research*, 5(4), 301-321.

- Scapens, R. W. & Jazayeri, M. (2003). ERP systems and management accounting change: Opportunities or impact? A research note. *European Accounting Review*, 12(1), 201-233.
- Schaltegger, S. & Lüdeke-Freund, F. (2011). The sustainability balanced scorecard: concept and the case of Hamburg Airport.
- Schilling, M. A. (2013). *Strategic management of technological innovation*. McGraw-Hill Education.
- Seal, W., Garrison, R. H. & Noreen, E. W. (2006). *Management accounting*. Singapore: McGraw Hill.
- Sedgwick, P. (2014). Cluster sampling. *Bmj*, 348((jan31 2)).
- Seetharaman, A., Nadzir, M. & Gunalan, S. (2001). A Conceptual Study of Brand Valuation *Journal of Product and Brand Management* 10(4), 243-256.
- Sekaran, U. & Bougie, R. (2013). *Research methods for business: A skill-building approach*. John Wiley & Sons Ltd.
- Seyyed-Javadeyn, S. R., Amini, A. & Amini, Z. (2010). The assessment of the effect of a brand on industrial customer's loyalty. *Commercial Management Outlook*, 36, 57-73.
- Shadrach, N. R. (2017). *A study on the impact of the balanced scorecard as a performance management system on performance and motivation in the retail industry*. University of KwaZulu-Natal, Durban.
- Shah, N. K., Li, Z. & Ierapetritou, M. G. (2011). Petroleum refining operations: Key issues, advances, and opportunities. *Industrial & Engineering Chemistry Research*, 50(3), 1161-1170.
- Shank, J. K. & Fisher, J. (1999). Case Study: Target costing as a strategic tool. *Sloan Management Review*, 4(1), 73-82.
- Shank, J. K. & Govindarajan, V. (1993). *Strategic cost management: The new tool for competitive advantage*. Free Press.
- Shannon-Baker, P. (2015). Making paradigms meaningful in mixed methods research. *Journal of Mixed Methods Research*, 10(4), 319-334.
- Shapiro, B. P., Rangan, V. K., Moriarty, R. T. & Ross, E. B. (1987). Manage customers for profits (not just sales). *Harvard Business Review*, September-October, 101-108.

- Sharma, S. (2016). *Brand evaluation: Approaches and methods*. Available at: <https://www.mondaq.com/india/advertising-marketing-branding/553838/brand-valuation-approaches-and-methods> (accessed 18 May 2020).
- Shields, M., Chow, C., Kato, Y. & Nakagawa, Y. (1991). Management accounting practices in the U.S. and Japan: Comparative survey findings and research implications. *Journal of International Financial Management & Accounting*, 3(1), 61-77.
- Shields, P. & Rangarajan, N. (2013). *A playbook for research methods: Integrating conceptual frameworks and project management*. Stillwater: OK: New Forums Press.
- Shokouhi, M. R., Khademvatani, A. & Beiky, F. (2024). Analyzing economic and financial risk factors affecting profitability of oil refinery investment projects: A case study from an Iranian Oil Refinery. *Energy Strategy Reviews*, 52, 101348.
- Shrestha, N. (2021). Factor analysis as a tool for survey analysis. *American journal of Applied Mathematics and statistics*, 9(1), 4-11.
- Shuen, A., Feiler, P. F. & Teece, D. J. (2014). Dynamic capabilities in the upstream oil and gas sector: Managing next generation competition. *Energy Strategy Reviews*, 3(1), 5-13.
- Siddiquee, M. N. (2024). Prospect of controlled autoxidation to produce high-value products from the low-value petroleum fractions. *The Chemical Record*, 24(5), e202400015.
- Sievänen, M., Suomala, P. & Paranko, J. (2004). Product profitability: Causes and effects. *Industrial Marketing Management*, 33(5), 393 - 401.
- Sigalas, C. (2015). Competitive advantage: The known unknown concept. *Management Decision*, 53(9).
- Sigalas, C., Pekka Economou, V. & Georgopoulos, B. N. (2013). Developing a measure of competitive advantage. *Journal of Strategy and Management*, 6(4), 320–342.
- Sihlobo, L. (2016). *Understanding barriers to entry into the vertically intergrated oil industry and applying economic theories of entry in this industry*. University of Pretoria.

- Sillince, J. A. A. (2006). Resources and organizational identities: The role of rhetoric in the creation of competitive advantage. *Management Communication Quarterly*, 20(2), 186-213.
- Silva, J. O. R., da Fortunato, G. & Bastos, S. A. P. (2016). Operating cost budgeting methods: quantitative methods to improve the process. *Production*, 26(4), 675 - 687.
- Simion, K. (2016). *Qualitative and quantitative approaches to rule of law research*. Washington DC: International Network to Promote Rule of Law.
- Simmonds, K. R. (1981). Strategic management accounting. *Management Accounting*, 59(4), 26 – 29.
- Skjaveland, R., Weller, P. & Creelman, J. (2007). How balanced scorecards works for Statoil on three levels. *Finance Shared Services Process Perspective*, April, 1-6.
- Slaughter, J. E., Zickar, M. J., Highhouse, S. & Mohr, D. C. (2004). Personality trait inferences about organizations: development of a measure and assessment of construct validity. *Journal of Applied Psychology*, 89, 85 - 102.
- Smith, G., Razzouk, N. & Martin, M. (2020). *OPEC tries to force Russia into deeper cuts as oil price slumps*. Available at:
<https://www.bloomberg.com/news/articles/2020-03-05/opec-meets-in-effort-to-bridge-saudi-russia-divide-on-oil-cuts>
- Smith, J. & Noble, H. (2014). Bias in Research. *Evidence Based Nursery*, 17(4), 100 – 101.
- Sokolov, A. Y. & Giniatullin, Y. M. (2015). Management Accounting and Costs Controlling in Oil Producing Companies: Historical Perspectives. *Mediterranean Journal of Social Sciences*, 6(1), 430 - 434.
- Sonjaya, Y. (2024). Exploring the Evolution of Budgeting Practices from Traditional to Technology. *Advances in Management & Financial Reporting*, 2(1), 36-45.
- Spanos, Y. E., Zaralis, G. & Lioukas, S. (2004). Strategy and industry effects on profitability: Evidence from Greece. *Strategic Management Journal*, 25, 139–165.
- Spencer, X. S., Joiner, A. T. & Salmon, S. (2009). Differentiation strategy, performance measurement systems and organizational performance: Evidence from Australia. *International Journal of Business*, 14(1).

