



**UNIVERSITY OF
KWAZULU-NATAL**

**INYUVESI
YAKWAZULU-NATALI**

**College of Law and Management Studies
School of Accounting, Economics and Finance**

**Value Chain Financing and Profitability of Edible Oil Manufacturing Companies in
South Africa**

By

Kansilembo Freddy Aliamutu

Student Number:

(222120243)

**A thesis submitted in fulfilment of the requirements for the
Doctor of Philosophy (PhD) in Accounting**

Supervisor: Prof. Msizi Mkhize

2024

DECLARATION

I, KANSILEMBO FREDDY ALIAMUTU, declare that:

1. The research disclosed in this thesis, except where otherwise indicated, is my original research;
2. This thesis has not been submitted for any degree or examination at any other university;
3. This thesis does not contain other individuals' data, pictures, graphs or other types of information, unless specifically acknowledged as being sourced from other persons;
4. This thesis does not contain others' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
 - a. Their words have been re-written, but the general information attributed to them has been referenced;
 - b. Where their words have been used, then their writing has been placed in italics and inside quotation marks and referenced;
5. Where I have reproduced a publication of which I am author, co-author, or editor, I have indicated in detail which part of the publication was written by myself alone and have fully referenced such publication; and
6. This thesis does not contain text, graphics or tables copied and pasted from the internet, unless specifically acknowledged. In addition, details of the source are given in the thesis and in the references' section.

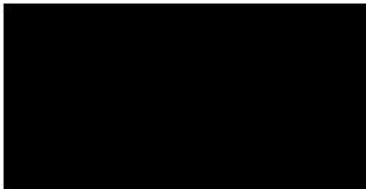
Signature:



Date: 23/02/2024

Student: KANSILEMBO FREDDY ALIAMUTU

Signature:



Date: 24/02/2024

Supervisor: PROF MSIZE MKIZE

LANGUAGE EDITING CERTIFICATE

EDITING LETTER

696 Clare Road

Clare Estate

Durban

4091

26 November 2023

Rectangular Snip

To: Whom it may concern

Editing of PhD: Kansilembo Freddy Aliamutu (222120243)

**Value-Chain Financing and Profitability of Edible Oil Manufacturing Companies
in South Africa**

This letter serves as confirmation that the aforementioned thesis has been language edited. The requisite grammatical conventions have been met.

Any queries may be directed to the author of this letter.

Regards



Dr. MP MATHEWS

Lecturer and Language Editor

Mercimathews4@gmail.com



DEDICATION

I would like to praise God for his Providence in my academic career. His protection is what ensured I was able to finish my study. In addition, I thank the assistance provided by Professor Msizi Mkhize, who directed me throughout the study process. Your tolerance was important to my children, David Kansilembo, Nathan Kansilembo and Hadassah Kansilembo, who got minimal attention due to my devotion to the study process. Furthermore, I want to thank my wonderful wife, Emily Mbiola, who was constantly by my side. Her love, tolerance and compassion were priceless, and I will cherish her for the rest of my life.

ACKNOWLEDGEMENTS

I would like to profit from this occasion for expressing my deepest appreciation and gratitude to the following individuals, without whom this research project would not have been achievable:

First and foremost, I am grateful to God for providing me with the skills and endurance to achieve my objectives and efforts.

I would particularly like to thank:

- I. Prof. Msizi Mkhize, my supervisor, for his extremely important advice, support, direction, constructive feedback, and overall project planning;
- II. I would like to express my deepest gratitude to Aliamutu Musambi Athanasi and Ilunga Christine, my parents, who educated me in challenging environments, teaching me morals and lessons such as "you never give up unless you accomplish what you aimed to," as a source of inspiration to persevere throughout times of hardship;
- III. Therance Emily Mbiola, David Kansilembo, Nathan Kansilembo, Hadasaah Kansilembo and Tshidibi Martine, for their compassion, empathy, and encouragement throughout this research project.

LIST OF PAPERS AND CONFERENCE PRESENTATIONS

List of Published and Submitted Papers

- 1.Kansilembo, A & Mkhize, M. (2023). A narrative review of the impact of value chain financing on the profitability of edible oil in south Africa. *International Journal of Research in Business and Social Science*, 12 (2), 2147- 4478.
2. Kansilembo, A & Mkhize, M. (2023). Evaluate value chain financing on profitability for South Africa's Edible oil manufacturing companies: Raw materials and working capital approaches. *The Journal of Accounting and Management*. Under review

List of Conference Presentation.

- 1.Kansilembo, A & Mkhize, M. (2023). The influence of accounting information on the profitability in chosen non-public firms in Pinetown South Africa. *MBALI International Conference, 1-3 August 2023, Empangeni*.

ABSTRACT

The study aimed to evaluate the impact of Value Chain Financing on the profitability of edible oil manufacturing companies in South Africa. Utilising secondary data collected from the financial statements of edible oil manufacturing companies from 2012 to 2022. Throughout the research, a positivism paradigm was applied using a descriptive retrospective panel data approach. Multiple regression analysis was used to determine the relationship between the value chain financing variables and the profitability of edible oil manufacturing companies in South Africa. The first objective was to ascertain the impact of financing in the raw material on the profitability of edible oil manufacturing companies in South Africa. This objective was achieved using descriptive statistics. The second objective was to assess the impact of financing in the working capital on the profitability of edible oil manufacturing companies in South Africa. This objective was achieved using correlation analysis between the variables. The third objective was to ascertain the impact of financing in the primary activities on the profitability of edible oil manufacturing companies in South Africa. The fourth objective was to determine the impact of financing in the support activities on the profitability of edible oil manufacturing companies in South Africa. The fifth objective was to establish the impact of firm characteristics on the link between financing in the value-chain and profitability in edible oil manufacturing companies in South Africa. The three last objectives used data panel regression for the period from 2012 to 2022. In this analysis, the study extends the Unit root test to confirm that the data was stationary; the multi-collinearity test to guarantee that the independent variables had not been correlated; the Hausman test aided in choosing the best model for the data among the fixed effect model with the random effect model; and the study included the Normality test to guarantee that the findings could be generalised and utilised in the edible oil industry. The study results suggest that value chain financing gave firms a competitive advantage amongst other competitors in the field and increased profitability.

Keywords: Raw materials, Working capital, Primary activities, Secondary activities, Value chain financing and Profitability

TABLE OF CONTENTS

DECLARATION	i
LANGUAGE EDITING CERTIFICATE.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF PAPERS AND CONFERENCE PRESENTATIONS	v
ABSTRACT.....	vi
TABLE OF CONTENTS.....	vii
LIST OF TABLES	xiv
LIST OF FIGURES	xv
LIST OF ACRONYMS	xvi
DEFINITIONS OF KEY TERMS	xviii
CHAPTER ONE OVERVIEW OF THE STUDY.....	1
1.1 Introduction and Background of the study	1
1.1.1 Edible oil industry in South Africa.....	3
1.2 Research Problem	5
1.3 Research Aim and Research Objectives	6
1.3.1 Research Aim.....	6
1.3.2 Research Objectives	6
1.4 Research Hypotheses.....	6
1.5 Significance and Contribution of the study.....	7
1.6 Scope and limitations of the study	8
1.7 Overview of the research methodology	9
1.8 The philosophy of the study.....	9
1.9 Structure of the Thesis.....	10
1.10 Chapter Summary	12

CHAPTER TWO THEORETICAL LITERATURE REVIEW	14
2.1 Introduction.....	14
2.2.1 Theory of Risk	14
2.2.2. Theory of investment	17
2.2.3 Capital Asset Price Model	22
2.2.4 Contract farming theory.....	24
2.2.5 Porter's Theory of Comparative Advantage.....	26
2.2.6 Inventory Control Using Pareto's Law.....	32
2.3 Chapter Summary	34
CHAPTER THREE CONCEPTUAL AND EMPIRICAL LITERATURE REVIEW	35
3.1 Introduction.....	35
3.2. Value chain for Competitive advantage.....	35
3.2.1 Value chain for Competitive Advantage analysis.....	36
3.2.2 Internal Cost Analysis.....	37
3.2.3 Internal differentiating analysis	43
3.2.4 Horizontal connection analysis	45
3.3 Profitability Measurements	50
3.4 Historical Concept of value Chain.....	51
3.4.1 Specifications in Value Chains	53
3.4.2 The mapping of Value Chains	54
3.4.3 Evaluation of Functions and Institutions	54
3.4.4 Characterization of Social networks.....	55
3.4.5 Cycle of Life Analysis (CLA)	56
3.4.6 Evaluation of the Input-Output-Life-cycle	60
3.4.7 Value Chain Analysis	61
3.4.8 Equilibrium System	62
3.4.9 Modelling and Value Chain Optimisation.....	64

3.5 Evaluation of the Worldwide Commodities Chain	65
3.5.1. Policy	68
3.5.2 Management	72
3.5.3 Value Chain Productivity and Sustainability.....	75
3.5.4 Confidence in the value Chain.....	76
3.5.5 Determinants of Value Chain Player Interaction.....	78
3.6 Value chain Analysis research in South Africa	80
3.6.1 Overall Value chain financing in South Africa context.....	84
3.6.2 Agricultural Value Chain (AVC) in South Africa’s context	86
3.6.3 A summary of South African rural irrigation systems (SIS).....	88
3.6.4 Involvement in a value chain.....	91
3.7 Limitations preventing South African smallholder farmers from engaging in the value chain and boosting their profitability.....	92
3.7.1 Financial Accessibility.....	93
3.7.2. Accessibility to markets.....	95
3.7.2.1 Amount and quality.....	95
3.7.3 Input supply	96
3.7.3.1 Transaction Price	96
3.7.4 Perspective with different Countries.....	102
3.7.5 Value Chain Financing	106
3.7.6 Financing in the Value chain and Profitability	111
3.7.7 Financing in Raw Material and Profitability	113
3.7.8 Financing in Working Capital and Profitability.....	114
3.7.9 Financing in Primary Activities and Profitability	116
3.7.10 Financing in Support activities and Profitability	118
3.7.11 Moderating Impact of Firm Characters and Profitability	120
3.8 Conceptual Framework.....	122

3.9	A Brief Description of Literature and Research Gaps.....	124
3.10	Chapter Summary	126
CHAPTER FOUR RESEARCH METHODOLOGY		128
4.1.	Introduction.....	128
4.2.	Research design	128
4.3	Research Paradigm.....	129
4.3.1	Positivism Paradigm	130
4.3.2	Interpretivism	131
4.3.3	Selecting a Research Methodology.....	131
4.4.	Description and Measurement of Variables.....	131
Table 4.1 Description and measurement of variables.....		131
4.5.	The Empirical Model	133
4.5.1.	Using an Empirical Model to Test Independent Variables, Moderating Variables and Profitability.....	134
4.6.	Population Targeted	135
4.6.1	Units of analysis.....	135
4.6.2	Sampling Method and Sample Size	135
4.7	Data Type.....	137
4.8	Data Collection Procedure	138
4.9	Data Management Analysis and Diagnostic Tests.....	138
4.8.1	Composite Index's.....	138
4.8.2	Data Analysis	139
4.9	Diagnostics Tests	140
4.9.1	The Hausman Test	140
4.9.2	Stationarity Test Unit Root	141
4.9.3	Test for Multicollinearity.....	141
4.9.4	Normality Test	141

4.10 Validity and Reliability.....	141
4.11 Ethical consideration of the study.....	142
4.12 Research Mapping	143
4.13 Chapter Summary	145
CHAPTER FIVE DATA PRESENTATION AND ANALYSIS	146
5.1 Introduction.....	146
5.2 Data presentation and Analysis.....	146
5.3 Descriptive analysis	147
5.3.1 Evaluation of Profitability.....	147
5.3.2 Statistics description for independent and moderating variables.....	148
5.4 Correlation analysis	150
5.5 Diagnostic Tests (pre-estimation tests).....	158
5.5.1 Unit Root Stationary Test	158
5.5.2. Multicollinearity Test.....	159
5.5.3. Hausman Test.....	160
5.6. Panel Data Regression	160
5.6.1. Value chain financing regressed with Profitability (ROE)	161
5.6.2. Regression of Value Chain Financing with profitability (Tobin Q)	163
5.6.3. Value chain financing regressed with profitability (ROI).....	164
5.6.4. Value chain financing regressed with Profitability Composite Index	167
5.6.5. Model selected for the Research.	168
5.7. Testing of Hypotheses.....	169
5.7.1. Hypothesis One	170
5.7.2. Hypothesis Two	171
5.7.3. Hypothesis Three	172
5.7.4. Hypothesis Four	173
5.7.5. Hypothesis Five	175

5.8. Diagnostic Test (post-estimation test).....	176
5.8.1. Normality Test	176
5.9. Chapter summary	177
CHAPTER SIX KEY FINDINGS AND DISCUSSION.....	178
6.1. Introduction.....	178
6.2 Financing in Raw material	178
6.3 Financing in Working Capital.....	180
6.4 Primary activities financing	182
6.5 Financing in Support Activities	185
6.6 Financing in Firm Characteristics	187
6.7 Chapter Summary	189
CHAPTER SEVEN CONCLUSION AND RECOMMENDATION	190
7.1 Introduction.....	190
7.2 Summary of the study	190
7.3 Conclusion of the study.....	193
7.4 Limitations of the research.....	194
7.5 Recommendations	195
7.5.1 Contribution to the Body of Knowledge.....	196
7.5.2 Methodological contribution.....	196
7.5.3 Contribution to Academy Literature	196
7.5.4 Theoretical contribution	197
7.5.5 Recommendations for Policy	197
7.5.6 Recommendations for Practice	198
7.5.7 Recommendations for Further Research.....	198
7.6 Chapter summary	199
REFERENCES	200
Appendices.....	295

Appendix 1: Extrait of the company Email	295
Appendix 2: Document review guidelines.....	296
Appendix 3: Composite index for Profitability	298
Appendix 4 : Ethical clearance letter	305

LIST OF TABLES

Table 3.1 A brief description of literature	124
Table 4.1 Description and measurement of variables	131
Table 4.2 The Edible oil manufacturing companies in South Africa	136
Table 4.3 Sample and numbers of Edible oil manufacturing companies	137
Table 5.1 Company Code and Meaning	146
Table 5.2 Summary statistics description for Profitability (Dependent variables).....	148
Table 5.3 Summary statistics description for independent and moderating variables.....	149
Table 5.4 Correlation of financing independent variables and Profitability.....	151
Table 5.5 Correlation of financing in raw material with profitability	153
Table 5.6 Correlation of financing in the working capital with profitability.....	154
Table 5.7 Correlation of financing in the primary activities with profitability	155
Table 5.8 Correlation of financing in support activities with profitability	156
Table 5.9 Correlation of firm characteristics with profitability	157
Table 5.10 Unit Root Stationary Test	158
Table 5.11 Multicollinearity Test	159
Table 5.12 Regression Results with Profitability (ROE).....	161
Table 5.13 Hausman test for selection of model 1.....	162
Table 5.14 Regression Results with Profitability (Tobin Q)	163
Table 5.15 Hausman test for selection of model 2.....	163
Table 5.16 Regression Results with Profitability (ROI).....	164
Table 5.17 Hausman test for selection of model 3.....	165
Table 5.18 Regression Results with Profitability Composite Index	167
Table 5.19 Hausman test for selection of model 4.....	167
Table 5.20 Model Summary	168
Table 5.21 Normality Test of the original data.....	176

LIST OF FIGURES

Figure 1.1 Porter's Value Chain	2
Figure 1.2 Structure of the thesis	10
Figure 3.1 Research mapping of the study.....	143

LIST OF ACRONYMS

AVCF	: Agriculture Value Chain Financing
AU	: African Union
BEE	: Black Economic Empowerment
FAO	: The Food and Agriculture Organisation
FEM	: Fixed Effect Model
FLO	: Fairtrade Labelling Organisation
CAPM	: Capital Asset Pricing Model
RAMP	: Risk Assessment and Management for Projects
CAPM	: Capital Asset Pricing Method
IMT	: Irrigation Management Transfer
IFC	: International Finance Corporation
PER	: Price Earnings Ratio
ROI	: Return on Investment
ROIC	: Return on Invested Capital
ROE	: Return on Equity
REM	: Random Effect Method
PCA	: Principal components Analysis
PCI	: Profitability Composite Index
SMEs	: Small and Medium-sized Enterprises
SEE	: Economy, and Ecological aspects
SAO	: South African olive Oil
SASCO	: South African shipping company
SHEP	: Smallholder Horticulture Empowerment Project
EPS	: Earnings Per Share
EVA	: Economic Value Added
EFA	: Eksteenskuil Producers' Organisation

MBR : Market to Book Ratio
NDP : National Development Plan
NWA : National Water Act
UN : United Nations
RBP : Result-Based Perspective
VCF : Value Chain Financing
VCA : Value Chain Analysis
VIF : Variance Inflation Factor
QEO : Quantity of Economic Order
WC : Management of working capital
SAFOI : SA Fryer Oil Initiative
SIS : South African rural irrigation systems
JSE : Johannesburg Stock Exchange

DEFINITIONS OF KEY TERMS

Value chain: The collection of players (private, public, and third-party suppliers included) and the ordering of value-added actions that comprise transporting goods through the factory to the end customer.

Value chain components: These are producers, companies that manufacture goods, storage shareholders, financial institutions, raw materials including supply investors, consumers, and agricultural associations.

Value Chain analysis: This is an analysis of the players and variables impacting a sector's effectiveness, as well as interactions between individuals, to determine the primary obstacles to enhanced effectiveness, efficacy, and productivity, and how these limitations might be addressed.

Value Chain Financing: Financial information services and goods are moving to and/or through players in the value chain to solve problems and relieve expansion restrictions. The value chain financing model excludes traditional farming funding from financial institutions, including agricultural credit and banking institutions.

Financing for the Internal Value Chain: Internal value chain refers to transactions that occur inside the value chain, which include while a component provider extends loans to a producer or whenever a leading firm lends cash to a marketplace intermediary between parties.

Financing for External Value Chains: External Value Chain Finance refers to financing enabled feasible by value chain interactions and procedures, such as when a financial institution makes an offer of financing to a producer according to a purchase agreement involving an established purchaser or an inventory invoice from a reputable warehousing facilities.

Profitability: An unbiased evaluation of a company's ability to employ resources outside its basic method of operation to create income. It refers to the financial condition in general of the company during a particular point in time. This may be employed to contrast comparable companies in identical markets or to aggregate companies or categories. Return on investment (ROI) and return on equity (ROE) were used to assess profitability.

Return on investment: A profitability metric which assesses a company's efficiency by splitting its net earnings by its net assets.

Return on equity: Refers to the ratio of a company's yearly net profit to its average amount of capital over the course of the fiscal year in question. It is a proportion of profitability.

Financing in working capital: The amount that is net among current assets and liabilities is referred to as working capital. Current assets contain the most readily available of all a company's resources, which means that they contain money or could be turned into cash fast. Current liabilities are commitments that are payable within a period of one year.

Financing in primary activities: Balancing finance is necessary for optimum resource utilisation in primary activities that include incoming logistics, logistics for outbound administration, advertising, and support.

Inbound logistics: Raw material getting, storing, and management of inventories have all been included.

Outbound logistics: These are the actions required to provide the final good or service acceptable to the consumer to make an offer.

Cost of Activities: The expense of transferring supplies to outputs throughout the production procedure.

Financing in support activities: Appropriate funding is essential for support activities that include company structure, managing employees, innovation, and purchasing, in addition to the growth of main operations.

Firm size: The size of a company can be determined by its sales volume, capital expenditures, or capacity currently in use.

Capital structure: Leveraging financial resources is utilised by businesses for funding their need for capital and is stated as a debt equity ratio.

CHAPTER ONE

OVERVIEW OF THE STUDY

1.1 Introduction and Background of the study

Several studies have shown that the profitability of any business raises its market value and contributes to the expansion of the entire industry, which ultimately produces success in the economy (Ndumbe et al., 2019). There are 27 edible oil companies, which constitute 95% of the industry's manufacturing base, and provide the majority of domestic oil refining in South Africa (Jahari et al., 2018, Kaplinsky and Farooki, 2010). In addition, approximately 53% of the capacity for producing edible oil is being used. The quantity and quality of oil seeds are thus a constraint on the sector's efficiency (Abah, 2020). The edible oil sub-capacity sector's utilisation rate is significantly lower than that of the other industries in the food manufacturing sector and has fallen below the national average in recent years (Swamy and Dharani, 2016, Pahl et al., 2019)

However, value chains are a highly effective strategy for focusing on methods to raise the intensity and impact of finance (Fernández-López et al., 2020). It covers agricultural producers' finances and local and international shareholders' finances. A value chain involves a series of processes from conception to production and ultimately to consummation (Jahari et al., 2018, Antràs, 2020). This contains all stages of production which include dispatch to end users and disposal after use. The primary goal of a value chain is to guarantee that its value supplied is distributed equitably across value chain participants (Gan and Li, 2014). "Competitive Advantage: Creating, Sustaining, and Improving Performance" included the "Value Chain" (Porter, 1985, De Backer and Flaig, 2017). Furthermore, the value chain analysis describes how the organisation operates. This also relates actions to the company's competitive position, analysis and outline of the firm's value chain activities. This includes an assessment of the firm's productivity competitiveness. Porter (1990) generated the following value chain scheme:

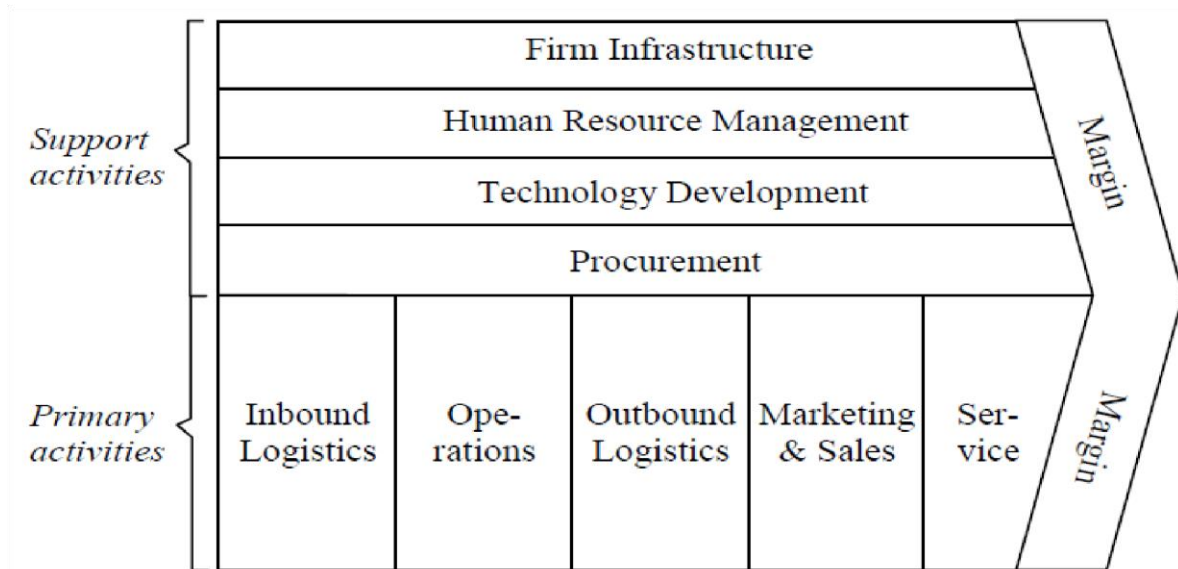


Figure 1.1 Porter's Value Chain

Source: Porter (1990)

Figure 1.1 represents the value chain and explains the components of primary activities (inbound logistics, operations, outbound marketing, and service) and support activities (firm infrastructure, human resource management, and development cost) in the value chain activities.

Hence, profitability is determined by capacity utilisation and raw material supply, both of which are critical to effective capacity utilisation in the farming sector. Building a value chain but also ameliorating funding amongst the purchaser's value chain is one of the most important steps in acquiring raw materials (Trienekens and van Dijk, 2011, Swinnen, 2007). It is commonly in the purchaser's best interest to guarantee a regular flow of products and to utilise cash to speed up and/or commit manufacturers, processors, and others in the supply chain to purchase to them under specific criteria (Chumaidiyah, 2017). In addition, contract farming is the most prevalent purchaser value chain concept since financial limitations are usually binding (Jahari et al., 2018, Meng et al., 2021). The management of working capital (WC) along the value chain helps edible oil manufacturing companies improve their profitability. Moreover, it measures an organisation's operating liquidity, and its requirement rises or falls in proportion to the company's output volume (Ndumbe et al., 2019).

Larsson (2018) and Kaplinsky (2000) assert that factors including a firm's size, growth rate, goods sold, or firm specialisation, company guidelines, and value chain plans and procedures

all have an impact on the amount of cash a company requires. Financing in primary value chain activities such as inbound logistics, operations, outbound logistics, marketing, sales and service are critical (Harahap et al., 2019). Increase profitability depending on firm size and production needs to ensure consistent raw material supply and timely distribution of finished products to clients. Zamora (2016) and Muflikh et al. (2021) mentioned that the most significant factors that led to greater reliability by sunflower purchasers. Customers mostly in the value chain help in increased quality improvements in the industry, relating to core capabilities, capital warehousing, and technology.

Financing support activities in the value chain promote profitability and efficiency, and provide essentially organised data for maximum usage of existing capacity in manufacturing firms (Hamdani et al., 2023). Firm infrastructure, human capital management, technical progress, services, and commodities purchasing are support activities that create competitive advantages in business (Porter, 1985, Li et al., 2016). According to Ndumbe et al. (2019) and Singh and Chatterjee (2022) the administration of trade rivalry as well as company guidelines implemented throughout the value chain influenced the firm's profitability in the seafood processing sector. The study will prove quite useful in demonstrating the importance of strategic review and its impact on profitability. Firm characteristics, size, and capital structure all have an impact on the firm's profitability, which may explain the huge variances.

Every corporation has certain qualities that distinguish one entity from another. Total revenue or total assets are used to calculate a company's size (Song and Gao, 2018). A company's capital structure is determined by its size. Continuously increasing the company's financial requirements reflects the company's ambition to boost earnings (der Merwe et al., 2005, Wang and Hou, 2020). The level of leverage and liquidity of a company indicates its financial strategy. Debt management is particularly critical since the company must determine how and when to repay loans, based on cash flow and interest rates (Purwanti, 2019). The debt-to-equity ratio will be utilised to calculate the level of leverage in this study. The next paragraph will offer edible oil industry in South Africa.

1.1.1 Edible oil industry in South Africa

The industry for producing edible oil manufacturing companies in South Africa is dominated by vegetable oils and fats, with sunflower oil being the most widely used vegetable oil in the nation (Jimoh et al., 2021, Bakoji et al., 2013). Considering that its domestic production is insufficient to meet demand, South Africa imports edible oils such as palm, soybean, and

sunflower oil (Mazenda et al., 2022). In the 2019/2020 financial year, South Africa produced 464,000 tonnes of oil from seeds (Subagio et al., 2022). In 2020/21, when imported oil seeds were made up of about 65% of local demand, South Africa was predicted to produce 507,000 tonnes (El Baz and Ruel, 2021, Ruel and El Baz, 2023). South Africa's edible oil sector is dependent on improved agricultural productivity. Agriculture is responsible for 2.43 percent of total GDP, whereas the industry provides 24.46 percent of total value added and 62.75 percent of total value added, respectively (Muller, 2022).

Agriculture employs more than 6.6 percent of the overall population, more than 32.15 percent of rural people, and there is a need to enhance agriculture seed production and more workforce to be absorbed in this sector (Mazhar et al., 2022, Belhadi et al., 2021). Agriculture is highlighted as a crucial industry for generating the necessary annual job development in South Africa's Vision 2030. Before 2012, the management of the edible oil industry was delegated to multiple institutions (Kemitare et al., 2021, Dixit et al., 2022). Soybean and palm oil are the two main sources of vegetable oil production in the world, making them both important subsectors of agriculture (Schmidhuber et al., 2022, Queiroz et al., 2022b). The domestic output of edible oil manufacturing companies in South Africa is now estimated at 507,000 tonnes, which only makes up around one-third of the country's annual demand (Mazenda et al., 2022).

Furthermore, water shortages in South Africa limit crop growth, as well as the nation is expected to get significantly drier because of climate change (even with a rise in the intensity and frequency of extreme rain such as droughts and river flooding) (Aikman et al., 2019, Queiroz et al., 2022a). In the short- to medium-term, South Africa's soy production is probably going to rise dramatically. These considerations have prompted research into novel soya cultivars that are better suited to arid environments, but the nation will almost certainly need to rely on the bulk of SADC to fill its growing soya oilcake shortage (O'Toole et al., 2015). Most of the sunflower grain is grown in the provinces of the Free State and the North-West, which together produced 55.7% and 34.1% sunflowers grown in 2016, respectively. There are currently about 27 refineries in South Africa that produce cooking oil manufacturing companies (Jahari et al., 2017, Moosavi and Hosseini, 2021). The following section will provide the problem statement.

1.2 Research Problem

Profitability in the edible oil production industry remained unchanged from 2012 to 2022. The South African economy is expected to weaken in 2012, with a real GDP growth of 2.7%, down from an estimated 3.1% in 2011 (Mazenda et al., 2022). The most important price-making variables in 2011 were the edible oil production cycle, the greatest yearly increase in Crude Edible oil (CEO) production, and a shortfall in South American soybean oil supplies due to persistent drought conditions (Muller, 2022, Ozdemir et al., 2022). Hence, the lack of supply of sunflowers on the world market because of the ongoing conflict in Russia and Ukraine (in 2022) is one of the factors influencing prices. Further analysis revealed that finance is insufficient in the edible oil industry's value chain, resulting in stagnating profitability (Mazhar et al., 2022, Nyamah et al., 2022). To participate in an increasingly competitive globalised economy, firms must utilise their resources effectively and productively (Prokop et al., 2019, Acar et al., 2022). Edible oil manufacturing companies must effectively increase profitability and understand how much finance is required for good value chain management (Schmidhuber et al., 2022).

In the previous five years from 2017 to 2022, edible oil manufacturing companies in South Africa have flourished, with production and demand rising year after year (Mazenda et al., 2022, Aman and Seuring, 2023). The COVID-19 pandemic had little effect on the industry in the 2020/2021 marketing year, with soybean oil output predicted to climb by over 40% to a historical high of 1.7 million tonnes due to a record planted areas and ideal meteorological conditions (Hidayati et al., 2021). In 2021/2022, South Africa was crushing a record 2.2 million tonnes of oilseeds, creating 1.5 million tonnes of oilseed (Muller, 2022, Juan et al., 2022). The edible oil industry in South Africa is of great importance as the market demand exceeds R54 billion. It is growing regularly and the country's need for edible oil is recognised by all (Dossou et al., 2022).

The annual production is 464,000 tonnes, with a foreign exchange loss of R54 billion. Currently, approximately 53% of the built capacity in this industry is being used, relative to South African nourishment as well as an affiliated market average of 80% (Larsson, 2018, Bag et al., 2022). In South Africa, resource underutilisation is related to insufficient financing in the value chain by firms in this sector. According to Schmidhuber et al. (2022) and Hlatshwayo et al. (2021) the edible oil value chain is divided into activities such as raw materials, working capital, primary activities and support activities. Muller (2022) claimed

that the profitability of the edible oil manufacturing industry has contributed to South Africa losing significant revenue, job opportunities, foreign exchange outflows, and GDP.

Profitability in edible oil manufacturing companies in South Africa is suffering because of capacity underutilization. Other researchers, such as Botes et al. (2018) and Staritz et al. (2017) believe how the unawareness of financing inside a suitable value chain influences profitability. The study reveals that resource underutilization is related to insufficient financing in the value chain by firms, which stagnates profitability. In addition, other researchers will gain knowledge from the results of this study by using it as a source of information to conduct similar analyses and by completing a few of gaps that have recently been identified in previous relevant research. The next section will offer the research aim and research objectives.

1.3 Research Aim and Research Objectives

1.3.1 Research Aim

The research aim of the study is to evaluate the impact of Value Chain Financing on the profitability of edible oil manufacturing companies in South Africa.

1.3.2 Research Objectives

- ❖ To ascertain the impact of financing in the raw materials on the profitability of edible oil manufacturing companies in South Africa;
- ❖ To assess the impact of financing in the working capital on the profitability of edible oil manufacturing companies in South Africa;
- ❖ To ascertain the impact of financing in the primary activities on the profitability of edible oil manufacturing companies in South Africa;
- ❖ To determine the impact of financing in support activities on the profitability of edible oil manufacturing companies in South Africa; and
- ❖ To establish the impact of firm characteristics on the link between financing in value chain and profitability in edible oil manufacturing companies in South Africa.

1.4 Research Hypotheses

To evaluate the impact of Value Chain Financing on the profitability of edible oil manufacturing companies, the relevant null hypotheses will be tested:

- ❖ **Ho1:** Financing in raw materials has no substantial impact on the profitability of edible oil manufacturing companies in South Africa.
- ❖ **Ho2:** Financing in working capital has no major impact on the profitability of South African edible oil manufacturing companies in South Africa.
- ❖ **Ho3:** Financing in Primary activities has no major impact on the profitability of edible oil manufacturing companies in South Africa.
- ❖ **Ho4:** Financing in Support activities has no major impact on the profitability of edible oil manufacturing companies in South Africa.
- ❖ **Ho5:** Firm characteristics do not considerably affect the link between financing in the value chain and the profitability of edible oil manufacturing companies in South Africa.

1.5 Significance and Contribution of the study

This research is valuable in guiding the current and future edible oil industries on how to establish and implement Value Chain Financing at one or more locations along the Value Chain to identify risk and capital costs. Financing also helps the Value Chain members' overall cost efficiency. Manufacturers' requirements are for sufficient raw materials to use the installed production capacity and lowering raw material costs and working capital costs by incorporating adequate funds, supplier contracts and categorising the value chain actuality to encourage banks and organizations to supply greater financing to value chain participants. Value Chain Financing was a tried-and-true strategy to finance that boosts profitability. This will allow them to better utilise their ability and understand their current situation, allowing them to make the necessary decisions to become more competitive and improve their performance.

The research added to the current body of knowledge. Furthermore, there is limited empirical research on agricultural financing in the value chain in South Africa. The research produced extensive supporting information on agricultural value chain financing approaches in edible oil manufacturing companies. This research served as a foundation for future activities to analyse and document the implementation and impact of finance in the value chain of South African edible oil firms. Value Chain Financing benefits the country, because manufacturing contributes significantly to economic production, employment, and increasing the country's competitiveness.

It was normal practice for corporations to re-invest a portion of their profits in the development of latest corporation areas or the raise of current ones, hence enhancing job possibilities and the country's economic vigour. Furthermore, policymakers were benefit greatly from understanding how finance flows throughout the Value Chain. The authorities would have useful knowledge, which would serve as the foundation for developing rules to encourage financial institutions to participate in the Value Chain Financing and invest in agricultural growth for speedy job creation. Smallholder farmers provide products that serve as raw materials in the communities in which large agricultural companies operate. Small farmers make up a considerable share of South Africa's rural population and provide towards most of the nation's nourishment needs.

Furthermore, they are an essential target demographic since they provide possibilities to boost revenue, improve farmers' socioeconomic well-being, and improve food security. This will help the country's economy grow. Allowing small farmers to fully participate in agricultural value chains were crucial. Many are caught in an unproductive cycle of low-financing and limited production cycles due to a lack of accessible finance, lack of competition, and market in chain information. In addition, firm characteristics examined as a moderating variable to see if they mediated the impacts of value chain financing and profitability. The following section will provide the scoop and limitation of the study.

1.6 Scope and limitations of the study

The research extended to the years between 2012 and 2022. This timeline was chosen in accordance with the South African Government's Vision 2030, which was announced in August 2012. Through public-private partnerships, emphasis has been placed on the growth of agro-based industries. Firms in South Africa was chosen solely to confine geographical coverage inside one country, ensuring that the study is carried out under the same legal framework while maintaining the time limit. In addition, the financial statements employed in this research were constructed on edible oil manufacturing companies in South Africa.

Thus, only 22 manufacturing companies participated in this research. Therefore, implementing the generality of the research to various other Edible oil manufacturing companies in south Africa obstacles. Regardless of these obstacles, the researcher maintains that the regression methods along with empirical models which were applied were suitable with the data that was available. Furthermore, the outcomes were solid enough for broad

applicability to edible oil manufacturing companies in South Africa. The next section will discuss the design and methodological context of the study.