- Spitsin, V., Ryzhkova, M., Vukovic, D. & Anokhin, S. (2020). Companies profitability under economic instability: evidence from the manufacturing industry in Russia. *Journal of Economic Structures*, 9, 1-20.
- Stamalevi, J. (2015). The importance of payback method in capital budgeting decisions. *South American Journal of Management*, 1(2), 1 - 6.
- Stonehouse, G. & Snowdon, B. (2007). Competitive advantage revisited: Michael Porter on a strategy and competitiveness. *Journal of Management Inquiry*, 16(3), 256-273.
- Storbacka, K. (1997). Segmentation based on customer profitability-retrospective analysis of retail bank customer bases. *Journal of Marketing Management*, 13, 479-492.
- Strandskov, J. (2006). Sources of competitive advantage and business performance. *Journal of Business Economics and Management*, 7(3), 119–129.
- Sturm, M., Gurtner, F. J. & Gonzalez-Alegre, J. (2009). Fiscal policy challenges in oil-exporting countries - A review of key issues. *SSRN Electronic Journal*.
- Stutchbury, K. (2022). Critical realism: an explanatory framework for small-scale qualitative studies or an 'unhelpful edifice'? *International Journal of Research & Method in Education*, 45(2), 113-128.
- Sulaiman, M., Ahmad, N. N. & Norhayati, A. (2004). Management accounting practices in selected Asian countries. *Managerial Auditing Journal*, 19(4), 493-508.
- Sulaiman, M., Nik Ahmad, N. & Alwi, N. (2002). Management accounting practices in Malaysia: a survey of the industrial and consumer products sectors. Malaysia: International Islamic University.
- Sulaiman, M., Nik Ahmad, N. & Alwi, N. (2005). Is Standard Costing obsolete? Empirical evidence from Malaysia. *Managerial Auditing Journal*, 20(2), 109 - 124.
- Sunday, H. & Onuoha, B. C. (2023). Strategic management and corporate performance of oil and gas servicing firms in Rivers State. *Academia Networks Journal of Management Research*, 8(4), 1-16.
- Susilawaty, T. E. & Lubis, N. I. (2023). Literature review on the evolution of management accounting practices. *Enrichment : Journal of Management*, 3(3), 1686-1694.

- Sutrisno, W. & Airlangga, H. N. P. (2020). Analysis of crude oil inventory using the material requirement planning method. *IOP Conference Series: Materials Science and Engineering*, 722, 012059.
- Szilágyi, I., Sebestyén, Z. & Tóth, T. (2020). Project ranking in petroleum exploration. *The Engineering Economist*, 65(1), 66-87.
- Szychta, A. (2002). The scope of application of management accounting methods in Polish enterprises. *Management Accounting Research*, 13, 401-418.
- Taherdoost, H. (2016). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management*, 5(2), 18-27.
- Tallon, P. P. (2008). Stuck in the middle: Overcoming strategic complexity through IT flexibility. *Global Journal of Flexible Systems Management*, 9(4), 1-9.
- Taufik, D. A., Purba, H. H. & Hasbullah, H. (2021). Balanced scorecard: Literature review and implementation in organisation. *Operations Excellence: Journal of Applied Industrial Engineering*, 13(1), 111-123.
- Tavalaei, M. M. & Santalo, J. (2019). Pure versus hybrid competitive strategies in the airport industry. *Transportation Research Part A: Policy and Practice*, 124, 444-455.
- Taylor, D., Soobaroyen, T. & Ah-hen, C. (2001). CEO's use of financial and non-financial performance measures: manufacturing companies in Mauritius and Australia compared. *South African Journal of Accounting Research*, 15(2), 77 – 97.
- Teece, D., J (2023). The evolution of the dynamic capabilities framework. In: Adams R., Grichnik D., Pundziene A. and Volkmann C. (eds) *Artificiality and Sustainability in Entrepreneurship: Exploring the Unforeseen, and Paving the Way to a Sustainable Future*. Cham: Springer International Publishing, pp.113-129.
- Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319-1350.
- Teece, D. J., Pisano, G. & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- The Herald (2013). Reforeignisation of the fuel sector. *The Herald*.

- The World Bank (2019). Balancing petroleum policy: Towards value, sustainability, and security. Report, Washington DC: International Bank for Reconstruction and Development / The World Bank.
- Thompson, A., Peteraf, M., Gamble, J., Strickland III, A. J. & Jain, A. K. (2013). *Crafting & executing strategy 19/e: The quest for competitive advantage: Concepts and cases*. McGraw-Hill Education.
- Thompson, A. A., Strickland III, A. J., Gamble, J. E. & Jain, A. K. (2010). *The quest for competitive advantage: Concepts and cases*. New Delhi: Tata McGraw-Hills Publ. Co. Ltd.
- Thondhlana, G. (2014). The local livelihood implication of biofuel development and land acquisition in Zimbabwe. *African Initiative and the Center of International Innovation*. March 2014 ed., 1-26.
- Thurlby, B. (1998). Competitive forces are also subject to change. *Management decision*, 36(1), 15-30.
- Tordo, S., Tacy, B. T. & Arfaa, N. (2011). National oil companies and value creation. Report: The World Bank.
- Tron, A. & Greco, G. (2012). Crisi di impresa, flussi finanziari e performance economiche Evidenze di una ricerca empirica svolta su società quotate. *IL FISCO* 17(1), 2577 - 2583.
- Tudose, M., B, Valentina, D., R & Silvia, A. (2021). Performance Management for Growth: A Framework Based on EVA. *Journal of Risk and Financial Management* 14(102), 1 - 19.
- Turner, M. J., Way, S. A., Hodari, D. & Witteman, W. (2017). Hotel property performance: The role of management accounting. *International Journal of Hospitality Management*, 63, 33 – 43.
- U.S. Energy Information Administration (2016). Trends in U.S. oil and natural gas upstream costs. Report, Washington DC: U.S. Department of Energy.
- Uyar, A. (2010). Cost and management accounting practices: A survey of manufacturing companies. *Eurasian Journal of Business and Economics*, 3(6), 113-125.
- Vale, J., Amaral, J., Abrantes, L., Leal, C. & Silva, R. (2022). Management accounting and control in higher education institutions: A systematic literature review. *Administrative Sciences*, 12(1), 14.