1.7 Overview of the research methodology

The study used a Positivist paradigm since it was quantitative research method and involves hypothesis testing. This research will utilise descriptive research design. While in descriptive study, we will achieve cross-sectional research with a retrospective panel design, collecting data on the current and past of Edible oil companies in South Africa. The research builds an empirical model that will be practical and helpful in determining the impact of Value Chain Financing on profitability after thoroughly evaluating theoretical, empirical and conceptual studies. The annual financial statements of these edible oil companies were obtained from Bloomberg database, Mc Gregor database, and annual reports of Public Domaine to calculate financial ratios. The secondary data for the variables emanated from the extracted annual financial statements of the manufacturing companies, such as their balance sheet, income statement and cash flow statement. The data was compiled between 2012 and 2022. The following section will offer the philosophy of the study.

1.8 The philosophy of the study

Recent research is being carried out in accordance with the objectives stated in Section 1.3.2 and the hypotheses offered in Section 1.3.4. The major focus is on evaluating the impact of Value Chain Financing on the profitability of edible oil manufacturing companies in South Africa. The research is positivist objective since it focuses on causal connection. It uses hypothesis testing to accomplish its objectives (Nigussie and Bekele, 2021). It pushes for evidence instead of the researcher's own ideas (Kumatongo and Muzata, 2021, Shen and Sun, 2023). In addition, the research's paradigm is positivism. Generally, positivism views reality objectively (De Vaus, 2001). It accepts the epistemological viewpoint that information may be confirmed after it is revealed by the researcher (Chua, 2012, Ilesanmi et al., 2021). If the circumstances specified by the previous are followed, a subsequent study will reach identical findings.

Generally, positivism seeks to investigate the link among the factors of the circumstance in consideration (Moffatt, 2015, Jraisat, 2016). However, prior to beginning the research, the researcher should develop hypotheses for testing. Different theories from the literature were employed to verify such hypotheses. The researcher could utilize the Risk Theory, the

Contract Farming Theory, as well as the Porter's Theory of Comparative Advantage as the foundation for the research. Formulating hypotheses, testing hypotheses, selecting the method for evaluating the tested concepts, and rejecting or confirming hypotheses are some of the scientific steps followed by the two perspectives. Based on this stated method, the researcher can make judgments. The present research is based on these two philosophical perspectives. The following section will discuss the Structure of the Thesis.

1.9 Structure of the Thesis

The chapters that make up this thesis are further broken down into sections and sub-sections. The structure of the thesis is represented with Figure 1.2 below:

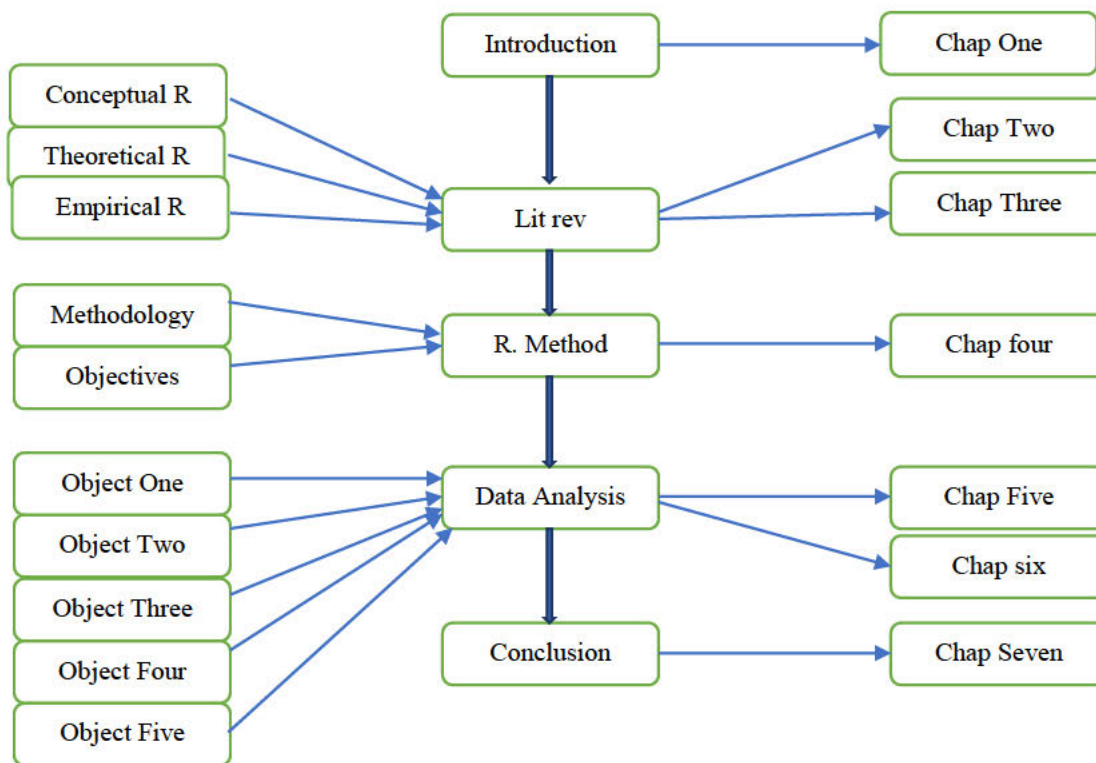


Figure 1.2 Structure of the thesis

As shown in Figure 1.2, the following alludes to how this study is described:

CHAPTER ONE: INTRODUCTION

The first chapter of the research lays the foundation for establishing the problem under research. It describes the background of the problem and its commitment to the research problem discussed. It also explains the aims of the research. The hypotheses, the significance

of the study, the scope and limitation of the research, the philosophy of the study, and the format of this research report are also included in this chapter.

CHAPTER TWO: THEORETICAL LITERATURE REVIEW

Chapter two explores relevant theoretical literature for the research. Furthermore, the chapter covers the following value chain and profitability theories: The Risk Theory, the Contract Farming Theory, as well as the Porter's Theory of Comparative Advantage. Other technical concepts covered include: The Capital Asset Price Method and Inventory Control Using Pareto's Law including Using.

CHAPTER THREE: EMPIRICAL AND CONCEPTUAL LITERATURE REVIEW

This chapter will address empirical and conceptual literature reviews on value chain financing as well as firm characteristics in the edible oil industry in South Africa. In order to identify the research gaps, an outline of the body of research and literature that already exists in the value chain is examined as well as documented. As part of the research, a conceptual model describing its link among variables to every target was created, which was then supplemented with study hypotheses. This research will examine many previous studies in South Africa and other countries that will be deemed to be valuable in value chain and historical relevant of value chain. In addition, the study discusses on historical of value chains and the relationship between value chains and comparative advantages. Furthermore, the section will be divided into four categories: the impact of Financing Value Chain strategies on profitability, the effect of Financing in the Value Chain practices on profitability, the effect of Inventory Management Value Chain on profitability, and the effect of Value Chain and profitability.

CHAPTER FOUR: RESEARCH METHODOLOGY

This chapter will give a complete description of how the study was conducted. It will outline the methodologies as well as research processes that were utilized in the research. It commences with the introduction of the research's research paradigm. It serves as an overview of the research's philosophies along with designs. In addition, the chapter describes the study's demographics, sampling frame, and research sample. Methods of sampling are also covered. Other parts of the chapter cover data collection methods and data analysis methods. The chapter will include a research mapping that will utilise in this research.

CHAPTER FIVE: DATA ANALYSIS AND RESULTS

This chapter will present the presentation and analysis of data collected during the study. The various findings of the study will be presented and discussed according to the various study objectives. Also, the results for the test of aim and objectives will be presented in this chapter. In addition, tables and other common econometric tools such Descriptive Statistics, Panel Unit Root Test, Correlation and Panel Least Square (which will include fixed and random effect regression models) will be used in presenting and analysing the data generated. Furthermore, brief explanatory discussions will be attached to tables for easy comprehension and clarity purposes, the study will use Hausman test to select the appropriate model to use for our estimate between fixed and random effect regression.

CHAPTER SIX: KEY FINDINGS AND DISCUSSION

The sixth chapter will cover the discovered findings using present knowledge of Value chain finance and profitability. In addition, the chapter will draw discussion based on the research's primary findings. The analysis of numerous literature relevant to value chain financing revealed several aspects that will be significant for the company's value chain financing in South Africa. A few of the impacting components will be as follows: Raw materials financing, working capital financing, primary activities financing, support activities financing and firm characteristics financing.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

Chapter seven will summarize the research, mentioning its background, rationale and its findings, contributions, and implications. This constitutes the research's final chapter. The chapter evaluates the study results and draws detailed conclusions on every component of the research. Furthermore, the chapter discusses the limitations of the present research as well as suggestions. A different component of the chapter is its discussion of the investigation's theoretical achievements. Further studies on issues pertaining to value chain financing and profitability are also emphasised.

1.10 Chapter Summary

This chapter serves as the research's cornerstone. This commenced by providing context by discussing the concept of value chain financing and the profitability of edible oil manufacturing companies in South Africa. The chapter revealed an incentive to think further than the immediate recipient of funding to comprehend the sector's ability to compete, dangers, and to build goods that best match the demands of their companies mostly in the

Value Chain. Furthermore, it emphasised that value chains are a highly effective strategy for focusing on methods to raise the intensity and impact of finance. Following the establishment of the context, the research gap was identified. Overall, the research sought to evaluate the impact of Value Chain Financing on the profitability of edible oil manufacturing companies in South Africa.

In addition, as stated in section 1.3.2, the research established relevant objectives. The research assessed: the impact of financing in the raw materials on the profitability of edible oil manufacturing companies in south Africa, the impact of financing in the working capital on the profitability of edible oil manufacturing companies in South Africa, the impact of financing in the primary activities on the profitability of edible oil manufacturing companies in South Africa, the impact of financing in the support activities on the profitability of edible oil manufacturing companies in South Africa, and the impact of firm characteristics on the link between financing in value chain and profitability in edible oil manufacturing companies in South Africa.

Furthermore, the chapter provided the research's scope and limitation, which will extend to the years between 2012 and 2022 and includes all edible oil manufacturing companies in South Africa. This timeline was chosen in accordance with the South African Government's Vision 2030, which was announced in August 2012. Hence, as experts in the field, the research focuses on Edible oil manufacturing companies in entire South Africa. The study used a Positivist research method since it was quantitative and involves hypothesis testing. This research utilised a descriptive research design. The research is divided through seven chapters. The proposal for the research is established in the first to four (4) chapters. They are made up of background, theoretical literature, empirical review, including methodology. The results of the research are presented in Chapters 5 and 6 which also summarize the major key findings. Chapter seven addresses the research's conclusions. The conclusion of this chapter gives suggestions on several sections of the research. The next chapter will provide a theoretical literature review.

CHAPTER TWO

THEORETICAL LITERATURE REVIEW

2.1 Introduction

The previous chapter explained the research's overview and offered the problem statement, thereby establishing an argument for this research. This chapter explores relevant theoretical literature for the research. In addition, this chapter covers the following value chain and profitability theories: The Risk Theory, the Contract Farming Theory, as well as the Porter's Theory of Comparative Advantage. Other technical concepts covered include: The Capital Asset Price Method and Inventory Control Using Pareto's Law including Using.—The following section will provide the theory of risk.

2.2.1 Theory of Risk

The investment rate has been influenced by two factors: expected return and perceived risk. Confidence has a huge impact on whether a financial decision based on an investment will be made. Keynes (1936) and Spies (2011) claimed that no matter how tempting the average return, investment will not occur until the risk of loss is acceptable. Keynes suggests "Greatest, possibly, of our choices to undertake something favourable, the full implications that will be attracted out over several days to come, can only be made as a consequence of animal spirits - of an unexpected desire to activity instead of lack of action, and not as the outcome of a weighted average of quantitative advantages multiplied by quantitative probabilities" (Goswami et al., 2011, Ho and Burny, 2016). Keynes employs a geometrical analogy to highlight the significant shortcomings of the formerly assumptions of mainstream economics (Boholm and Corvellec, 2011, Rukasha et al., 2021). "Greatest, possibly, of our choices to undertake something favourable, the full implications that will be attracted out over several days to come, can only be made as a consequence of animal spirits - of an unexpected desire to activity instead of lack of action, and not as the outcome of a weighted average of quantitative advantages multiplied by quantitative probabilities," says Keynes (Diebold et al., 2000). In a non-Euclidean universe, classical theorists are akin to Euclidean geometers who determine that straight lines seem to join in experience.

In reality, the only solution is to abandon the premise of resemblances as well as devise a non-Euclidean geometrical. In financial accounting, pieces of information that are comparable are needed today (Faisal et al., 2023). This is the second nudge in the direction of a new and improved risk theory (Daykin et al., 1993, Nchanji et al., 2021). Because the one-dimensional expected utility approach is the dominant scientific paradigm, we should first try to discover a two-dimensional technique in which anticipated functionality could be viewed like a (potentially erroneous) specific situation. Keynes (1921), Stephens et al. (2020), as well as Workie et al. (2020) proposed various methods for improving our knowledge of the way the brain considers possibility and threat through its much earlier "Treatise on Probability."

Keynes was particularly harsh in his criticism of Workie's marginal utility in wealth approach (Majumdar and Pavone, 2020). Keynes often used "solve" the renowned St Petersburg Dilemma, and notices that what was named implicit understanding, particularly concerning Peter's capacity to reimburse Paul or the immense threat of Paul having to incur a severe loss, led directly to substantial "psychological doubt," making a solely numerical technique in danger and return understanding difficult to adopt: researchers disagree with Paul, partially even though researchers don't genuinely think Peter will pay us if we win the toss, and partially even though we don't think Peter will compensate us if researchers win (Liang et al., 2019, Ranathilaka et al., 2019).

Researchers do not believe that evidence exists to support endangering a bigger one, the achievement of which is extremely unlikely (Seong and Hong, 2021). Once researchers formulate hypotheses and remove these aspects of psychological hesitation, the conceptual distribution of what endures should be considered risk theory (Warsanga, 2014).

Keynes already implies an augmentation of Jacques' second maxim, where it asserts that we would recognize existing knowledge: "But should this maxim not be reaffirmed by an additional maxim, that we ought to make the weight of our arguments as great as possible by gathering all available information?" (Sachlas et al., 2019, Ranathilaka et al., 2018). Furthermore, there is a time where it is still not profitable to go to the bother of thinking prior to directing, since there is no evident standard to establish how much further we should push with the maxim of increasing the importance of our case (Ruggeri et al., 2020).

Keynes describes occurrences of what the conscious brain looks to overlook the danger once it is under a few certain lower range, and mentions an insightful comment through the French scholars Constantinescu et al. (2019) and Cavite and Abamo (2017): "I am starting to think of

these reasonings as Buffon's once he identifies 1/10,000 as the restriction, beyond which possibility is minimal, on the basis that, becoming the opportunity that a man of 56 taken at random will end up dying in less than a day, it is virtually ignored by a man of 56 who understands his wellbeing to be great". Expanding on the risk theory, several famous financial accounting researchers of the period, including Friedman, Malinvaud, Samuelson and Savage (2011), became outspoken opponents of von Neumann and Morgenstem's value assumptions (Echenique, 2020, CHEGE, 2017).

Hence, as indicated by a favourable evaluation in the Journal of the American Mathematical Society, mathematicians with little practical expertise with financial accounting preferred to reject these critiques: "Posterity may regard this book as one of the major scientific achievements of the first half of the twentieth century". If the authors are successful in inventing a new precise science - accounting - this will surely be true (Sjöberg, 2020, Fonsah and Amin, 2017). This offered an extremely acceptable conceptual model for free decision in the face of unpredictability (Irfan and Wang, 2019). However, by the beginning of the 1980s, the extensive experimental data on axiom violations that had been published over the previous decade, particularly by Merton and Perold (2008), Scherer and Cho (2003) and Usapfa (2015), had forced financial accounting researchers to try to develop more sophisticated new theories that could better explain real-world behaviour.

Chatterjee et al. (1999) and Wilde (1998) were particularly successful in describing argument infringements (especially in the fields of "independence" and "transitivity") and afterwards proposing increasingly complicated overall and self-evident strategies. The risk measure probability of destruction is also employed, however, there is no apparent correlation between this "nonparametric" indicator and a "parametric" quantify like variance (Palmer, 2008). Moreover, the Risk Assessment and Management for Projects (RAMP) procedure, which was co-produced by the UK professional world as well as the Organization of Professional Engineers as a basic framework for pragmatic management risk, appears to lack an estimation level of risk (Luvhengo et al., 2018, Fonsah et al., 2018). Could a seemingly casual approach be considered scientific? Any financial disadvantage caused by behavioural characteristics might be substantially ameliorated mostly by accessibility of some more comprehensive details provided in as unbiased a fashion as potential (Breen et al., 2014).

Narrow-minded cognitive bias, on the other hand, is a far more deeply entrenched resource conduct feature (Mohammadi-Ivatloo et al., 2012, Vidanapathirana et al., 2012). A famous

instance of a direct hazard is a reluctance to travel for pleasure or business, notwithstanding large quantities of statistical evidence indicating that motoring is significantly riskier in aspects of fatalities for every mile travelled, of the traveling including a certified aircraft (Chavas, 2004). A typical illustration of profitability is many owners' choice for long-term investments in treasuries over stocks, with very powerful proof indicating the possibility of shares surpassing debt securities grows to surety even as the investment period expands (Benito et al., 2019, Sharma et al., 2021). The following section will provide the theory of investment.

2.2.2. Theory of investment

Keynes (1936) and Hayek (1939) studied and concentrated on cash investment and work from the perspective of the firm. The change in capital stock over time is defined as investment. However, through his "Nature of finance and Income" as well as earlier actions "Theory of Interest," he developed one of the earliest investment theories (Parikh and Weingast, 1997, Adhikari, 2018). Even though his theory was primitive and dependent on several assumptions, the researchers identified a fundamental investment limit. This investment limit represents the best long-term return on an investment and serves as the foundation for today's more popular investment limit models (Tiebout, 1956, Naveen et al., 2015). Financial investments, as studied by the financial experts noted in the previous paragraph, concern the judgment to build a new factory, substitute equipment, and so on, primarily from a performance perspective (Oehmke and Opp, 2022).