- Van der Stede, W. A., Chow, C. W. & Lin, T. W. (2006). Strategy, choice of performance measures, and performance. *Behavioral Research in Accounting*, 18, 185 - 206.
- Van Raaij, E., M (2005). The strategic value of customer profitability analysis. *Marketing Intelligence & Planning*, 23(4), 372–381.
- Van Wyk, S. W. J. (2004). *Matching the maintenance budget with market reality for a competitive advantage*. North-West University.
- Van Zyl, L. E., Salkind, N. J. & Green, S. B. (2014). *Research methodology for the economic and management sciences*.
- Vărzaru, A. A. (2022). An empirical framework for assessing the balanced scorecard impact on sustainable development in healthcare performance measurement. *International Journal of Environmental Research and Public Health*, 19(22).
- Veen-Dirks, P. & Molenaar, R. (2009). Customer Profitability Pricing. *Cost Management, ProQuest Central*, 23(3), 32-45.
- Vehovar, V., Toepoel, V. & Steinmetz, S. (2016). Non-probability sampling. In: Wolf D J. and Smith T., W (eds) *The SAGE Handbook of Survey Methodology*. 55 City Road, London: SAGE Publications Ltd, 329-345.
- Venu, S. (2001). India: competitive advantage: alternative scenarios. *Businessline*, 12, 1.
- Verbeeten, F. H. M. & Boons, A. N. A. M. (2009). Strategic priorities, performance measures and performance: An empirical analysis in Dutch firms. *European Management Journal*, 27(2), 113 - 128.
- Vercio, A. (2008). Full absorption: The good, the bad, and the ugly. *Journal of Corporate Accounting & Finance (Wiley)*, 19(3), 51-55.
- Verrollot, J., Kaikkonen, H., Leinonen, T., Tolonen, A., Kokkonen, T., Siddique, A., Hänninen, K., Härkönen, J. & Haapasalo, H. (2020). *Rapid product development handbook*. Helsinki, Finland: Books on Demand.
- Vetchagool, W., Augustyn, M. M. & Tayles, M. (2020). Impacts of activity-based costing on organizational performance: Evidence from Thailand. *Asian Review of Accounting*, 28(3), 329-349.
- Villasmil, R. (2018). Venezuela: Public debate and the management of oil resources and revenues. In: Overland I. (ed) *Public Brainpower: Civil Society and Natural Resource Management*. Cham: Springer International Publishing, pp.347-367.

- Volkonskii, V. A. & Kuzovkin, A. I. (2019). Prices and taxes for oil and oil products in the context of long-term development of Russia. *Studies on Russian Economic Development*, 30(3), 252-260.
- Vu, D. A., Moisescu, O. I. & Ha, N. (2011). An exploratory research for establishing a brand due diligence check list in mergers and acquisitions. *Omanian Journal of Marketing*, 2(1-16).
- Wang, C. L. & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, 9(1), 31-51.
- Wang, H. L. (2014). Theories for competitive advantage: Being practical with theory. *A Window into Business Research*. 33-43.
- Waweru, N., M (2010). The origin and evolution of management accounting: A review of the theoretical framework *Problems and Perspectives in Management*, 8(3), `165 - 182.
- Waxer, C. (2006). Your business in a tiny box. *Fortune Small Business*, 16(10).
- Weerasekara, U. & Gooneratne, T. (2023). Enterprise resource planning (ERP) system implementation in a manufacturing firm: Rationales, benefits, challenges and management accounting ramifications. *Accounting and Management Information Systems*, 22(1), 86-110.
- Weijermars, R. (2011). Credit ratings and cash-flow analysis of oil and gas companies: Competitive disadvantage in financing costs for smaller companies in tight capital markets. *Spe Economics & Management*, 3, 54-67.
- Welkazi, T., O & Shapiro, B., C (2000). The discounted cash flow techniques in project analysis. . *Journal of Accounting and Finance*, 21(2), 263 - 297.
- Wernerfelt, B. (1984). A resource-based view of the firm. *SMJ Strategic Management Journal*, 5(2), 171-180.
- Wijewardena, H. & De Zoysa, A. (1999). A comparative analysis of management accounting practices in Australia and Japan: An empirical investigation. *The International Journal of Accounting*, 34(1), 49-70.
- Winter, S. G. (2000). The satisficing principle in capability learning. *Strategic Management Journal*, 21(10-11), 981-996.
- Wirtz, J. (2003). Halo in customer satisfaction measures: the role and purpose of rating, number of attributes and customer involvement. *International Journal of Service Industry Management*, 14(1), 96 - 119.