Furthermore, Bartram and Dufey (2001) and Brown and Brown (2006) investigated the profitability of these investment limits; it is less obvious if the establishment of financial investment funds has any actual impact on corporate behaviour. After all, corporations are exposed to a relatively ample supply of simply making profit capital eager to finance initiatives regardless of the related externalities (Bartram and Dufey, 2001). Recognising the true consequences of investment limits necessitates an organisational finance perspective. For that purpose, Mahardhika and Zakiyah (2020) and Gollier and Pouget (2022) expanded by including the theories of investment and the option among clean and dirty manufacturing into the corporate financing with ample financial resources. The interplay of adverse manufacturing inefficiencies (which in turn may contribute to excessive expenditure in socially unacceptable filthy manufacturing) and financial limitations (which can contribute to

insufficient investment in generally desired clean manufacturing) drives the investment theory's primary outcomes (Badar, 2015, Roy and Rahman, 2022).

Such financial disagreements are factually relevant not just for new firms (an essential component of clean development), but also for established firms seeking to substitute profitable filthy output with more costly environmentally friendly manufacturing technology (Nahar et al., 2022). Mahardhika and Zakiyah (2020) discovered that effect may be had even in the context of an abundance of profit-seeking money. However, in order to have an impact, financial investment funds must forego financial gains (Badar, 2015, Hoang et al., 2021). Rather than adhering to the conventional notion of social obligation, a financial investment fund with an effect, the directive must expressly state the ideal compromise between effect and profitability (Gulati et al., 2022).

Considering these intended compromises, Mahardhika (2020)'s research establishes the profitability composite index (PCI), an investment limit criterion for investment theory impact investing that characterises the best deployment of scarce financial investment resources across diverse companies (Dung et al., 2020, Gualandris et al., 2021). Because the effect refers to averted pollution rather than pollution levels, investments in "sin" businesses are not inherently incompatible with such a requirement (Amentae et al., 2018). When investment theories are imposed, the best way to maximise the effect is to increase a firm's financing capacity under environmentally friendly manufacturing beyond what merely profit-motivated shareholders would supply (Alzghoul et al., 2023, Tadesse and Temesgen, 2019, Karuiru, 2018). When both kinds of investors are present, the rise in clean output (and hence overall surplus) is greater, indicating a complementarity among those seeking financial gain and financial investment capital (Abel et al., 2019).

Mahardhika (2020)'s research incorporates these findings into an investment theory, first concentrating on a single firm's investment choice. The company is controlled by a low-income entrepreneur who has a choice of two manufacturing methods, filthy and clean, both of which provide steady profits to scale up to a certain point and afterwards zero returns (producing a very simple version of diminishing returns to scale) (Eslamloueyan and Jafari, 2019). Although dirty manufacturing has a larger cash return per unit, environmentally friendly manufacturing is socially preferred since it causes lower societal costs. Production with either technology necessitates invisible work on the part of the entrepreneur, therefore

not all cash flows are pledged to investors from abroad (Kurtishi-Kastrati, 2013b, Sangolkar, 2012).

The company may acquire funds from (up to) two different categories of outside shareholders. Financial shareholders have a lot of money and act aggressively. They are solely concerned with financial rewards, as the title implies (Kurtishi-Kastrati, 2013a). In addition to financial rewards, the mission of an investment theory takes into consideration the environmental expenses incurred by businesses (Bitzenis, 2003, Tarekegn et al., 2020, Roko and Opusunju, 2016). There are two types of requirements. The investment theory's objective includes an absolute measure of societal costs created by the enterprises in its portfolio within a tight purpose (Paul and Singh, 2017).

The investment theory's requirement under an expanded mission includes societal costs compared with a hypothetical situation in which the financial investment fund refrains from investing in a certain firm (Akanbi et al., 2016). Mahardhika and Zakiyah (2020) begin with the development of two standard instances. The first scenario is one in which only financial investors are represented. Since financial investors are primarily concerned about financial payoffs, the business owner is more likely to be financially limited during clean production, and the greatest scale that the entrepreneur may attain is greater under filthy manufacturing (Alam and Zulfiqar Ali Shah, 2013, Dabbadi et al., 2021). As an outcome, even if she completely internalises the related inefficiencies and chooses the clean technique under self-financing, the entrepreneur may employ the economically efficient filthy manufacturing technique (Makoni, 2015, Bolo et al., 2011).

The second criterion describes the planner's approach. While the company is not economically limited, strategists can use a Pigouvian tax to accomplish the first-best distribution (Milner, 2014, Parvin et al., 2013). If, on the other hand, the business is financially restricted, a Pigouvian tax alone will not reach the first optimum and must be supplemented by a preliminary incentive (Moran, 2011). Investment theory in this study demonstrates that focusing on investment limits represents the best long-term return on an investment and one cause of inefficiency (externals) while ignoring the other (financial restrictions) decreased efficacy (Balasubramanyam, 2002, Gills et al., 2016). In practice, information disputes and political-economic limits make implementing the planner's proposal challenging for states (Nunnenkamp, 2001).

This drives the primary activities of the study, which look at how a financial investment fund might remedy these shortcomings (Mahardhika and Zakiyah, 2020, Quader, 2012, Aguko, 2014). The investment theory shows that the financial investment fund has an influence (i.e., modifies the company's innovation decision) if just the fund's investment purpose sets a high enough value on a decrease in social expenses that results from the fund's commitment (Gollier and Pouget, 2022). Following this kind of obligation, the financial investment fund internalises the hypothetical societal cost which would accrue if a corporation selected filthy manufacturing when obtaining funding from just financial investors (Alzghoul et al., 2023, Sharma and Upadhayaya, 2020).

This suggests that the financial investment fund is ready to incur an economic penalty on the investments it makes in order to accomplish the desired result (Eslamloueyan and Jafari, 2019). On the other hand, if the financial investment fund adhered to a restrictive purpose that only considered the overall amount of social damage incurred by enterprises in its collection of investments, the corporation would merely invest in companies that are already clean (Chang et al., 2021, Roy and Ghosh, 2022, CHEGE, 2017). In this instance, filthy companies stay dirty and acquire funding from financial investors, resulting in an unaltered optimum distribution relative to the baseline case during which only financial investors are involved (Nahaei et al., 2021).

In the existence of a financial investment fund having a sustainability obligation, the best financing arrangement can be accomplished through releasing two bonds: a green bond acquired by the financial investment fund and a conventional bond acquired by investors in finance (Yang et al., 2019, Ghimire et al., 2019). According to Korsah et al. (2022) and Fonchamnyo et al. (2021), the green bond is released at an increased price on the main market during this deployment. On the other hand, the best funding structure can be accomplished using two shares' classes. The proportion class governing the technological selection gets distributed at a premium in this situation. In both circumstances, the availability of a reasonably priced asset helps investors in finance get to even, reducing the capital commitment required by the financial investment fund (Korsah et al., 2022).

If the business is financially restricted by environmentally friendly technologies and the financial investment fund has a measurable obligation, facilitating an expansion in the quantity of clean output is the best approach for the financial investment fund to accomplish effect (Silwal and Bajracharya, 2021, Müller et al., 2009, Kyeremeh and Dza, 2018). In this

scenario, financial and financial investment capital complement each other: Total surplus (as indicated by the total scale of clean output in our investment theory) is often larger when both categories of investors are represented (Fonchamnyo et al., 2021). The beneficial relationship derives from financial investors' indifference to adverse effects, allowing filthy manufacturing on a bigger scale than the business owner might have accomplished through self-financing (Haddad et al., 2021, Dos Santos et al., 2013).

The danger of dirty production as a result removes the involvement limit for financial investment funds, generating more funding capability (Korsah et al., 2022). Because constraining financial restrictions entail that the amount of (both physically valued) clean production is under the optimal social level, this increased financial capability permits a surplus-enhancing rise in the size of (socially valuable) clean production (Silwal and Bajracharya, 2021, Cerciello et al., 2023). Although financial investment capital has grown significantly in recent years, it is probable that this kind of investment is going to stay limited in comparison to investment capital that merely seeks financial returns (Gilley and Rasheed, 2000).

This begs the issue of how to deploy limited cash effectively. A multi-firm expansion of investment theory gives the Profitability Composite Index, a micro-funded investment standard from the standpoint of a financial investment influence fund (Juma'h and Wood, 2000, Collinson, 2001). Despite traditional profitability indices, the PCI not only represents the (social) return of the initiative being supported, but also reflects the hypothetical social expenses that a corporation would have incurred if the financial investment fund had not invested (Sanchís-Pedregosa et al., 2014). In addition, investment requirements for financial investment funds could incorporate estimations of, for instance, carbon emissions averted if a company implements a cleaner manufacturing method (Edvardsson and Teitsdóttir, 2015, Flint and Golicic, 2009, Muhoro, 2014).

Since averted externalities are important, it may be optimal for the financial investment fund to make investments in companies that incur significant societal costs as soon as the investment achieves an appropriate decrease in those expenses (Solakivi et al., 2011). In contrast, it is more economical for financial investment funds not to make investments in enterprises that are already clean (Lahiri, 2016, Yakovleva et al., 2019). These investments would deplete scarce financial investment resources while having little impact (Asatiani et al., 2019, Mungai, 2010). Since the effect necessitates sacrificing financial rewards, will tiny

individual investors ever contribute to this kind of fund? Our research shows that addressing the issue of free riders is necessary if investors only behave in their own self-interest: Despite the fact that all individual investors are harmed by inefficiencies resulting from business output, they all rely on one another to give up financial rewards (Gomez-Conde, 2015, Vermeulen, 2010).

Furthermore, the financial investment fund cannot draw funds to order to compete with infinitely small and similar participants (Calabrese and Erbetta, 2005). The study then outlines the circumstances in which a financial investment effect fund might develop in balance according to this adverse benchmark (Bustinza et al., 2010, Vermeulen, 2010, Febransyah and Camelia Goni, 2022). This is true when certain private investors are more severely impacted by outside influence or when smaller investors may cooperate (Elango, 2008).

Hence, if individual investors get an emotional value increase from "having performed their part," deviating from merely selfish behaviour, the creation of a financial investment fund with a measurable purpose is fostered (Gilley et al., 2004, Marshall et al., 2015). Lastly, when people are unable to solve the free rider challenge, the investment theory justifies the presence of government-owned funds that are spent on to benefit their constituents (Jyoti and Arora, 2013, Roz, 2021). According to this investment theory, if edible oil companies vigorously fund and spend in the value chain, the profitability of the firms will keep improving. The following section will provide a Capital Asset Price Model.

2.2.3 Capital Asset Price Model

Sharpe (1964) developed the Capital Asset Pricing Model (CAPM), which has become the foundation of contemporary accounting. This model provides a complete approximation of the link that researchers should look for between an asset's risk and its predicted return (Grillini et al., 2019, Scandeliu and Cohen, 2016). This organisation requires two important roles. To begin with, it gives a standard rate of interest for assessing potential investments (Prihastiwi, 2022). Furthermore, this method enables us to formulate accurate assumptions concerning expected return on assets that have yet to be listed on the stock of the business (Gaytan et al., 2022, Müller et al., 2009).

Thus, the CAPM is a collection of forecasts about the balance of anticipated returns on hazardous resources (Mandala et al., 2023). The link between anticipated returns and risks, as

per portfolio theory prescriptions, is compatible with investor behaviour (Davis et al., 2021, Fan, 2022, Verma and Seth, 2011, Bharadwaj, 2019). If this rule is not true, then investors can beat the market (in the sense of obtaining a better Sharpe Ratio) by adopting the portfolio advancement principle, and if enough investors do this, stock prices will change to the point where the CAPM becomes true (Pham, 2023).

A substantial amount of research has been undertaken since this early research to discover other risk variables that impact predicted returns (Agouram et al., 2020, Huang et al., 2022, Sadeghi et al., 2016). In particular, Soewarno and Tjahjadi (2020), Adeyonu et al. (2021) and Luvhengo et al. (2018) demonstrate that introducing a "value" as well as a "size" element (along with the total market) boosts the CAPM's explanatory power dramatically. The Capital Asset Pricing Model significantly contributes to the knowledge of such dynamics influencing asset pricing (ROSDIANA, 2023). Choudhary and Choudhary (2010) and Ben-Horim and Levy (1980) claimed that in the Capital Asset Pricing Model, shareholders should select a set of investments that would minimise their return on variance provided a specified level of anticipated return or maximise the anticipated return provided a particular quantity of variance.

Thus, the approach proposed by Markowitz is known as a "mean-variance model," and it presumes that shareholders are productive, risk-averse, and utility-maximizing investors who choose to indicate on the frontier of productivity (also referred to the minimal variance frontier), and that the portfolio chosen is determined by the investor's risk-return utility function (Hasan et al., 2011, Xue et al., 2017). As a result, investors select portfolios for one purchase term and concentrate on the mean and variance of the investment return, i.e. select a portfolio at the moment of $t-1$ that yields a stochastic (randomly generated) return at period t (Alqisie and Alqurran, 2016, Singh et al., 2022). Hasan et al. (2012), Bhatti and Hanif (2010) and Raza et al. (2011) extend the Markowitz model, which is based on the relationship between risk and return, and propose their own models with two new crucial hypotheses.

The first hypothesis is that shareholders have the capacity to lend whatever amount of cash at the risk-free percentage of return, which is identical for every shareholder and is not dependent on the quantity acquired or loaned (Joshi et al., 2011). The second hypothesis is that every shareholder has homogeneous demands, resulting in equivalent distributions of probabilities regarding potential returns, i.e. a complete agreement on the mean and variance of returns on investments from $t-1$ to t (Setiawan et al., 2021, Verma and Seth, 2010).

The CAPM informs us whether diversifying shareholders' responsibility for resources reduces expected returns while higher costs (Aikman et al., 2019, Ye, 2022). Furthermore, traders with non-diversified holdings are often more inclined to accept uncompensated risks (Zerbib, 2022, Kumar and Singh, 2023). The research presently knows the relationship between estimated returns and risk as a kind of a consequence of the model, notwithstanding its contradictory finding's achievement. How might shareholders organize their investment portfolios and think about topics like performance evaluation and financing decisions in innovative ways? CAPM assists companies in making decisions about alternative investment and financing options, as well as determining which areas of the value chain require how often financing through contrasting funding risks and returns (Putri and Rahyuda, 2020, Geng et al., 2021, Balan et al., 2007). The following equations are utilized to assess the expected return on an item considering its risk:

$$\bar{r}_a = r_t + \beta_a(r_m - r_f)$$

where:

r_f = Risk free rate

β_a = Beta of the security

\bar{r}_m = Expected market return

CAPM's basic understanding is that shareholders are therefore recompensed in two distinct stages: money value in time as well as a risk (Hilorme et al., 2019, Chen et al., 2022b). The hazard level in the equation measures the money's value over time and rewards shareholders for making investments in with any asset through a period (Roy and Kemme, 2020). Contract farming involves lengthy incentives to invest, and risk is the detection and estimating, thus analysing the implications using the CAPM model is crucial (Baima et al., 2021, Liu, 2018, Mulchandani et al., 2023). The following section will provide Contract farming theory.

2.2.4 Contract farming theory

Contract theory has been considerably converted into a theoretical discipline inside conventional accounting since the early 1970s. To build tractable stylized models, contract theorists typically impose reduced assumptions and/or make idealised expectations on the sorts of agreements that are conceivable and how efficiency is managed. Many of the expectations are so problematic that a methodological split has emerged between those who promote "full contracts" and people who support "incomplete contracts" (Tirole, 1999, Zhang

et al., 2022b). A comprehensive contract method has occupied the research but is generally deemed a contract schoolbook model. Traditional uses incorporate reward structures to deal with information asymmetries issues like detrimental selection and moral hazard (Jagri Binpori et al., 2021).

The essential concept of comprehensive contract theory stipulates that a contract regulates all elements of performance under all scenarios in a legal partnership between two parties, and so the objective is to develop an optimum three-state contingency plan (Bijman et al., 2020, Cetindamar et al., 2022, Munizu and Riyadi, 2021). There will be no "unexpected" eventualities since the contractual parties can foresee all relevant circumstances. As a result, all performance obligations of both parties across all contingencies could be clarified in the original deal (Hou and Hou, 2019). Moreover, third-party verification and enforcement of contracts with customers under this contract are possible, and adequate legal consequences occur to dissuade each party from moving away from the agreement benefit of the entire, suggesting that no participant to a full agreement has ex publish authority to diverge from the up front and honest agreement (Dong et al., 2020, Mani et al., 2017, Djatna et al., 2020).

Indeed, the availability of unilateral freedom to diverge from the interim contract is equivalent to imperfect contracting since it incorporates undefined or unlawful consequences (Ba et al., 2019). Contract farming principles, based on certain writers, extend from the 19th century, whenever the technique has been utilized in the U.S for refining commodities like cane sugar as well as apricots, including in Southeast Asia for sugar industry during Japanese colonial law (Smalley, 2013, Jabbour et al., 2020, Nikakhtar and Jianzheng, 2012). Its use eventually extended to various food and fibre industries, primarily in the United States and certain Latin American nations that serve US markets (Ncube, 2020). Contract farming is becoming increasingly common. The Agreement presently controls 36% of the worth of US agricultural output, a rise from 12% in 1969, based on a recent US Agriculture Department study, which found that the preferred method of coordination and control in industries including pigs, commercial poultry, meat, sugarcane, vegetables, as well as handling fruits (Fu et al., 2021, Ogbuke et al., 2022).

Contracts seem to be becoming more popular in developing countries. Contracts govern 75% of poultry production in Brazil. In contrast, there is evidence that firms in Vietnam acquire 90% of cotton as well as milk, 50% of coffee, but also 40% of cereals via contracts (Kanburi Bidzakin et al., 2019). Contracting has also recently emerged in India and numerous African

nations. Contract farming may involve a variety of forms, and certain classifications have been suggested. Macheche (2016) and Masole et al. (2015), as the original founders, utilised the categorization of contracts into three forms, namely, "market specification," "resource providing," as well as "production management," and conducted an empirical study. Growers and purchasers agree on what will be generated (items and qualitative attributes) and what future sales obligations will be made in the first mode (length of time, placement and cost) (Michler and Wu, 2020, Shokouhyar et al., 2020, Hajiesmaeili et al., 2016). The following contract type adds farm input values with the first. Throughout, credit is provided in the form of main components, many with reimbursement on such agricultural delivery of the product, in addition to specifying what to produce and the marketing conditions (Mugwagwa et al., 2019).