- Wnuk-Pel, T. (2014). The practice and factors determining the selection of capital budgeting methods – Evidence from the field. *Procedia – Social and Behavioral Sciences*, 156(612 - 616).
- Wright, P. M., Dunford, B. B. & Snell, S. A. (2001). Human resources and the resource based view of the firm. *Journal of Management*, 27(6), 701–721.
- Xiong, Y., Su, W. & Lin, T. W. (2008). The use of financial and nonfinancial performance measures in Chinese firms. *Cost Management*, 22(5), 37 - 46.
- Yazdi, A. K., Mehdiabadi, A., Hanne, T., Sarfaraz, A. H. & Yazdian, F. T. (2022). Evaluating the performance of oil and gas companies by an extended balanced scorecard and the Hesitant Fuzzy Best-Worst Method. *Mathematical Problems in Engineering*. DOI: 10.1155/2022/1019779. 1–21.
- Yee, C. M., Khin, E. W. & Ismail, K. (2016). An analysis of budgetary goals impacting organizational performance. *Audit Financiar*, 14(137), 551-563.
- Yusuf, Y., Gunasekaran, A., Papadopoulos, T., Auchterlounie, W., Hollomah, D. & Menhat, M. (2018). Performance measurement in the natural gas industry: a case study of Ghana's natural gas supply chain. *Benchmarking*, 25(8), 2913-2930.
- Yutong, Y. (2022). Management Accounting in The Era of Big data. *Proceedings of the 2022 7th International Conference on Financial Innovation and Economic Development (ICFIED 2022)*. Atlantis Press, 793-798.
- Zakaria, M. (2015). Strategic management accounting information usage and the performance of SMEs in Malaysia. *International Journal of Science Commerce and Humanities*, 3(1), 99 - 113.
- Zeithaml, V., A (2000a). Service Quality, Profitability, and the Economic Worth of Customers: What We Know and What We Need to Learn. *Journal of the Academy of Marketing Science*, 28(1), 67–85.
- Zeithaml, V. A. (2000b). Service quality, profitability, and the economic worth of customers: What we know and what we need to learn. *Journal of the Academy of Marketing Science*, 28(1), 67–85.
- ZERA (2015). Annual Report. Report: ZERA.
- ZERA (2018). Annual Report. Report, Harare: ZERA.
- ZERA (2022). Annual Report. Report: ZERA.
- ZERA (2023a). Liquid fuels dashboard. Report: ZERA.
- ZERA (2023b). Petroleum sector performance statistics June 2023. Report: ZERA.

- ZERA (2024a). *About us*. Available at: <https://www.zera.co.zw> (accessed 23 November 2017).
- ZERA (2024b). *Liquid fuels dashboard*. Available at: <https://www.zera.co.zw/liquid-fuels-dashboard/> (accessed 28 June 2024).
- Zhang, C., Pan, F. & Lin, T. W. (2013). Market competition and the use of performance measures in Chinese firms. *Journal of Corporate Accounting & Finance*, 24, 65-70.
- Zhang, T. (2023). Critical Realism: A Critical Evaluation. *Social Epistemology*, 37(1), 15-29.
- Zhao, Q., Tsai, P.-H. & Wang, J.-L. (2019). Improving financial service innovation strategies for enhancing China's banking industry competitive advantage during the fintech revolution: A hybrid MCDM Model. *Sustainability*, 11(5), 1419.
- Zikmund, W. G. (2003). *Business research methods*. Mason, Ohio: Thomson/South-Western.

APPENDIX A: Language Editing Certificate



APPENDIX B: Regression Assumptions

1. Effect of Management Accounting on Relative Competitive Advantage

Table 5. 23: Effect of management accounting on relative advantage

IV	R ²	F	df1; df2	p- value	B (regression coefficient)	t	p- value
CCS	.456	4.946	9; 53	<.001	-.080	-.795	.430
CS					.145	1.228	.225
BUD					.064	.557	.580
BUDTECH					-.151	-1.447	.154
PERF_FIN					.223	1.671	.101
PERF_NONFIN					.106	1.515	.136
DEC_SHORT					-.281	-2.272	.027
DEC_LONG					.276	2.708	.009
SMA					.060	.612	.543

Independence

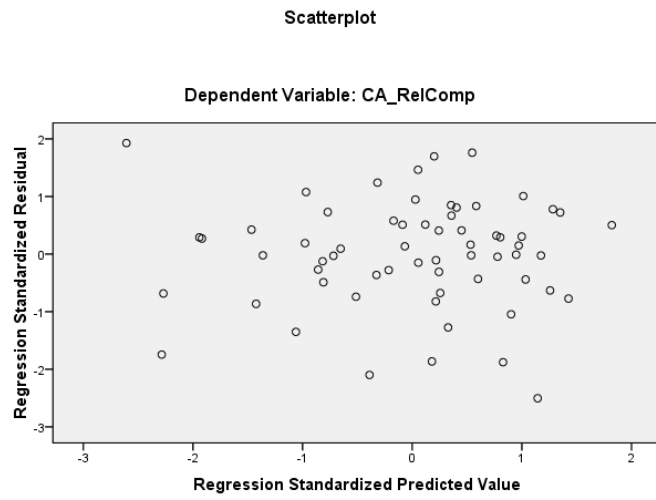
Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.676 ^a	.456	.364	.62094	1.916

a. Predictors: (Constant), SMA, CCS, PERF_NONFIN, BUDTECH, DEC_SHORT, BUD, PERF_FIN, DEC_LONG, CS

b. Dependent Variable: CA_RelComp

Homoskedasticity



Outliers

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.2475	4.5768	3.6190	.52614	63
Std. Predicted Value	-2.607	1.820	.000	1.000	63
Standard Error of Predicted Value	.124	.396	.238	.067	63
Adjusted Predicted Value	1.8551	4.5371	3.6155	.53200	63
Residual	-1.55444	1.19694	.00000	.57410	63
Std. Residual	-2.503	1.928	.000	.925	63
Stud. Residual	-2.611	2.221	.003	.999	63
Deleted Residual	-1.69043	1.58935	.00354	.67249	63
Stud. Deleted Residual	-2.770	2.310	-.002	1.021	63
Mahal. Distance	1.494	24.293	8.857	5.585	63
Cook's Distance	.000	.162	.017	.030	63
Centered Leverage Value	.024	.392	.143	.090	63