Finally, gardeners decided to accept exact science and technology guidelines, including how to generate under production management contracts (Kozhaya, 2020, Jeble et al., 2018, Haryanto and Chang, 2018). Contract farming, irrespective of type, relates to a certain type of supply chain management utilized by corporations to ensure the availability of agricultural commodities, natural resources, and services that match desired quality, volume, geographical, and timeliness requirements (Ray, 2012). Contract farming is considered as one of the different kinds of production systems that enterprises in this environment might participate in (Cohen et al., 2022, Chalmeta and Barqueros-Muñoz, 2021). The major reason for resource underutilization in the edible oil industry is a lack of raw materials, which may be solved by embracing contract farming like an important element of value chain funding (Martiniello, 2021). The following section will provide Porter's Theory of Comparative Advantage.

2.2.5 Porter's Theory of Comparative Advantage

Porter (1985) investigated the Value Chain to recognize cost behaviour and established sources of difference, resulting in the Porter's Value Chain analysis (VCA). VCA focuses on product delivery and support, as well as design, production, and marketing. Following that, Porter's Theory of Comparative Advantage expanded to broaden VCA and link it to success in specific industries (Kharub and Sharma, 2017, Tiwari et al., 2018, Roespinoedji et al., 2019). Porter's Competitive Advantage theory promotes industries that benefit the economy in general because businesses struggle in the marketplaces (Afzal et al., 2019). These businesses need to know how to gain and keep a competitive advantage. Porter's competitive

advantage theory differs between main and secondary activities, according to Cho and Moon (2000), Luvhengo et al. (2015) and Porter's help actions (1985). Inbound logistics, operations, outbound logistics, marketing, sales, and service are the primary activities within core Value Chain. Purchasing, technical development, management of human resources, and the organizational system that supports significance generation within main Value Chain are examples of support activities (Tavoletti and te Velde, 2008, Madhani, 2022).

The theory develops different approaches for the Value Chain to achieve competitive advantage through cost leadership and differentiation (Hunt and Morgan, 1995). Such cross-Value Chain techniques developed the notion that attaining a competitive advantage necessitates controlling the whole Value Chain, along with all relevant aspects (Alexandros and Metaxas, 2016, Sanders, 2014, Katiyar et al., 2015). Customers must be satisfied by fulfilling their requests, which requires a competitive advantage (Beaudreau, 2016). As per Michael Porter, four primary elements drive ability to compete: essential characteristics, market circumstances, connected and industrial farming, strategic leadership, configuration, and competition (Porter, 1986, Panda et al., 2020). Various studies required to fund throughout the value chain deliver a competitive advantage to the firm (Lee and Chan-Olmsted, 2004).

Furthermore, Porter's goal in competitive advantage was to explain whether 'economic systems and countries progress along with success' (Fernando, 2021, Goh, 2021). He was more preoccupied with the country as a whole, and he proposed that "the greatest measure of a country's competitive is country production (Karunaratne et al., 2021)". The emphasis of the research varies from nationwide to a sub-national area or a town in various sections, however the core interest is with the reasons which render individuals from one location wealthier compared to those in other (Lasalewo et al., 2016, Kurniawan et al., 2018, Tirtayasa and Mukmin, 2017). Porter advanced two fundamental hypotheses after conducting field investigations in ten nations (the focus on location is crucial) (Nengsih et al., 2021). The first of them is that the 'competitive advantage' of a nation's industries is defined by four broad qualities of the country the location, which is known as the 'home foundation' (Eravia and Handayani, 2015, Najib, 2013, Chong and Ali, 2022).

The common sides of the 'national diamond' are as follows: component factors; market circumstances (primary activities); linked and support activities industries; and firm characteristics, structure, with competition (Amelia et al., 2019). In terms of raw material

circumstances, an effective company depends on an 'adequate' quantity of variables on its place of origin basis (Wihardja, 2016, Andriyanto et al., 2019, Abdelfattah et al., 2023). Components must be specified at higher levels than the trinity of land, workers, and capital in order to be effective in predicting efficiency, and the most beneficial distinction may be quite subtle (Ariwibowo, 2018, Roostika et al., 2015). In addition, broad differences are made among 'basic' components such as the environment and manual labour and 'advanced' components that must be developed, such as computer technicians or the communications industry facilities; in addition to 'generalised' factors that can be used in a variety of sectors and 'specialized' components that cannot (Öz, 2019, Porter, 2011).

Although a sufficient supply of a component may benefit the sector, Denmark's achievement in furnishings indicates a pool of graduate furnishings designers with 'selective component constraints' in the manner of shortages and increased expenses for basic variables may also have a motivating impact (Davies and Ellis, 2000, Ketels, 2006, Guritno et al., 2015). (Italy's costly capital and power, as well as an absence of regional material, pushed its steel makers to create mini-steel mill technological advances, which is how they established worldwide specialists).

Market situations on a country of origin basis have three effects on a sector's capacity to contend nationally (Snowdon and Stonehouse, 2006, Konsolas, 2017). Initially, an industry will benefit from specific markets that are of greater significance in its home country than anywhere else (Swedish companies contribute in the field of high-voltage power transportation across kilometres due to their knowledge of assisting far removed and heavy on energy aluminium and oil sectors) (L. Wilson et al., 2014). Secondly, demanding domestic buyers put hardship on enterprises to fulfil rigorous requirements (Japanese customers appreciate saving room, giving Japan a competitive advantage in small items; America's immense distances have contributed to its competitive edge in extremely huge truck motors) (Bakan and Doğan, 2012, Davies and Ellis, 2000, Pono and Munizu, 2021).

Thirdly, a country's sectors benefit when domestic purchasers predict the wants of purchasers in different countries, providing it a head start on determining how to fulfil those requirements. Before the price of energy grew more relevant abroad, Japanese purchasers and government officials encouraged manufacturers to produce resource-saving goods; Americans' need for speed has expanded overseas, providing them with a competitive edge when it comes to fast food (Aunyawong et al., 2020). In every one of these cases, the

dimension of the national marketplace is less essential than the degree to which it pushes enterprises to come up with new ideas (Smit, 2010). A big country's marketplace that fits all three characteristics will be highly supportive of worldwide competitiveness; while an extensive marketplace that does not may merely inspire enterprises to concentrate on their effortless domestic consumers, results in immobility and incapacity to promote themselves overseas (Yilmaz, 2002, Mekić and Mekić, 2014, Riyadi et al., 2021).

The abundance of the nation's market may encourage enterprises to expand internationally, requiring them to be competitive in the global market (Karaalp and Yilmaz, 2012). The third side of the 'national diamond' is made up of associated and supporting activities sectors (Yetton et al., 1992). If one can identify 'clusters' of companies in the foundation of the simplicity that are connected to one another by means of horizontal as well as vertical connections within providing and purchasing industries or prevalent consumers, distribution routes, or methods, the country's companies will be more prepared to contend internationally (Molendowski and Žmuda, 2013, Arslan and Tathdil, 2012). Denmark has a number of industries in pharmaceuticals and household goods, Sweden has a concentration in paper-making, and Germany has concentrations in chemicals, metal-working, shipping, and publishing (Iqbal et al., 2015, Hosein Rezazadeh Mehrizi and Pakneiat, 2008).

The fourth corner of the diamond is concerned with the tactics and arrangements of their hometown enterprises, as well as the degree to which they compete with one another (Ahman et al., 2020). If the country's economic climate is encouraged and owned by families of small businesses, as it does in Italy, the country will be successful in sectors that do not benefit from considerable economies to scale (Taufik, 2007, Habaradas, 2008, Riyadi et al., 2021). If, like in Germany, CEOs prefer to have backgrounds in engineering, their competitive power will be focused on industries with a strong technological component (Sazegar et al., 2018, Chamsuk et al., 2015). Owing to the national leadership and capital-raising systems in location, the country will have a tendency to be profitable in developing sectors with rapid returns if enterprises' ambitions are short-term in nature. Long-term objectives will be more appropriate for sectors that demand ongoing maintenance (Kamalrulzaman et al., 2021).

The need for competitiveness among local enterprises at their own ground is a vital aspect of this area of the field (de Miranda et al., 2021). In a fundamental shift regarding an additional 'Austrian' and dynamic understanding of competitiveness, Porter presents regional conflict as the primary driver for creativity and, consequently, achievement in international

competitiveness (Kharub and Sharma, 2017, Usman and Liu, 2015, Amran and Yose, 2018). Because locally owned businesses are particularly apparent to one another, accomplishment by one demonstrates to the others that economic growth is achievable in the local context (Yusr et al., 2022, Bakan and Doğan, 2012). The factor that motivates the hunt for globally competitive items and practices is competition amongst those in close proximity to one another (Shafiq et al., 2019b). Although the diamond is the primary concern of the investigation, two additional aspects, 'chance' and 'governance,' are taken into account (Alnafrah and Zeno, 2019, Ghazinoory and Ghazinoory, 2008). The first category comprises unforeseeable technical gaps, conflicts, and other unforeseen circumstances (Ju and Sohn, 2014).

These are not elements of the diamond themselves, but they can change the circumstances inside it (Yusuf and Trondsen, 2013). In a similar way, government has a role to fulfil, but just when impacting the diamond's edges. Proactive industrial strategy, according to Porter, has no constructive function (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020). Following discovering support for the aforementioned structure in case studies of four sectors of manufacturing, everyone in an alternate nation and the field of services, competitive advantage moves on to investigate the countries that were prosperous during the beginning of the post-war a time, the achievement stories of the 1970s and 1980s, and the current situations of the United States and the United Kingdom (Azizi and Moradi, 2019, Sohn et al., 2016). These variables result in Porter's second essential argument for competitive advantage, which is that nations typically go by means of a few periods in their manufacturing growth, proceeding from 'factor-driven' the platform to 'investment-driven' the platform, to the 'innovation-driven' the platform, and ultimately to 'wealth-driven' stage (Shafiq et al., 2018, Setyanti, 2017).

The sectors that succeed in achieving global competitiveness at every one of these phases are those with competitive approaches suited for the country's level of progress (Zamora-Torres, 2014, Gogodze, 2016). Organisations competed on a foundation of low expenses on a factor-driven platform, which stems from cheap labour and cheap-cost supplies of resources (Razavi et al., 2012, Chamsuk et al., 2017). Wages are poor, and the country is not affluent. Competitive advantage is determined entirely by factor circumstances (Shafiq et al., 2019a). Massive expenditures are invested in manufacturing and infrastructure during the second stage, and fresh sectors arise (Lianto et al., 2022, Barrichello et al., 2020, Utami, 2015). Profitable industries fight on cost, but they do it with large-scale economies and cutting-edge

manufacturing practices adapted to developed goods, as opposed to cheap salaries (Taranenko, 2013).

Competitive advantage is built on three pillars: factor circumstances, demand circumstances, and company structure, and competition. The level of life has risen but remains quite poor (Razavi et al., 2011, Vares et al., 2011). According to Porter, for a country to attain growth, it must get to the improvement-driven platform, where competitiveness is based on both innovations in products and processes (Vesal et al., 2013). At this point, the country is powerful on each of the four sides of the diamond. Success is attained and sustained unless the country enters the wealth-driven period, during which it basically exists in past generations and declines (Ivanová and Čepel, 2018, Sohn et al., 2016, Tanjung and Wahyudi, 2019). Companies are governed by guardians rather than innovators during the wealth-driven period. Firms want policy government protections because they believe in the importance of competitiveness (Wahyudi, 2021).

As individuals' drive for creative thinking declines, they grow more engaged in non-economic aims, and the country's objectives become more preoccupied with distributing income rather than generating wealth (Roy, 2018, Oturakci, 2023). Competitive advantage combines a plethora of actual experiences from a wide range of sectors and nations, while situating such instances within theoretical frameworks derived from business strategy, economic evaluation of commerce and growth, and the study of economic geography (Krstić et al., 2016b, Rajput et al., 2012). Its scale is enormous, making any effort at summarization appear sudden and sometimes churlish. Nonetheless, the core of competitive advantage, as well as the foundation for both its attractiveness and its flaws, can be found in five basic premises (Garcia-Ochoa Mayor et al., 2012, Markovic, 2019).

The first (in the context of rational importance rather than competitive advantage sequencing) is that the country must enter an innovation-driven period of growth in order to accomplish and maintain affluence. Very similar to this is the second assumption, that is that global achievement cannot be predicated on competitive advantage generated by a variety of fundamental causes (Necadova and Scholleova, 2012, YIIDIZ, 2016). It must alternatively be based on the 'upgrading' of a country's industries via inventiveness, differentiated products, advertisement, and promotion (Shvindina et al., 2022). The third claim is that a country's success can be measured by the achievements of the companies that call it home (Krstić et al., 2016a, Farinha et al., 2018).

The fourth is that in order to succeed in long-term success, such enterprises need to exist inside 'clusters' of interconnected sectors with deep roots in the 'home base' country (Nababan, 2019, Usman and Liu, 2015). The fifth assumption is that outbound investment from abroad reflects the sector's competitive advantage and the country's wealth, whereas outside investment indicates a comparative vulnerability (Davó et al., 2011, Cinicioglu et al., 2017). While these principles sound easy, they have resulted in a convoluted and confusing dispute in which Porter, his detractors, and his admirers fight about various issues at various stages on changing logical premises (Herman, 2018, Kostoska and Hristoski, 2017). The Porter value chain was used to collect the research's independent variables. The following section will provide Inventory Control Using Pareto's Law.

2.2.6 Inventory Control Using Pareto's Law

Pareto analysis is a technique of categorising commodities, facilities, or operations based on their value (Rusanescu, 2014, Stroumpoulis et al., 2021). Pareto's law has been used in a variety of industries, together with inventory control, in which it serves as a cornerstone for the ABC test (Hoang, 2021). The research looks at Pareto's Law on Inventory Control methods, also recognized as the Pareto Analysis Theory (ABC inventory categorization) for Managing inventory, in analysing inventory system Value Chain and how it contributes to profitability growth (Tanwari et al., 2000, Yiu et al., 2021, Rizki et al., 2019). Whenever applied to Value Chain management, Pareto Analysis Theory offers a framework for resource management procedures that specify inventory control by categorizing stock levels into the proper categories (A, B, and C) in the annual payment of the overall supply chain (Gallino et al., 2017). The theory employs the conventional quantity of economic order (QEO) model to guarantee that the distributor obtains a much more cost-effective amount when procuring inventory data (Onwubolu and Dube, 2006, Yiu et al., 2021).

The QEO model considers the exchange among purchasing expense and storage expense once refilling product inventories (Muller, 2019). By evaluating the worth of every type of inventory, the Pareto Analysis theory puts inventory control at the core of maintaining the firm's profitability (Huh et al., 2011, Baah and Jin, 2019). This theory supports the company in calculating the financial commitment of each inventory system and in preserving the optimal number, leading to the highest value (Gunarsih and Ismawati, 2018). Working capital management was employed as a key function in the study to investigate how it contributes to

value chain financing via inventory, creditors, lenders, receivables, and accrued costs by diverse value chain participants (Aikman et al., 2019).

This study has been motivated by investment theory, theory of risk and contract farming theory. Benjamin and Dodd (1928) created value investing for the extremely first time. It was further researched by economic theorists along the lines of Keynes (1936) and Hayek (1939) who studied it and concentrated on cash investment and work from the view of a firm. In addition, Keynes (1936) and Spies (2011) claimed that no matter how tempting the average return, investment will not occur until the risk of loss is acceptable. The change in capital stock over time is defined as investment. However, through his "Nature of finance and Income" as well as earlier actions "Theory of Interest," he developed one of the earliest investment theories (Parikh and Weingast, 1997, Adhikari, 2018).

While his idea was rudimentary and subject to a variety of presumptions, Keynes (1936) constructed an overview of the investment barrier. This investment frontier displays the optimal return for an investment across a particular period of time, and it serves as the foundation for the present-day more common investment border models (Parikh and Weingast, 1997, Adhikari, 2018). Investment choices, as studied by the economists described previously, involve the choice of whether or not to build a new manufacturing facility, update equipment, and so on, primarily from a production standpoint. It was discovered that the pace of investment is influenced by two distinct variables: anticipated return and what is viewed as risk.

Credibility can effectively decide the extent to which an investment will be considered for financial choices. It makes no difference how appealing the predicted return is; investment will not take place until the risk of failures is acceptable (Myers, 2004). According to these theories, the major reason for resource underutilization in the edible oil industry is a lack of raw materials, which may be solved by embracing contract farming like an important element of value chain funding. Based in Porter, for a country to attain growth, it must get to the improvement-driven the platform, where competitiveness is based on both innovations in products and processes. Furthermore, if Edible oil manufacturing companies proactively financed along with invest in the value chain, the profitability of these companies will increase.

2.3 Chapter Summary

The chapter provided a theoretical literature review. It began by providing value chain financing and profitability theories such the Risk Theory, in which investment rates have been influenced by two factors: expected return and perceived risk. Confidence has a huge impact on whether a financial decision based on an investment will be made. The Contract Farming Theory claimed that the major reason for resource underutilization in the edible oil industry is lack of raw materials, which may be solved by embracing contract farming like an important element of value chain funding. According to this investment theory, if edible oil companies vigorously fund and spend in the value chain, the profitability of the firms will keep improving. In addition, Porter's Theory of Comparative Advantage promotes industries to benefit the economy in general because businesses struggle in marketplaces. Other technical concepts covered include: The Capital Asset Price Method and Inventory Control Using Pareto's Law including Using. Several aspects have been found in the theoretical literature for value chain financing: expected return and perceived risk, nature of finance and income, value and a size, full contracts, and incomplete contracts. The following section will provide Empirical and Conceptual Literature Review.

CHAPTER THREE

CONCEPTUAL AND EMPIRICAL LITERATURE REVIEW

3.1 Introduction

This chapter addresses the empirical and conceptual literature review on value chain financing as well as firm characteristics in the edible oil industry in South Africa. As part of the literature review, a conceptual model describing its link amongst variables to every target was created, which was then supplemented with study hypotheses. This chapter examines many previous studies in South Africa and other countries that were deemed to be valuable in value chain and relevant. In addition, the chapter discusses the history of value chain and the relationship between value chain and comparative advantage. Furthermore, the following section will be divided into four categories: the impact of Financing Value Chain strategies on profitability, the effect of Financing in the Value Chain practices on profitability, the effect of Inventory Management Value Chain on profitability, and the effect of Value Chain and profitability. The following section will provide Value chain for Competitive advantage.