a. Dependent Variable: CA_RelComp

Linearity

SD (dependent variable – CA_RelComp) = .77873

SD (residual) = .57410

Linearity ok

Multi-collinearity

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.046	.422		4.848	.000		
	CCS	-.080	.100	-.144	-.795	.430	.314	3.185
	CS	.145	.118	.257	1.228	.225	.235	4.253
	BUD	.064	.114	.099	.557	.580	.326	3.067
	BUDTECH	-.151	.104	-.241	-1.447	.154	.368	2.715
	PERF_FIN	.223	.133	.297	1.671	.101	.324	3.083
	PERF_NONFIN	.106	.070	.204	1.515	.136	.563	1.775
	DEC_SHORT	-.281	.124	-.437	-2.272	.027	.278	3.600
	DEC_LONG	.276	.102	.515	2.708	.009	.284	3.524
	SMA	.060	.097	.103	.612	.543	.361	2.772

a. Dependent Variable: CA_RelComp

2. Effect of Management Accounting on Financial Performance

Table 5. 24: Effects of management accounting on financial performance

IV	R ²	F	df1; df2	p- value	B (regression coefficient)	t	p- value
CCS	.173	1.234	9; 53	.295	.195	1.226	.226
CS					-.020	-.106	.916
BUD					.035	.195	.846
BUDTECH					-.241	-1.453	.152
PERF_FIN					.058	.272	.787
PERF_NONFIN					.062	.560	.578
DEC_SHORT					-.140	-.712	.480
DEC_LONG					.312	1.927	.059
SMA					.185	-1.192	.238

Independence

Model Summary^b

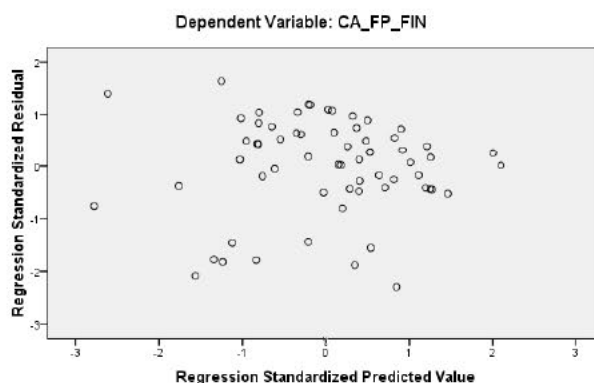
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.416 ^a	.173	.033	.98650	2.070

a. Predictors: (Constant), SMA, CCS, PERF_NONFIN, BUDTECH, DEC_SHORT, BUD, PERF_FIN, DEC_LONG, CS

b. Dependent Variable: CA_FP_FIN

Homoskedasticity

Scatterplot



Outliers

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.7487	4.7876	3.9079	.41751	63
Std. Predicted Value	-2.776	2.107	.000	1.000	63
Standard Error of Predicted Value	.197	.630	.379	.106	63
Adjusted Predicted Value	2.5125	4.7814	3.8825	.44807	63
Residual	-2.26209	1.61448	.00000	.91209	63
Std. Residual	-2.293	1.637	.000	.925	63
Stud. Residual	-2.397	1.966	.011	.998	63
Deleted Residual	-2.47134	2.32895	.02541	1.06788	63
Stud. Deleted Residual	-2.514	2.022	.005	1.016	63
Mahal. Distance	1.494	24.293	8.857	5.585	63
Cook's Distance	.000	.171	.017	.028	63
Centered Leverage Value	.024	.392	.143	.090	63

a. Dependent Variable: CA_FP_FIN

Linearity

SD (dependent variable – CA_FP_FIN) = 1.00311

SD (residual) = .91209

Linearity ok

Multi-collinearity

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	3.773	.671		5.626	.000		
	CCS	.195	.159	.273	1.226	.226	.314	3.185
	CS	-.020	.188	-.027	-.106	.916	.235	4.253
	BUD	.035	.182	.043	.195	.846	.326	3.067
	BUDTECH	-.241	.166	-.299	-1.453	.152	.368	2.715
	PERF_FIN	.058	.212	.060	.272	.787	.324	3.083
	PERF_NONFIN	.062	.111	.093	.560	.578	.563	1.775
	DEC_SHORT	-.140	.197	-.169	-.712	.480	.278	3.600
	DEC_LONG	.312	.162	.452	1.927	.059	.284	3.524
	SMA	-.185	.155	-.248	-1.192	.238	.361	2.772

a. Dependent Variable: CA_FP_FIN

3. Effect of Management Accounting on Non-Financial Performance

Table 5. 25: Effects of management accounting on non-financial performance

IV	R ²	F	df1; df2	p- value	B (regression coefficient)	t	p- value
CCS	.397	3.869	9; 53	.001	.074	.766	.447
CS					-.024	-.213	.832
BUD					.004	.032	.974
BUDTECH					-.234	-2.339	.023
PERF_FIN					.295	2.312	.025
PERF_NONFIN					.101	1.509	.137
DEC_SHORT					-.147	-1.242	.220
DEC_LONG					.275	2.808	.007
SMA					.072	-.767	.446

Independence

Model Summary^b

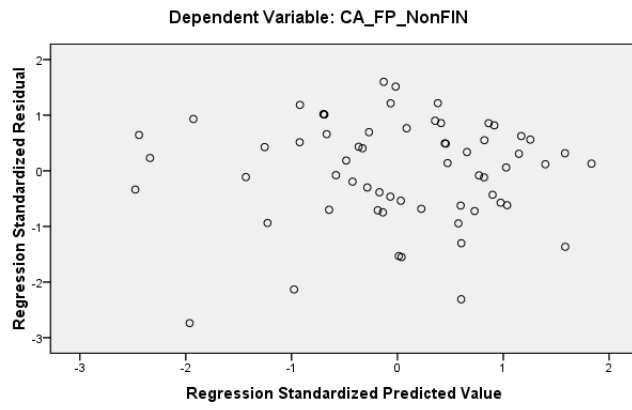
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.630 ^a	.397	.294	.59527	1.987

a. Predictors: (Constant), SMA, CCS, PERF_NONFIN, BUDTECH, DEC_SHORT, BUD, PERF_FIN, DEC_LONG, CS

b. Dependent Variable: CA_FP_NonFIN

Homoskedasticity

Scatterplot



Outliers

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.0007	4.9236	4.1056	.44613	63
Std. Predicted Value	-2.477	1.834	.000	1.000	63
Standard Error of Predicted Value	.119	.380	.228	.064	63
Adjusted Predicted Value	2.8904	4.8849	4.0947	.45636	63
Residual	-1.62985	.95236	.00000	.55037	63
Std. Residual	-2.738	1.600	.000	.925	63
Stud. Residual	-2.925	1.657	.008	.998	63
Deleted Residual	-1.86026	1.06638	.01082	.64431	63
Stud. Deleted Residual	-3.164	1.686	.001	1.021	63
Mahal. Distance	1.494	24.293	8.857	5.585	63
Cook's Distance	.000	.121	.017	.024	63
Centered Leverage Value	.024	.392	.143	.090	63

a. Dependent Variable: CA_FP_NonFIN

Linearity

SD (dependent variable – CA_FP_FIN) = 70848

SD (residual) = .55037

Linearity ok

Multi-collinearity

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.837	.405		7.010	.000	
	CCS	.074	.096	.146	.766	.447	.314 3.185
	CS	-.024	.113	-.047	-.213	.832	.235 4.253
	BUD	.004	.110	.006	.032	.974	.326 3.067
	BUDTECH	-.234	.100	-.411	-2.339	.023	.368 2.715
	PERF_FIN	.295	.128	.433	2.312	.025	.324 3.083
	PERF_NONFIN	.101	.067	.215	1.509	.137	.563 1.775
	DEC_SHORT	-.147	.119	-.251	-1.242	.220	.278 3.600
	DEC_LONG	.275	.098	.562	2.808	.007	.284 3.524
	SMA	-.072	.093	-.136	-.767	.446	.361 2.772

a. Dependent Variable: CA_FP_NonFIN

Appendix 1: Permission and Gatekeeper's Letter



[Redacted]
Causeway, Harare, Zimbabwe
Tel: [Redacted] Fax: [Redacted]
Email: [Redacted] Website: www.zera.co.zw

FAD/KK/tn/24/033
When calling ask for E.T. Mazambani

23 January 2024

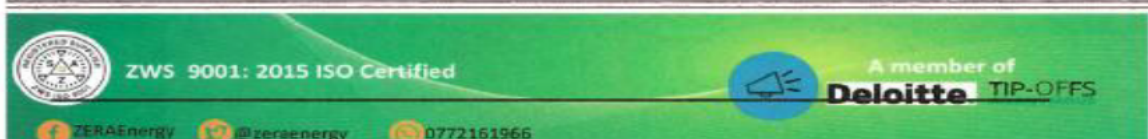
University of Kwazulu Natal
Private Bag X 54001
Durban, 4000
South Africa

RE: REQUEST TO CARRY OUT AN ACADEMIC RESEARCH-PHD IN ACCOUNTING

The above-mentioned subject matter refers.

In response to your letter dated 10 September 2019, this letter serves to confirm that your request for Christmas Vutuzah to carry out a research project titled *"The role of management accounting in creating sustaining competitive advantage in the Petroleum companies in Zimbabwe"*, at ZERA was approved.

[Redacted]
E.T. MAZAMBANI
CHIEF EXECUTIVE OFFICER,
ZIMBABWE ENERGY REGULATORY AUTHORITY



Appendix 2: Online Invitation from the Researcher for the Questionnaire Survey



The role of
management
accounting
in creating
and
sustaining
competitive
advantage:
Petroleum
companies
in Zimbabwe

Dear Sir/ Madam,

I write to invite you to participate in a research titled: **The role of management accounting in creating and sustaining competitive advantage: Petroleum companies in Zimbabwe**. I am currently undertaking a PhD in Accounting at University of KwaZulu-Natal. May you kindly take time to participate in this survey.

I strongly believe that this research will provide more insight on management accounting and its importance in creating competitive advantage. The survey will take about thirty minutes of your time. The data collected will be analysed thereafter.

Your participation in the study is voluntary and completely confidential. The identity of the participants and their responses will be withheld in the presentation of the findings of the analysed data, as well as any traceability to these participants. Thank you for the time taken to review this solicitation and the possible undertaking to participate in this study.

Sincerely yours,

Christmas Vutuzah

Exit and clear survey

Load unfinished survey

Next >

Appendix 3: Online Consent Form



The role of management accounting
in creating and sustaining
competitive advantage: Petroleum
companies in Zimbabwe

0% 100%

Consent Form

The respondent is given information about the research to make an informed decision. The respondent is asked to consent to participate in the study.

*** PHD Research – The role of management accounting in creating and sustaining competitive advantage: Petroleum companies in Zimbabwe**

You are invited to contribute toward a research project titled: "The role of management accounting in creating and sustaining competitive advantage: Petroleum companies in Zimbabwe"

The intention of this survey is to collect data in order to find out:

- i) What management accounting practices are evident in the selected petroleum companies?
- ii) What evidence is there of selected petroleum companies benefitting from relative competitive advantage in the industry?
- iii) Is there a link between management accounting practices implemented and the selected petroleum companies benefitting from relative competitive advantage?

The benefit to the industry is that the results will contribute to the industry database of management accounting techniques and performance data. For participants the value is in having access to management accounting techniques and evaluating their usefulness to their organisations. The representativeness of the data and resultant benefit will be impacted by the number of companies that are willing to participate.