3.2. Value chain for Competitive advantage

Competitive advantage contributes to an understanding of the value chain's position in the accounting environment, increasing a company's ability to compete in a certain industry (Hutorov et al., 2018). When applied to Value Chain, Porter's Theory of Competitive Advantage simply advocates for appropriate Value Chain approaches and sensible practices to increase profitability (Porter, 1990, Liu et al., 2021). Production of goods and services should prioritise those with the lowest opportunity cost (Salvatore, 2002). Firms should adopt policies that result in high-quality products being sold at high prices, according to the Competitive Advantage Theory (Chen, 2019, Oliveira et al., 2023, Strakova et al., 2021). Retailers target four key aims through supply change management, which results in reduced operational costs, cheaper operating costs, lower advertising costs, and reduced unit costs (Viskari et al., 2012).

This should help enhance profitability and connect small farmers to businesses, allowing them to travel from local to provincial, national, and even worldwide markets (Mofolo, 2018). Understanding Value Chain Financing, according to Gill et al. (2021) and Busayo Oluwatayo et al. (2016) may boost the total efficacy of those supplying and requesting food

production financing along the value chain. This could enhance the efficiency and dependability of food production value chain financing by recognizing internal funding requirements for reinforcing the chain, customizing investment instruments to the desires of the chain's participants, lowering financial management fees across immediate special offer instalments and financial provision of services, including using value chain interconnections and understanding of the chain to minimize risks of the chain and its associates (Islam et al., 2012, Horsfall and Mac-Kingsley, 2018). The possibilities and demand for value chain financing have become increasingly obvious as agriculture modernizes via increased integration and dependency (Glenday et al., 2015). To ascertain if agricultural value chain financing in edible oil industrial firms in South Africa is genuine, this research provided value chain knowledge and information as such a helpful predictor variable that impacts the accessibility of funding in the value chain (Isiaka et al., 2023, Mohan and Sequeira, 2012).

The value chain's inadequate finances persist to become a crucial obstacle to environmental sustainability as well as the improvement of quality of life (Bui, 2020). The ability of different value chain participants to compete and profit from the value chain is constrained by a number of financial restrictions and differences in access and cost (Manova, 2014, Zhang, 2022). The concern is whether the appropriate quantity of funding may be obtained in the value chain, especially when financial unpredictability reduces available resources while increasing anxiety and scrutiny of risk (Manova et al., 2012). The increased concentration of control in the agriculture sector has also altered the climate for Value Chain financing (Lind et al., 2012, Surana et al., 2020). The following section will provide Value chain for Competitive advantage analysis.

3.2.1 Value chain for Competitive Advantage analysis

The majority of companies identify their core competencies as producing goods or providing activities. The goods and services that are produced are more essential to these organisations than any one phase in their value chain (Jahari et al., 2018, Kaplinsky and Farooki, 2010). Other businesses, on the other hand, are extremely mindful of the commercial significance of various operations throughout their value chain (Swamy and Dharani, 2016). They flourish by focusing on certain tasks that enable them to maximise the value chain for their clients and themselves (Jahari et al., 2018, Antràs, 2020). The value chain method is used by these Edible oil manufacturing companies to determine which categories, ways of distributing, cost

points, differentiated marketing suggestions, and value chain topologies will provide them with the most powerful competitive advantage (Ndumbe et al., 2019).

The value chain method assists organisations in assessing competitive advantage using several different forms of evaluation:

- ❖ Internal cost analysis—to decide the causes of profitability along with the corresponding expense sets of internal production value procedures.
- ❖ Internal differentiating analysis—to comprehend the places of differentiating (which incorporates the costs) inside the internal production value procedures, along with
- ❖ Straight connection analysis—to understand the connection among internal value-creating processes. These approaches cannot be incompatible.

Instead, organisations commence by concentrating on what they do internally and eventually broaden their attention by considering their company's position in the marketplace. The value chain method for measuring competitive advantage is an essential component of strategic thinking (Ndumbe et al., 2019). Value chain analysis and similar strategy development is a continual procedure for obtaining, assessing, and disseminating data to support company decisions to be made (Achoja, 2019). The evaluation, by inspiring conceptualization, assists management in seeing the firm's growth and implementing actions to acquire a competitive advantage (Mofolo, 2018). The next section will provide internal cost analysis.

3.2.2 Internal Cost Analysis

The value chain technique is used by organisations to uncover ways to increase profitability and to determine the cost of their own internal procedures and operations. Internal cost analysis consists of stages that include:

1. Identify the company's production value procedures;
2. Establishing the percentage of the overall expense of the good or assistance attributed to every value creation procedure;
3. Cost driving associated with the procedure;
4. Identifying connections between procedures; and
5. Examine the possibilities for gaining a cost benefit.

1. Identify the company's production value procedures

A business should minimise its operational organisation in order to discover its activities that generate value chain. Many major corporations continue to organise themselves for costs, revenue, earnings, and capital hubs (Kouwenhoven et al., 2012). These, along with other organisational sections that are widely employed for management purposes that include sections, activities, subdivisions, or independent businesses, were not particularly successful in determining value creation activities (Islam et al., 2012). Employing a process-oriented approach necessitates an upward overview of the organisation, commencing with manufacturing suppliers and concluding with outcomes and consumers (Randall and Farris, 2009, Mazzawi and Alawamleh, 2013). Procedures are defined and measurable groups of actions that are meant to deliver a certain result for a specific consumer or marketplace.

Emphasising the procedure involves emphasising how labour is carried out inside the organisation rather than the way it is performed (Oberholster et al., 2015). Although a company's corporate hierarchy often defines roles and management links, its procedure system demonstrates how the company provides value chain to customers (Islam et al., 2012). Although it is impossible to assess or enhance the structure of hierarchy in any ultimate good sense, procedures expose themselves to cost, duration, quality of product, and client fulfilment measurements.

Since procedures frequently transcend functional limits, identifying procedure borders has frequently become an easy undertaking (Cattaneo et al., 2010). People involved in an organization's particular procedure may have diverse perspectives on it. The brand-new product manufacturing procedure, for instance, might begin with advertising questionnaires or possibly with the transmission of details about the product from advertising to manufacturing technology (Mofolo, 2018). The procedure may conclude with the publication of the product's requirements or with the dispatch of the initially placed order.

Processes borders need to be established regardless of how operations are organised. Choosing a suitable activity classification may be anything but simple (Kafuku et al., 2010). The objective is to categorise operations by value chain, based on how they add to the company's competitive advantage. The oil fish industry in USA, for instance, tasked its advertising division with creating along with deploying the company's SABRE computerised scheduling process (Kafuku and Mbarawa (2010). As an outcome, rival fish oil companies scrambled to replicate the technique, giving them a huge competitive advantage, which is

extremely powerful. The oil fish industry in USA has fallen short of the oil industry's established foundation of oil industry facilities.

2. Establishing a percentage of the overall cost of goods or assistance attributed to every value creation procedure.

The next phase in internal cost analysis is to locate or allocate costs and resources towards every recognised production value chain operation. Though organisations save internal documentation and cost financial data, the data might not be consistent with their procedures (Jansen, 2016). Organisations may need to categorise their information or undertake cost assessments to allocate costs and resources to each activity. Instead of doing a full cost assessment, an organisation may allocate costs to their activities that produce value chain using basic estimations (Chumaidiyah, 2017). A full-cost method gives the most accurate assessment of life-cycle costs when analysing an organization's producing value chain procedure's competitive cost advantage.

Lacking this strategy, a company's concerns may be abandoning research and development expenditures in favour of immediate revenues (Menicucci, 2018). For instance, a company's advantages in manufacturing labour by employing adaptable production fish oil and automated production may be negated by the high cost of hardware and software programming. As a component of the total cost, computer systems assistance expenditures ought to be assigned to the production value operations which profitability from the latest technologies (Nyiatagher and Ocholi, 2015). The complete utilisation of the operation's capability or practicable potential is usually employed to estimate the whole cost of any value-creating operation.

Capability predictions can be obtained from managers of buildings and technology suppliers. If the entire capacity predictions vary substantially, a business might run the analysis using the outcome's costs to analyse the responsiveness of the study to the various capacities' metrics (Dirman, 2020). When costs fluctuate considerably, businesses should gather additional details to make a more accurate long-term financial projection. While several of the listed activities could prove useful in gaining a competitive advantage, different production value procedures could have different implications on the costs of a company or goods (El Baz and Ruel, 2021, Ruel and El Baz, 2023). Organisations that offer the production of oil seeds, for instance, are probably concerned with customer service following the sale. However, for manufacturers of detailed shops and rapid connectivity customers,

support for clients is an essential component of their competitive approach (Schmidhuber et al., 2022).

3. Identify the cost driving associated with the procedure.

The next phase of internal cost analysis is to determine the cost drivers and factors associated with each value creation activity. Identifying what variables influence costs allows a company to prioritise its cost-cutting strategies (Jahari et al., 2017, Moosavi and Hosseini, 2021). A corporation ought to be aware of its opponents' cost elements for the purpose of establishing its comparative cost advantage. Although accounting programmes for management may indicate the total cost of each value-creating activity, they could fail to expose the underlying reasons or variables that contribute to the large particular costs. Employing a single production or quantity metric to allocate costs (e.g., units, labour days, revenue dollars) is sometimes inaccurate (Muller, 2022, Ozdemir et al., 2022). Having many costs to consider provides more meaningful knowledge. Fundamental cost generators are organisational characteristics that influence the financial infrastructure that drives the product of company costs (Mazenda et al., 2022, Aman and Seuring, 2023).

These drivers of cost represent a company's long-term actions, which determine the company's position within its sector and competition. The fundamental cost factors may shift. Larger oil firms, for instance, benefit from advantages of size that cut their individual costs to be costly (Muller, 2022, Juan et al., 2022). The oil industry in the Free State of South Africa, for example, has used its knowledge curve to reduce the cost of its life-cycle products. However, as proven by the achievement of oil firms' mini-oil-seed approach, higher is not always greater (Larsson, 2018, Bag et al., 2022). Executional cost determinants reflect a company's management judgements on how to effectively use its assets in order to accomplish its desired outcomes.

Managerial policies, techniques, and environments all influence these cost factors. The effectiveness with which a company uses its people and physical assets determines its probability of achievement or disappointment (Swamy and Dharani (2016). For instance, employee ownership and flattening organisations are assisting many businesses in their quest to develop continuously. Minimal fundamental and executional cost factors are able to be implemented in the cost analysis of the value chain using present accounting procedures (Breyer et al., 2015, Roubík et al., 2022). Nevertheless, these factors that affect costs serve as an appropriate cautionary tale of the tactical choices that businesses have to choose, or at

least attempt to understand that when creating their value-generating strategies (Kumatongo and Muzata, 2021, Shen and Sun, 2023). Organisations are progressively utilising costing methods based on actions to understand the resources/costs required by the procedures with steps utilised in the delivery of their products and offerings (Goswami et al., 2011, Ho and Burny, 2016).

4. Identifying connections among procedures

Different value actions are distinct and distinctive, but they are not always autonomous. The majority of operations in a value chain are interrelated. Companies must not neglect value chain links involving interconnected operations, which might affect the overall cost (Boholm and Corvellec, 2011, Rukasha et al., 2021). Cost-cutting initiatives in one value chain procedure, for instance, might decrease or raise costs and/or income in additional steps. The cost of moving materials and goods between one value chain activity to a different one rises (Daykin et al., 1993, Nchanji et al., 2021). By minimising such transfers, the costs of buying goods, invoice generation, and other administrative operations are reduced. Tandem Systems reduced its costs for ordering goods, invoice generation, and other operations by working with its vendors to build a precise scanning workflow (Liang et al., 2019, Ranathilaka et al., 2019).

Golden fry reduced costs on lower manufacturing and client relations by upgrading its initial development and quality procedures for sunflower oil. Ukraine has cut its delivery cost in half in two years because of the war (Sachlas et al., 2019, Ranathilaka et al., 2018). These links or interconnections between operations might be as essential as the operations individually as the basis for competitive advantage. These connections can give companies a durable competitive advantage since their nuanced, complicated structure renders it challenging to reproduce with opponents (Echenique, 2020, CHEGE, 2017).

5. Examine the possibilities for gaining a cost benefit.

Gold fry saved money on downstream manufacturing and relations with consumers by upgrading its initial delivery as well as quality procedures for sunflower oil. Ukraine has cut its delivery cost in half in two years because of the war (Sjöberg, 2020, Fonsah and Amin, 2017). These links or connections between operations might be as essential as the operations individually as the basis for competitive advantage. These connections could offer long-term financial benefits since their nuanced, complicated structure contributes to their challenge to reproduction in gold fry companies (Luvhengo et al., 2018, Fonsah et al., 2018). Several

organisations cut costs throughout the entire organisation (for example, "get rid of 10% from each division").

This approach frequently fails since these companies do not lower their costs intelligently. Across-the-board, cutting costs frequently misinterpret the fundamental issue (Benito et al., 2019, Sharma et al., 2021). Lowering processing costs for inputs frequently entails obtaining reduced salaries (like Gold fry along with sunflower oil did in the mid-2000s at Covid 19 pandemic) or shifting manufacturing to nations with fewer labour costs. Manufacturers may be ready to lower their pricing if the firm deals with long-term agreements, as Wilmar does with its cooking oil production (Tiebout, 1956, Naveen et al., 2015). Organisations additionally utilise buyer-seller collaborations to obtain price, reliability, a period of time adaptability, shipment, and technological benefits (Badar, 2015, Roy and Rahman, 2022).

The South African shipping company (SASCO) outsources its call centres. During the course of the procedure, the corporation reduced 65 client service centres representing 5,000 employments to eight to ten service centres handled by subcontractors. SASCO fulfillment centre professionals are paid R100 to R120 per hour, compared to subcontractors who are given R60.5 to R80 hourly (Alzghoul et al., 2023, Tadesse and Temesgen, 2019, Karuiru, 2018). Certain procedures may have more room for development compared to others as well. Corporations should prioritise their value-creating operations with the goal of maximizing the greatest return out of its cost-cutting programmes (Kurtishi-Kastrati, 2013b, Sangolkar, 2012). According to guidelines, 20% of value-creating activities constitute 80% of overall costs.

The speciality braking shop was capable of lowering its costs by 21% by concentrating on cost factors that included size, level of expertise, salaries, and facility utilisation concern about financial payoffs, the business owner is more probable to be financially limited during clean production, and the greatest scale that the entrepreneurial may attain is greater under filthy manufacturing (Alam and Zulfiqar Ali Shah, 2013, Dabbadi et al., 2021). The costs of materials were cut by the greatest proportion. Organisations may cut costs by comparing themselves to the most effective practices, evaluation, and redesigning company procedures. The cost quality measure emphasises that minimising processes and substance waste saves money and increases the happiness of consumers (Milner, 2014, Parvin et al., 2013). The next section will give the internal differences analysis.

3.2.3 Internal differentiating analysis

Organisations frequently utilise value chain methods to explore opportunities for building and maintaining exceptional competitiveness. The primary concern in this case is on the consumer's impression of the value of the items and activities (Mahardhika and Zakiyah, 2020, Quader, 2012, Aguko, 2014). Internal differentiating analysis, like internal cost analysis, demands organisations begin by determining their production value activities and major cost factors (Alzghoul et al., 2023, Sharma and Upadhayaya, 2020). The researchers are then prepared to conduct a differentiating analysis utilising the parameters outlined below:

1. Assess the value-creating activities of consumers;
2. Assess differentiating methods for increasing the value of clients; and
3. Decide on the optimal long-term approach for differentiating.

1. Assess the value-creating activities of consumers

In order to use an improved differentiating approach, the procedures employed by an organisation must be better than its consumers' (Milner, 2014, Parvin et al., 2013). As a result, a company should thoroughly examine its clients' value-creation activities in slow development, poor earnings, and strong rivalry characterised the material carrier sector (Mearig et al. 2021). CCS has had success using an innovative approach, which is unusual for a commodity-type firm. Cooking oil - and beverage-related canning facilities and other clients represented 80% of the kinds of metal barrels manufactured.

2. Assess differentiating methods for increasing the value of clients

An essential component for effective diversification in the value-chain strategy is identifying the value-creating activities that differentiate the goods and services that a business offers from those of its rivals (Alzghoul et al., 2023, Sharma and Upadhayaya, 2020). This difference emphasises the importance of client value. The value of clients may be increased by distinctiveness in the following manners:

- ❖ Product characteristics that are both aesthetically pleasing and technologically outstanding. For instance, the Sunflower oil did this effectively to feed so many years that the company's brand ended up being associated with the best possible oil standard of quality—people might refer to what it sold as being the "Sunflower" within its category.

- ❖ Advertising channels—that offer the ideal combination of adaptability, ease of use, and diversity, along with knowledge. Procter & Gamble greatly cut total order-entry and fulfilment costs between the two corporations by deploying order-entry systems in Wal-Mart shops. By offering this one-of-a-kind solution to a client, P&G was able to increase its promptly shipment of purchased items.
- ❖ Assistance and maintenance-suited to the expertise and immediacy of the consumer and route participant. Exceptional consumer services as well as elevated suppliers switch expenses caused by exclusive design along with production of cooking oil to establish and sustain an influential position in the mainframe machine business for a number of years. Until the beginning of the 1980s, conservative clients were hesitant to make major investments and transition investments in major production of cooking oil equipment without the supplier's solid promise of dependability.
- ❖ On crucial considerations, branding or impression orientation adds higher attractiveness to the organization's products. For several decades, the Golden Fry Company's excellent quality has enabled it to achieve a substantial price hike in the highly volatile financial institution market—a preference which indicates, in its production, the "privileged status of membership"; along with
- ❖ Prices - including either net buying prices as well as the cost money saved that is accessible to the consumer by means of their utilisation of the cooking oil or service in question.