I will make every effort to ensure your anonymity and that of your company when reporting the findings of the study. Also if you participate you may decline to answer any of the questions if you so wish and can withdraw from the study at any time and there will no negative consequences for you as a result of this decision. If you understand the contents of this document and the nature of the project and consent to participating please tick the Yes for acceptance and start the questionnaire by clicking on the Continue button.

Sincerely Researcher: Christmas Vutuzah (██████████).

Supervisor : Dr. P Shewell (██████████).

Ethics office: (0312604557).

Yes No

Appendix 4: Questionnaire

SECTION A: DEMOGRAPHIC PROFILE OF RESPONDENTS

1. Employment Level

Senior Management	Middle Management	Supervisory	Non-management and non-supervisory

2. Length of service (years)

Less than 5	5 - <10	10 - <15	15 - 20	Above 20

SECTION B: PROFILE OF FIRM

3. Years in operations/business

Less than 5	5 - <10	10 -15	Above 15

4. Number of Employees

Less than 100	101 - 200	201 - 300	Above 300

5. Number of filling stations

0-25	26-50	51-75	More than 75

SECTION C: EXTENT OF THE USE OF MANAGEMENT ACCOUNTING

Management accounting staff

6. Do you employ any management accounting staff?

Yes	No

6.1 If you responded NO to q6, indicate why you do not employ management accounting staff (Select ONE option only)

No need for one	Cannot afford the cost	Other: Please specify _____

6.2 If you responded YES to q6, indicate how many of each gender you employ

Male	Female

7. How many employees in the accounting department have the following tertiary accounting qualifications:

	Number
7.1 Certificate in accounting	
7.2 Accounting Diploma	
7.3 Bachelor's Degree in accounting	
7.4 Honours Degree in accounting	
7.5 Masters/Post Graduate in accounting	
7.6 CIMA	
7.7 ACCA	
7.8 Other accounting qualifications	

Costing system

7. Do you use a costing system in your firm?

Yes	No

7.1 If you responded NO to q7, indicate why you do not use a costing system (Select ONE option only)

No need for one	Cannot afford the cost	Other: Please specify

8. Indicate to what extent the following cost collection systems are used in your organisation

	Not at all	To a very small extent	To a small extent	To a medium extent	To a large extent	To a very large extent
8.1 Job Costing ¹						
8.2 Batch Costing ²						
8.3 Contract Costing ³						
8.4 Process Costing ⁴						

¹ - accounting that tracks the costs and revenues by "job" and enables standardised reporting of profitability by the job.

² - a system of cost accumulation where there is an identifiable activity for which costs may be collected

³ - the tracking of costs associated with a specific contract with a customer

⁴ - traces and accumulates direct costs and allocates indirect costs of a manufacturing process. These costs are then assigned to individual units of product.

9. Indicate to what extent the following costing systems are used in your organisation

	Not at all	To a very small extent	To a small extent	To a medium extent	To a large extent	To a very large extent
9.1 Absorption Costing ⁱ						
9.2 Standard Costing ⁱⁱ						
9.3 Activity Based Costing ⁱⁱⁱ						
9.4 Variable Costing ^{iv}						
9.5 Target Costing ^v						

¹ - the procedure which charges fixed and variable overhead to cost units.

² - the preparation of standard costs and comparing them with actual costs to analyse the variances and ascertain their possible causes.

³ - the cost contribution to cost units based on the benefit received from indirect activities.

⁴ - classification of operational activity costs according to their reaction to activity changes.

⁵ - designing a product or service that matches the price the market is willing to pay.

Budgeting systems

10. Do you use a budgeting system in your firm?

Yes	No

If you responded No to q10, indicate why you are not using a budgeting system (SELECT one option only).

No need for one	Cannot afford the cost	Other: Please specify _____

11. Indicate to what extent the budgets listed below are prepared in your company

	Not at all	To a very small extent	To a small extent	To a medium extent	To a large extent	To a very large extent
11.1 Sales Budget ^{vi}						
11.2 Purchasing Budget ^{vii}						
11.3 Production Budget ^{viii}						
11.4 Cash Flow Budget ^{ix}						

¹ - the units a company anticipates selling in a set period and the revenue it could earn.

² - contains the amount of inventory a company must purchase during each budget period.

³ - the number of units of a specific product an organisation must produce to match its estimated sales quantity.

⁴ - estimate all cash receipts and expenditures expected to occur during a certain period.

12. Indicate to what extent the following budgeting techniques are employed in your company

	Not at all	To a very small extent	To a small extent	To a medium extent	To a large extent	To a very large extent
12.1 Flexible Budget ¹						
12.2 Activity Based Budgeting ²						
12.3 Incremental Budgeting ³						
12.4 Zero Based Budgeting ⁴						
12.5 Continuous Budget ⁵						

¹ - recognises different cost behaviour patterns, and costs are designed to change as the volume of output changes.

² - is a method of thoroughly analysing activities to predict costs

³ – the use of the previous year's expenditure or income figures as a base for this year's budget.

⁴ - activities are re-evaluated each time a budget is set.

⁵ - involves projecting expenses and revenues into the future in continuous cycles using historical data to predict future trends.

Performance evaluation systems

13. Does your firm use some performance evaluation systems to manage firm performance?

Yes	No

13.1 If you responded NO to 13, indicate why you do not use a performance evaluation system (Select ONE option only)

No need for one	Cannot afford the cost	Other: Please specify _____

14. To what extent are the following firm performance measures used in your organisation

	Not at all	To a very small extent	To a small extent	To a medium extent	To a large extent	To a very large extent
Financial Measures¹						
14.1 Operating Income						
14.2 Return on Investment						
14.3 Sales Growth						
14.4 Cash Flows						
Non-Financial Measures²						
14.5 Number of Customer Complaints						
14.6 Survey of Customer Satisfaction						
14.7 Employee Turnover						

¹ - the financial measures of performance such as operating income, return on investment, sales growth, cash flow

² - these relate to non-financial measures of performance, such as customer satisfaction surveys and customer complaints.

Decision support systems

15. Does your firm use decision support systems? (Please tick the appropriate box)

Yes	No

15.1 If you responded NO to 15, indicate why you do not a decision support system
(Select ONE option only)

No need for one	Cannot afford the cost	Other: Please specify _____

16. Indicate to what extent the following decision support systems are used in your company

	Not at all	To a very small extent	To a small extent	To a medium extent	To a large extent	To a very large extent
Short term analysis						
16.1 Break even analysis ¹						
16.2 Stock Control Model ²						
16.3 Product Profitability Analysis ³						

16.4 Customer Profitability Analysis ⁴						
Long run analysis						
16.5 Payback period ⁵						
16.6 Accounting Rate of Return ⁶						
16.7 Net Present Value ⁷						
16.8 Internal Rate of Return ⁸						

¹ - is an analytical technique to study the relationship between costs, profits, and sales volume.

² - the systematic regulation of stock levels, for example, using a model such as Economic Order Quantity.

³ - is the process of linking a company's overall profit back to the profit of a specific product by examining the relationship between a product's selling price and cost.

⁴ - is the analysis of the revenue streams and service costs associated with specific customers or customer groups.

⁵ - is the time required to recoup the funds expended in an investment or to reach the break-even point.⁶ - is the average net income an asset is expected to generate divided by its average capital cost, expressed as an annual percentage.

⁷ - is an investment appraisal or capital budgeting technique that shows how an investment project affects company shareholders' wealth in present value terms.

⁸ - is a discount rate that makes the net present value (NPV) of all cash flows equal to zero in a discounted cash flow analysis.

Strategic management accounting

17. Does your firm use strategic management accounting?

Yes	No

7.1 If you responded NO to 13, indicate why you do not use a strategic management accounting system (Select ONE option only)

No need for one	Cannot afford the cost	Other: Please specify- _____

18. To what extent does your firm utilise the following strategic management accounting practices/tools?

	Not at all	To a very small extent	To a small extent	To a medium extent	To a large extent	To a very large extent
18.1 Target costing in the design of new products ¹						
18.2 Strategic costing in determining the firm's strategy ²						
18.3 An analysis of costs for each of the activities in the firm's value chain						
18.4 Taking into account any strategic factors such as the industry's competitiveness when making price decisions						
18.5 Systematic collection of data, e.g., on competitor's reaction, demand reaction, market position and etc						

¹ - is a product cost estimate derived from a competitive market price.

² - involves using cost data based on strategic and marketing information to develop and identify superior strategies to sustain a competitive advantage.

SECTION D: FACTORS THAT ARE INDICATIVE OF COMPETITIVE ADVANTAGE

19. Measurement of relative competitiveness

Indicate your level of agreement to the following statements:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
19.1 Our prices are among the lowest in the market					
19.2 We offer unique petroleum products					
19.3 Compared to most in the industry, we offer superior services (such as a fuel card)					
19.4 We have adequate availability of resources					
19.5 We have efficient management accounting techniques					
19.6 The range of alternative products that we can develop, manufacture, distribute, and market is larger than most of our competitors					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
19.7 The use of standardised electronic interfaces with our customers and suppliers makes us flexible					

19.8 Over the last five years, we have reacted to competitors' innovations by changing our product portfolio					
19.9 Our business units and/or functional units (e.g., marketing, R&D, sales) are closely intertwined and support each other, thereby improving our competitiveness					
19.10 Compared to our major competitors, our capabilities and resources complement each other extremely well					

Firm performance

20. Rate the change experienced by your firm in the following performance measures over the last 3 years:

	Declined a lot	Declined a little	No change	Improved a little	Improved a lot
20.1 Product quality					
20.2 Service quality					
20.3 Market share					
20.4 Sales					
20.5 Operating profit					
20.6 Cash flow					
20.7 Resources deployment					
20.8 Innovativeness					
20.9 Business units synchronisation					
20.10 Business flexibility					

SECTION E: THE ROLE OF MANAGEMENT ACCOUNTING IN YOUR ORGANISATION

21. Indicate your level of agreement/disagreement that management accounting has assisted management in the organisation to:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
21.1 Plan for future strategies, tactics and operations					
21.2 Control current activities					
21.3 Measure and evaluate the performance of the organisation					
21.4 Optimise the use of the firm's resources					
21.5 Reduce subjectivity in the decision-making process					
21.6 Impact internal and external communication					
21.7 Identify inefficient activities					
21.8 Identify areas of unnecessary costs					
21.9 Set up competitive pricing					
21.10 Introduce new product varieties (e.g., high sulphur content, low sulphur content)					

THANK YOU FOR YOUR TIME

Appendix 5: Ethical Clearance Certificate



31 March 2023

Christmas Vutuzah (217081279)
School of Acc Economics & Fin
Westville Campus

Dear C Vutuzah,

Protocol reference number: HSSREC/00001824/2020

Project title: The role of management accounting in creating and sustaining competitive advantage: Petroleum companies in Zimbabwe

Amended title: Management accounting techniques and the creation and sustenance of competitive advantage among Zimbabwe's petroleum companies

Degree: PhD

Approval Notification – Amendment Application

This letter serves to notify you that your application and request for an amendment received on 26 March 2023 has now been approved as follows:

- Change in title

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form; Title of the Project, Location of the Study must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

HSSREC is registered with the South African National Health Research Ethics Council (REC-040414-040).

Best wishes for the successful completion of your research protocol.

Yours faithfully








Professor Dipane Hlalele (Chair)

/nng

Humanities & Social Sciences Research Ethics Committee
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Postal Address: Private Bag X54001, Durban 4000
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Website: <http://research.ukzn.ac.za/research-Ethics/>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

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