3. Decide on the optimal long-term approach for differentiating.

To demonstrate great distinction, a company must use the optimum combination of capabilities to provide a value chain for its consumers. To prioritise its procedures as factors contributing to distinction, a firm must first evaluate which aspects of every procedure provide benefit to consumers (Silwal and Bajracharya, 2021, Müller et al., 2009, Kyeremeh and Dza, 2018). The more distinct the company's assets and talents, the greater and more permanent its competitive advantage. CCS additionally appeared eager to spend more time and money on customising containers made of plastic for consumers, as well as improving its response to consumers' scheduling and manufacturing requirements (Juma'h and Wood,

2000, Collinson, 2001). The benefits of good diversification are obvious, as are the costs of failing to differentiate. Purolator Delivery was larger than Federal Express when it was founded in 1980; currently, the Converse is accurate (Edvardsson and Teitsdóttir, 2015, Flint and Golicic, 2009, Muhoro, 2014). The next section will provide Horizontal connection analysis.

3.2.4 Horizontal connection analysis

The connection between value-creating activities is not terminated by the actions of a corporation. Connections amongst an organization's producing value operations along with those of its partners, distributors, or consumers may provide the most significant competitive advantage (Lahiri, 2016, Yakovleva et al., 2019). Horizontal connection analysis is an expanded form of internal costing and distinguishing analysis that encompasses everything in both directions in order of value-creating activities in the business sector (Asatiani et al., 2019, Mungai, 2010). Horizontal connection analysis takes into account all linkages from the raw material origin through the good's discharge and possible recovery.

Horizontal links are important, and according to Shank and Govindarajan (2021): "...gaining and maintaining a competitive advantage necessitates that an organisation comprehend the whole value delivery process, not just the component of the value chain in which it engages." Profitability exists between both vendors and consumers, as well as between manufacturers and consumers, therefore, are critical to comprehending the company's cost/differentiation posture since final consumers ultimately compensate for all the profitability throughout the whole value chain (Lahiri, 2016, Yakovleva et al., 2019). Horizontal connectivity can disclose which actions are the greatest (and lowest) and crucial to gaining (or losing) a competitive advantage (or unfavourable). Fish Oil Ocean Group, for instance, has long thrived as tiny, demanding labour assemblers (Gomez-Conde, 2015, Vermeulen, 2010).

The 1918s saw the introduction of inexpensive, manufactured timepieces. Ocean Group in South Africa reacted by reforming their sector in order to achieve efficiencies of magnitude comparable to their emerging rivals abroad. The Ocean Group, on the other hand, didn't acknowledge that their key issue was not one of production (Bustinza et al., 2010, Vermeulen, 2010, Febransyah and Camelia Goni, 2022). The group's operations contributed just a small fraction of the ultimate of the item's value chain. Support activities in output logistics and service, along with marketing and sales, have become increasingly important. Aside from becoming capable of producing watches at an affordable price, the Ocean Group

had to reduce shipping and servicing costs (Gilley et al., 2004, Marshall et al., 2015). They created immensely produced fish oil, in the sense that in addition to being affordable, it was departmental stores for bargain homes. The following stages are included in the horizontal connection analysis:

- I. Define the value chain of the sector and allocate costs, profits, and investments to value-creating activities.
- II. Analyse the financial factors for each value-creating activity; along with
- III. Assess the potential for long-term competitive advantage in profitability.

I. Define the value chain of the sector and allocate costs, profits, and investments to value-creating activities

Horizontal connections are frequently disregarded by organisations because they might be complicated and invisible. The Edible oil sector, for instance, comprises of multiple value-creating operations or actions, such as discovery, fabrication, refinement, advertising, and transportation (Grillini et al., 2019, Scandeliuss and Cohen, 2016). This sector's value chain is defined by those rules. One corporation may be involved in all aspects of this value chain, while someone might be involved in just a handful of them (Hasan et al., 2011, Xue et al., 2017). Because of the variety of activities and organisations, it can be challenging to use a consistent strategy to define industrial value chain activities. Only a few companies have computerised systems capable of identifying and analysing these nuanced linkages.

Profitability along with return on assets, as illustrated, are important measurements of competitive advantage across a company's value chain risks (Zerbib, 2022, Kumar and Singh, 2023). It may prove especially challenging to get accurate data for these indicators, such as operational costs, revenues, and investments for every stage throughout the value chain of the sector in question (Setiawan et al., 2021, Verma and Seth, 2010). The aforementioned data, however, must be collected to determine the amount of return on assets for every single value chain step. Determining the substitute or present price of tangible resources utilized in an activity that creates value chains is an important but frequently difficult task (Putri and Rahyuda, 2020, Geng et al., 2021, Balan et al., 2007).

Previous or book values are frequently insufficient indicators of present investing. To determine current asset principles, factory technicians, technology suppliers, and external valuation specialists can be contacted (Baima et al., 2021, Liu, 2018, Mulchandani et al.,

2023). Similarly, determining pricing for moving materials and goods across value chain activities necessitates an awareness of market demand or rate competition. Competitive market pricing is accessible if a minimum of one business participates at each step of value production (Tirole, 1999, Zhang et al., 2022b). If not, a corporation has to employ its best judgement to determine an amount to be transferred that includes an average profit margin on total costs. Organisations should employ all costs in the circumstances for value chain activities when deciding on strategic choices that last. Although there are numerous metrics of capability, the optimal one ought to reflect an extended utilisation of the value chain activity's resources (also known as "appropriate ability") (Bijman et al., 2020, Cetindamar et al., 2022, Munizu and Riyadi, 2021).

Crucial financial data may be found in accessible accounting documents generated by companies across the industrial value chain. Usually, this knowledge is either in the right direction or separated sufficiently to allow for horizontal connection analysis (Dong et al., 2020, Mani et al., 2017, Djatna et al., 2020). To gather the correct details for every value chain step, considerable evaluation, data abuse, and judgement may be required. If favourable market costs are accessible, they may be replaced by internally transferred costs for intermediary transactions across procedures (Smalley, 2013, Jabbour et al., 2020, Nikakhtar and Jianzheng, 2012). Independent enterprises that specialise solely in one component of the value chain, for illustration, could receive competitive market pricing for this connection in the chain fruits (Fu et al., 2021, Ogbuke et al., 2022). Whole costs must be employed for future cost assessment as opposed to insignificant, varying, or additional costs.

II. Analyse the financial factors for each value-creating activity

Conventional costing, accounting and management software applications frequently allocate costs based on one outcome metric of operational performance, including the amount of output (Kozhaya, 2020, Jeble et al., 2018, Haryanto and Chang, 2018). Individual metrics are insufficient to reflect the real costs of groups in horizontal connection analyses (Michler and Wu, 2020, Shokouhyar et al., 2020, Hajiesmaeili et al., 2016). For demanding labour operations, explicit labour-based interventions might be acceptable; for machine-based operations, duration of operation could be acceptable.

III. Assess the potential for long-term competitive advantage in profitability.

Competitive advantage is, by definition, asymmetrical. In a perfect environment, a company would be able to assess its standing in the market by understanding its opponents' value

chains including the corresponding rates of return on investment for each (Kharub and Sharma, 2017, Tiwari et al., 2018, Roespinoedji et al., 2019). In actual practice, this can prove problematic because the competitor's own revenue, costs, and resource statistics for its operations are often inaccessible (Tavoletti and te Velde, 2008, Madhani, 2022). There is generally enough good data about the company's primary production value methods and approaches for each. Although economic data is lacking, a corporation may utilise qualitative research to figure out competitive gaps by observing how other firms operate in each phase of the market value chain (Alexandros and Metaxas, 2016, Sanders, 2014, Katiyar et al., 2015). Three rivals in the constantly evolving Edible oil business have developed value chains.

The strategic distinctions represent variances in fundamental and executional cost factors. In advertising, for example, Golden Fry began having little organisation despite enormous brand awareness (Lasalewo et al., 2016, Kurniawan et al., 2018, Tirtayasa and Mukmin, 2017). Local advertising the size of SUNFOIL national advertising has significant cost benefits. Discovering new methods to create meaning enables businesses to enhance their general efficiency and gain a competitive advantage (Wihardja, 2016, Andriyanto et al., 2019, Abdelfattah et al., 2023). Deep fry oil, for instance, places its factories near dairy farms to compete in the growing, highly regulated cooking oil-packaging business, minimising the considerable cost of moving fry oil processing facilities on impact (Davies and Ellis, 2000, Ketels, 2006, Guritno et al., 2015).

The Willowton group produces cooking oil near its seeds and mills plantations in Pietermaritzburg, along with delivering the solids to its main consumers in Cape Town and Johannesburg region of South Africa to cut costs (Bakan and Doğan, 2012, Davies and Ellis, 2000, Pono and Munizu, 2021). Increasing competitiveness internationally compels businesses to concentrate on long-term international competitive advantages. Porter (1990), one of the many thinkers who has researched international rivalry in depth, identifies four important elements that determine national competitive advantage. They are as follows:

- ❖ The Effect conditions—the country's standing with regard to the variables affecting manufacturing, which include qualified employees or facilities necessary for success in a particular manufacturing;
- ❖ Request conditions—the kind of consumer appetite for the industry's good or services;
- ❖ Relevant and supplementary industries—the presence or lack in the country of globally competitive sellers along with associated sectors; with

- ❖ Corporate approach, organisation, and competition—the national circumstances that determine whether businesses are formed, organised, and controlled, as well as the character of national competitiveness.

By pooling or organising identical value operations in several locations, organisations may gain significant competitive advantages. The recent achievements of multinational corporations including Fujifilm (Japan), Caterpillar's (US), N.Y. Phillips (Netherlands), and Volkswagen (West Germany) demonstrates the significance of this competitive advantage (Molendowski and Żmuda, 2013, Arslan and Tathdil, 2012). These companies distribute and maintain their goods in almost all nations on the planet. Automobile manufacturers such as General Motors and Ford are extremely global: companies engage in numerous important production value operations in a number of nations throughout the globe, ranging from development to manufacturing and advertising (Sazegar et al., 2018, Chamsuk et al., 2015).

Japanese automakers are additionally aggressively globalising, with substantial expenditures in production facilities in places like South Korea, the nation of Singapore, along with the United States. Nike's core value-creating activities include the creation of shoes, shoe constituent manufacturing, and the latest fitting (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020). All procedure essential components are accessible throughout the United States. Nike, on the other hand, discovers equipment production, which requires reasonably trained employees and financial resources in Taiwan and South Korea.

It discovered the demands of labour manufacturing activities in low-income regional Asian nations, including China, Thailand, and the Philippines (Shafiq et al., 2018, Setyanti, 2017). Having a broad perspective of the value chain has its drawbacks. Transporting within connected procedures can have one potential negative impact. Travel takes a while and costs money (Razavi et al., 2011, Vares et al., 2011). Electronic equipment deliveries between the far eastern regions and North American manufacturing sites could require a minimum of a month. Shipping parts to nearby manufacturing factories could help save money on transportation and inventories (Ivanová and Čepel, 2018, Sohn et al., 2016, Tanjung and Wahyudi, 2019). Spreading value-creation activities throughout the globe can also result in inadequate management, interactions, and collaboration. The close closeness of R&D, manufacturing, technical support, and marketing staff members may result in collaborative advantages in addressing client demands (Roy, 2018, Oturakci, 2023).

Bridgestone, a company for instance, purchased Goodyear Tyre & Plastic in the United States to enhance its global tyre manufacturing capabilities in order to remain competitive with Michelin (Necadova and Scholleova, 2012, YIIDIZ, 2016). Muddled strategies, sluggish making choices, and inadequate interaction among Tokyo's ultimate Akron, Ohio, resulted in significant damage, reductions in force, and the sale of assets (Herman, 2018, Kostoska and Hristoski, 2017). The North American Free Trade Agreement, or NAFTA, between the countries of Canada and Mexico and the United States has created a unique value-chain links analysis for both providers and purchasers. These connections necessitate a closer look. Reduced labour expenses, for instance, have prompted corporations to shift their fabrication and production operations in Mexico (Rusanescu, 2014, Stroumpoulis et al., 2021).

On the other hand, certain companies have encountered significant efficiency and high-quality issues that have substantially outweighed their labour reductions. Each organisation has to consider the advantages and disadvantages of a multi-location option (Tanwari et al., 2000, Yiu et al., 2021, Rizki et al., 2019). Companies must analyse the nation's principles, geopolitical atmosphere, ecological problems, commerce relations, regulations regarding taxes, price increases, and changes in currencies in order to correctly assess chances for competitive advantage in the international marketplace (Huh et al., 2011, Baah and Jin, 2019). The current appreciation of the Mexican peso is an illustration of the dangers associated with relocating businesses to volatile markets. The following section will provide with Profitability measurements.

3.3 Profitability Measurements

Viskari et al. (2012) and Okwara et al. (2019) claimed how higher financing in value chain activities, including improved flow (greater production in the procedure), reduced inventory levels, as well as higher revenues, are expected to maximise revenue and minimise cost, thereby improving the organisation's profitability. Brau et al. (2007) and Etuah (2014) conducted a research project that determined this financing in the Value Chain primary and support activities for various companies with their favourable effect on these companies' profitability. This research will discover that, failing to implement a number of the primary and support activities has a detrimental impact on the profitability of manufacturing companies. This research also discovered that failing to implement several of the primary and support activities had a detrimental impact on the profitability of manufacturing companies.

Financial value chain management, as per Agyekumhene et al. (2018) and Oloso et al. (2020), influences profitability as measured by return on invested capital (ROIC) and return on equity (ROE). An effective financial solution for the supply-side value chain is supply chain financing (Miyare, 2014, Hartog et al., 2020, Hofbauer and Sangl, 2019). The favourable influence of SCF on company performance, particularly during an economic downturn, can strengthen corporate economic power in the marketplace and allow it to stay competitive (Sori and Wana, 2019). A meaningful return on investment is achieved by the company with the help of value chain management, based on an empirical study done by Dalemans et al. (2019). The study also found that supply chain financing is a financial strategy that benefits all supply-side value chain participants equally. All these studies improve the firm's profitability. The following section will offer Historical and concept of value chain.

3.4 Historical Concept of value Chain

The basic notion of value chain has been susceptible to many perspectives along with purposes throughout the previous decades. The origins of value chain analysis are examined from two unique perspectives: the French 'filière notion' and Wallerstein's product value chain conception (Kharub and Sharma, 2017, Tiwari et al., 2018, Roespinoedji et al., 2019). A few modifications have been developed from each. Porter's value chain idea, Gereffi's worldwide commodities chain, and Humphrey's global financial pyramid are widely recognised, with the latter two being combined with the notion of a worldwide value chain (Tavoletti and te Velde, 2008, Madhani, 2022). The 'filière idea' was established in the 1960s as a method of analysis for experimental studies on agriculture at the *Institut National de la Recherche Agronomique* (INRA) by the *Corporation Internationale en Recherche Agronomique pour le Développement* (CIRAD) (Alexandros and Metaxas, 2016, Sanders, 2014, Katiyar et al., 2015).

The notion was utilised to gain a better organised knowledge of financial operations through agricultural commodity manufacturing and delivery networks (Lee and Chan-Olmsted, 2004). The generic filière notion has been extended to nationwide value chains that come to an end at national borders. Wallerstein (1974) established the notion of supply and demand chains in the 1970s, which is incorporated in global systems (Fernando, 2021, Goh, 2021). The notion of a commodities chain serves as the foundation for Gereffi and researchers subsequently established a worldwide commodities value chain. It aims to clarify the structure of value

chain activity redistribution in a capitalist world market (Eravia and Handayani, 2015, Najib, 2013, Chong and Ali, 2022). Because of the changing labour-intensities of the various production processes within a value chain, the fundamental driver is the globalisation of labour across various domains.

Porter established the notion of the value chain in the setting of his research on business competitiveness in the second half of the 1980s (Porter 1985). He established his notion to analyse specific procedures whereby organisations might produce value chains by categorising them as content added basis (Wihardja, 2016, Andriyanto et al., 2019, Abdelfattah et al., 2023). Porter differentiated between two types of organisational value-added operations: principal operations (inbound logistics, outbound logistics, marketing, including sales) and support activities (firm operations, management cost, research, and development cost) (Porter 1985). Porter's value chain model is limited to business level, ignoring upstream as well as downstream activity outside of the corporation.

Gereffi (2022b), along with other researchers, established the worldwide market chain (WMC) in the 1990s, which was based on Wallerstein's market chain (Bair 2020). Gereffi developed four primary components: (a) input-output organisation, (b) geographical (international) organisation, (c) the organisational framework, and (d) the system of governance (Davies and Ellis, 2000, Ketels, 2006, Guritno et al., 2015). The emphasis was on governance, which included organisational structures and inter-firm connections. The primary focus was on balancing the position of authority embodied in the cooperation of worldwide scattered but interconnected industrial structures (Bakan and Doğan, 2012, Davies and Ellis, 2000, Pono and Munizu, 2021).

Gereffi observed that several chains are characterised by a few prominent individuals who shape the chain's entire nature. These players are in charge of improving capabilities and transfer of information, including relationship management along the value chain. Messner (2022) built a global economic triangular on the basis of Gereffi's WMC. Messner's approach is founded on the presumption that the range of what happens in worldwide chains of commodities is determined by players, management, and regulatory institutions. This strategy involves updating whole territories or groupings using chain connectivity.

As a result, horizontal (cluster growth) and straight (value chain) techniques are connected. There are no autonomous sustainability notions of value chains. Furthermore, in the past few years, there has been an increasing interest in integrating natural resource use and chain-

related pollution in the framework of value chain analysis (Yilmaz, 2002, Mekić and Mekić, 2014, Riyadi et al., 2021). To incorporate ecological issues into the value chain structure, phrases such as 'green value chain' as well as 'environmental value chain' were introduced. The next section will give the specifications in value chains.

3.4.1 Specifications in Value Chains

The notion of value chain analysis has evolved, but so have the terminologies used and their definitions. "Every one of the contesting conceptions has a specific importance, that is essential to recognise for the purposes of supply chain analysis"(Molendowski and Žmuda, 2013, Arslan and Tathdil, 2012). For example, the term "supply chain" is primarily employed in company management, but 'input output organisation' is mostly employed in socioeconomic accountancy. Sturgeon (2021) categorises the concepts based on organisational and physical size. The phrases "supply chain," "value chain," include "production networking," refer to the organisational scales, while the expressions "global commodities chain," "international manufacturing networks," with "worldwide value chain," refer to a geographical dimension (Taufik, 2007, Habaradas, 2008, Riyadi et al., 2021).

The various descriptions of chains include all steps from manufacturing through utilisation, including trash utilisation of a particular good. According to Kaplinsky and Morris (2002), "the value chain explains the entire spectrum of operations needed for delivering an item or service to market from beginning, by means of each phase of manufacturing (which includes multiple steps of material evolution along with the contribution of different manufacturer offerings), to its introduction to finished customers, and its ultimate disposal following utilisation."

The value chain is sometimes referred to as a 'Horizontal' value chain. Subsequently, the perspective might be 'horizontal' by buildings referred to as groupings, such as related businesses in a particular area (Kharub and Sharma, 2017, Usman and Liu, 2015, Amran and Yose, 2018). Value chains are unquestionably more complicated in practice than this straight conceptual picture. A chain can have several links and linkages with different chains, for example, by employing identical source of inputs. A value chain system is formed when intermediate manufacturers or merchants are active in an additional value chain (Alnafrah and Zeno, 2019, Ghazinoory and Ghazinoory, 2008). The following section will provide with the mapping of value chains.

3.4.2 The mapping of Value Chains

The mapping phase is the initial stage of the value chain analysis. To accomplish such, the limits of additional value chains must be determined. The fundamental concept is to first determine the players and then 'map' the traceable flows of goods throughout the chain, which includes input supply, creation, and processing, along with marketing and sales (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020). The goal is to provide an illustrated portrayal of the specified players in the chain, including the flow of products. A mapped value chain comprises the players, the connections between them, and the financial operations at each level, the physical along with financial transactions associated with them. When it comes to mapping, there are in fact two techniques (Zamora-Torres, 2014, Gogodze, 2016). The next section will offer the evaluation of functions and institutions.

3.4.3 Evaluation of Functions and Institutions

The FAO (The Food and Agriculture Organisation for the International Community) offers a series of components that give an organised strategy to agricultural commodity value chain analysis (Razavi et al., 2011, Vares et al., 2011). The mapping is referred to in the context of functioning including institutional evaluation (FAO 2005a), which begins with the creation of a particular "preliminary map" of a specific chain to offer a description of every one of the chain participants (institutional analysis) along with the kind of relationships among them (practical analysis) (Krstić et al., 2016b, Rajput et al., 2012). These findings can be displayed in a spreadsheet or a flow diagram, which is referred to as the chain's "preliminary map." The FAO process for generating a preliminary map contains three critical components (FAO 2005a):

- ❖ The main purpose of every phase
- ❖ The agents performing these activities
- ❖ The chain's main products with the many different configurations into those they take are changed throughout the whole chain

Following the creation of the flow graph, these fluxes are measured in both physical as well as financial terms. The process enables one to evaluate the significance of the various steps or sections within the value chain (Necadova and Scholleova, 2012, YIIDIZ, 2016). This technique was used, for illustration, by Rudenko (2018) to recognise and map the important value chain phases associated with wheat along with grain value chains in Uzbekistan.

Comparable approaches for doing value chain analysis are proposed by Kaplinsky and Morris (2022). For the purpose of mapping the value chain of fascination, their idea comprises of two phases.

The first stage is to create an 'initial map,' which depicts the chain borders as well as the primary characters, activities, and relationships, along with certain preliminary indications of size and relevance (Davó et al., 2011, Cinicioglu et al., 2017). The second stage is to improve the map by measuring important factors like extra value and discovering strategic versus non-strategic operations. This improved map may be thought of as an organising system for displaying chain information (Rusanescu, 2014, Stroumpoulis et al., 2021).

3.4.4 Characterization of Social networks

Social network evaluation (SNA), which originates in the fields of social science, is an additional method for mapping value chains. The technique for mapping and analysing links and movements among individuals, organisations, and organisations is comparable to the FAO idea (Onwubolu and Dube, 2006, Yiu et al., 2021). The value chain's original structure is made up of multiple connections and nodes organised in the manner of a matrix. The components of a node indicate the players, while the connections explain the nodes' interactions along with activities (Chen, 2019, Oliveira et al., 2023, Strakova et al., 2021). SNA is employed when the value chain resembles a series of links rather than an isolated horizontal chain. Specific programmes such as UCINET (<http://www.analytictech.com/downloaduc6.htm>), can be utilised to examine the organisation of agriculture supply (Islam et al., 2012, Horsfall and Mac-Kingsley, 2018).

SNA analyses chain linkages mathematically, although it is still in its early phases of application in value chain analysis. As yet, just a few researchers have used this method. For value network analysis (Isiaka et al., 2023, Mohan and Sequeira, 2012). Clottey et al. (2017) employed SNA to map the small-scale agricultural sector in northern Ghana. The goal was to examine the implementation of palm oil facilities in the surrounding area. As a result, the value-creating relationships were identified. Following that, SNA was used to establish value interchange channels and specific linkages involving regional farmers and firms (Muller, 2022, Ozdemir et al., 2022). As an outcome, the scientists discovered that the ingredient availability is only moderately connected to Palm oil chain activity.

Furthermore, to boost every aspect of the farming value chain, communication of information between producers along with players from research and development (R&D) activities needs to be strengthened. Kim and Shin's (2022) research are a further instance. SNA was used by the researchers to examine the evolution of worldwide and interregional commerce from 1959 to 1996. Kim and Shin found that the globe grew more globalised regarding that the analysed nations traded much more interregional in 1996 than in 1959.

3.4.5 Cycle of Life Analysis (CLA)

The concept of life-cycle analysis, or CLA, has been established to examine the impact of a value chain on the environment, particularly for dangerous goods or inefficient manufacturing techniques (Larsson, 2018, Bag et al., 2022). CLA, sometimes known as the "headstone to graves" evaluation, is an accountancy paradigm for examining the environmental effects associated with the worth of a good's chain (Breyer et al., 2015, Roubík et al., 2022). It investigates the relationships between raw materials (materials) and the associated ecological products (emissions including trash) throughout all value chain activities (cultivation, manufacturing, utilisation, shipping, utilisation, and ultimate disposition) (Boholm and Corvellec, 2011, Rukasha et al., 2021).

CLA is not always tied to a specific location because of its use at the goods stage. The goal is to create impact metrics that detect and evaluate capable environmental repercussions, such as the potential for climate change, because of a single unit of manufacturing (Sachlas et al., 2019, Ranathilaka et al., 2018). On this foundation, suggestions for which items should be encouraged or enhanced in terms of, say, efficiency in manufacturing might be provided. Because of the way the CLA model is constructed, suggestions tend to favour recovery and recycling of goods and contaminants, as well as enhancing efficiency in production to decrease waste generated by industry (Sjöberg, 2020, Fonsah and Amin, 2017). One key impediment is the standardisation of an LCA's philosophical structure.

There were significant advances in CLA standardisation in the past, primarily through the standards set by the Society of Environmental Toxicology and Chemistry (SETAC) especially the more modern ISO 14000 (International Organisation for Standardisation) category and the goal of harmonisation was to allow for an evaluation of data from various CLA research, although is still a difficulty due to varied fundamental presumptions (Badar, 2015, Roy and Rahman, 2022). Figure 3.1 depicts the ISO 14000 suggested method. Rebitzer et al. (2020); Pennington et al. (2021); and Tukker (2020) all

provide detailed explanations of how to get started with the ISO series' single phases. Jensen et al. (2020) of the European Environment Agency, published a thorough guidebook.

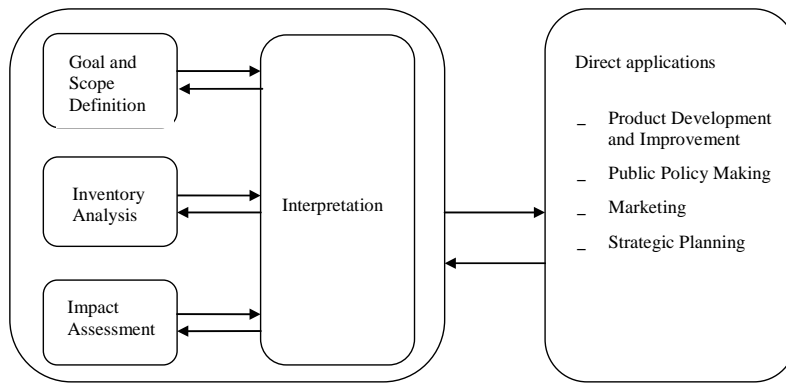


Figure 3.1 Cycle of life analysis

Source: Lee et al. (2022)

CLA has several applications as well as has grown in prominence in recent years. There was a lot of curiosity in the ecological effects of the manufacturing of bioenergy and the greenhouse gas emissions of food. In the case of edible oil, Lee et al. (2022) employed the CLA technique to analyse the Korean edible oil industry. Researchers discovered that air pollutants emitted from edible oil production and immediate downstream activities were far bigger in amount than those from downstream activities (Kurtishi-Kastrati, 2013b, Sangolkar, 2012).

In the case of Edible oil industry, LCA is an invaluable instrument for analysing the long-term viability of biofuels in comparison to various replacements and calculating the much-discussed carbon dioxide equilibrium (Alam and Zulfiqar Ali Shah, 2013, Dabbadi et al., 2021). Uihlein et al. (2022) examined oil from mills against cooking oil made from seed use strategies. Mattsson et al. (2020) reported research on oil mills from Brazil, sunflowers from Sweden, and oil palms from Malaysia. Eriksson (2021) compared the burning of waste, material, and the use of natural gas consumption. In the food industry, LCA may be used to examine the adverse environmental impacts associated with food networks.

The emphasis is mostly on carbon footprints in order to estimate the influence on the environment including environmental degradation, comparable to the LCA regarding energy

goods. Jones (2022) used the LCA approach to investigate delicious pears in case research. The findings revealed that transmission accounts for a significant portion of overall expenditure on energy in the whole orange lifecycle. Research on exported cooking oil products revealed that the amount of edible oil used in transportation is significantly more than the amount of oil required in intense manufacturing for sale. Blanke and Burdick (2021) contrasted the nutritional miles of pear manufacturing, transportation, and habits of eating, and Mila'. Canals et al. (2020) conducted case research that concentrated on the ecological effects associated with the combined cultivation of fruits in South Africa.

Margnis et al. (2022) did another CLA research study on the health and environmental implications of insecticides. Ghertner and Fripp (2021) investigated how much the United States has moved the ecological cost of the items it purchases to other nations through globalisation. To determine this, the researchers used an LCA to examine the national sustainability trajectory from 1998 to 2004. They discovered evidence suggesting that the environmental effects of the trade-off exceeded 20% for temperature rise and power, and 80% for emitted lead and contaminants.

Because LCA does not often tackle the financial or social implications of a good's supply chain, "life cycle budgeting" and "communal life-cycle influence evaluation" were created, but the latter method is infrequently used (Warren and Weitz 2021). Dreyer (2021) was the only researcher that used the social LCA. Furthermore, because of the growing worries about the use of energy in a value chain, "life cycle resource evaluation" deserves to be emphasised (Milner, 2014, Parvin et al., 2013). Life-cycle pricing (LCP), a cost management notion, is described as the computation of "all both internal and external expenses related to a good, manage, undertaking, or operation through its whole life cycle" (Warren and Weitz, 2021). Internal expenses, such as capital, labour, and power, are directly connected to a company or farm.

External costs are incurred as a result of environmental exhaustion, water pollution, or adverse human health impacts. External expenses generally stretch outside traditional CLA limitations and encompass societal and environmental consequences (Mearig et al., 2021). LCP is employed inside exactly the same system limits as CLA. Reich (2020) and Hu et al. (2004) are examples of research that used LCP. Furthermore, corporations including Sony-Ericsson (Cerin and Ramirez, 2021) along with Continental, a company between someone else, used LCA to assess the company's production effectiveness with the goal of discovering

under-optimized manufacturing procedures. The main benefit is that businesses simply need to analyse the life cycle of their individual manufacturing infrastructure, without taking into account any of the downstream value chain activities (Alzghoul et al., 2023, Sharma and Upadhayaya, 2020). Life cycle efficiency analysis (LCEA), like LCP, is an extra technique inside the CLA structure.

Renewable energy accounting was the initial name for the LCEA technique. Given the confines of a typical CLA, LCEA might be regarded as a form of power assessment. Every single one of the energy sources associated with a particular item is taken into consideration for (Juma'h and Wood, 2000, Collinson, 2001). Throughout manufacturing and production processes, in addition to immediate energy supplies are used; indirect vitality, which is required to generate intermediate components, also needs to be considered (Lahiri, 2016, Yakovleva et al., 2019). Instances include assessing the energy effectiveness of government facilities and assessing the power effectiveness of different types of water delivery mechanisms. Several fundamental presumptions govern life cycle assessment (Gomez-Conde, 2015, Vermeulen, 2010).

LCA is defined as a non-linear and stable accountancy system. As a result, ecological externalities such as trash and pollutants are often considered to grow proportionally with the flow of products (Bustinza et al., 2010, Vermeulen, 2010, Febransyah and Camelia Goni, 2022). Conversely, unlike IOA, LCA is employed from the bottom up, rather than from the top down. This results in a far deeper assessment than IOA, because it simply analyses pre-use and therefore ultimate consumption and makes no distinction between specific steps, even if they exist in the exact same aggregating industry (Grillini et al., 2019, Scandellius and Cohen, 2016). The LCA is considered by many to be a "powerful and equally robust analytical framework," however there are certain key issues with the general idea.

- ❖ Description of the life-cycle method's limits
- ❖ Accessibility to extensive and thorough data, as well as its accuracy.

Determining limitations has a significant influence on CLA outcomes. A broader term bounds take into account indirect input providers, which might result in more significant environmental repercussions than an additional restrictive description (Zerbib, 2022, Kumar and Singh, 2023). Overlooking these unintended consequences by specifying fairly limited limits may result in an underestimate of the environmental consequences of the goods within consideration. This issue is also known as reduction error (Putri and Rahyuda, 2020, Geng et

al., 2021, Balan et al., 2007). Rebitzer et al. (2020) and Tukker and Jansen (2022) showed that the quantity of reduction inaccuracy can be influenced by the product under consideration.

Energy-intensive goods, including basic metal manufacturing, have smaller reduction errors than non-energy demanding offerings, including the banking industry (Tirole, 1999, Zhang et al., 2022b). The reasoning is as follows: in value chains containing fuel-intensive products, direct usage of energy exceeds indirect utilisation, however energy demand has a greater distribution in the banking industry (Dong et al., 2020, Mani et al., 2017, Djatna et al., 2020). As a result, the error in truncation is determined by the individual input features of the result rather than the limits. The researchers proposed combining CLA with an IOA to decrease termination risk.

3.4.6 Evaluation of the Input-Output-Life-cycle

Some of the drawbacks of an LCA-based value chain analysis can be solved through the integration of IOA or SAM along with an LCA, which is referred to as the composite LCA technique or (Environmental) Input-output-life-cycle analysis ((E)I/O-LCA) (Fu et al., 2021, Ogbuke et al., 2022) (Kozhaya, 2020, Jeble et al., 2018, Haryanto and Chang, 2018). I/OLCA is an aspect of the larger area of "Integrated Ecological and Financial Accounting", which combines financial input-output data alongside ecological and resources data from LCA. The following are the two main techniques for I/O-LCA simplification: (a) stratified hybrid evaluation and (b) mixing unit hybrid assessment (Kozhaya, 2020, Jeble et al., 2018, Haryanto and Chang, 2018). A tiered hybrid assessment consists of two distinct processes. Firstly, a full assessment of CLA is performed on the operational unit's immediate demands as well as certain essential simpler upstream demands.

Furthermore, IOA covers any outstanding higher-level demands (for example, resource harvesting or production) (Lenzen 2021). A further option is to include departmental actual information in input-output statistics, including societal accounting models. This approach is known as a mixed-unit hybrid assessment, while the typical rows and combinations are in currency (Kharub and Sharma, 2017, Tiwari et al., 2018, Roespinoedji et al., 2019). Overall, I/O-LCA can be considered more thorough in regard to economy-wide systems limitations, as well as catching indirect impacts of value chains, but it loses processes specialisation and has very little difference across comparable goods (Alexandros and Metaxas, 2016, Sanders, 2014, Katiyar et al., 2015).

Appropriate I/O-LCA implementations are study issues in which the broad impact of emerging innovations on the local or national level must be analysed, incorporating an approximate estimate of the total environmental implications. Mathews and Hendrickson (2002) and Hendrickson et al. (1998) are two excellent review components. Collaborating with collaborators from the Sustainable Design Academy, they created equipment to perform an EIO-LCA, as well as an extensive data base. The next section will then offer Value Chain Analysis.

3.4.7 Value Chain Analysis

Globalisation developments have boosted the size and difficulty of organisations dealing with internal and external risks. Internal concerns pertain to technological hazards in the sphere of study and building projects; external concerns include pricing unpredictability, currency exchange variations, and market variances (Lasalewo et al., 2016, Kurniawan et al., 2018, Tirtayasa and Mukmin, 2017). In a fast-paced economic world, having tools to analyse probable repercussions of alterations and to represent complex surroundings in a simpler model is essential. Value chain modelling is a useful tool for analysing multidimensional problems (Wihardja, 2016, Andriyanto et al., 2019, Abdelfattah et al., 2023). Without a doubt, the foundation of every model is a uniform data structure that represents the benchmark scenario for the framework of importance. Every simulation begins by describing these basic circumstances (Bakan and Doğan, 2012, Davies and Ellis, 2000, Pono and Munizu, 2021).

Following that, specific situations specify expected modifications that may destabilise the existing system's functioning; ultimately, the model provides adaptability procedures to these disturbances in order to establish a new efficiency stability point (Molendowski and Żmuda, 2013, Arslan and Tathdil, 2012). The emphasis is on mathematical programming methods for optimisation and broad equilibrium modelling. Another strategy for reducing environmental dangers and the costs associated with manufacturing operations is evaluating risk (Sazegar et al., 2018, Chamsuk et al., 2015). The final topic is the integration of negotiating models in value chain modelling, which has a significant influence on the allocation of profits as well as knowledge movements. The following section will provide an Equilibrium system.

3.4.8 Equilibrium System

Economists attempt to clarify the diverse financial activities of various actors. They do so by making typical predictions about the conduct of specific entities. The equilibrium system's key premise is reason (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020). At present, the Walras system is regarded for explaining the workings of autonomous marketplaces in which affordable costs govern the distribution of resources that are scarce and reasonable consumers and producers maximise profitability and pleasure (Takayama, 2020). There are two types of systems described below: overall equilibrium systems and partially equilibrium systems. In comparison with partial equilibrium systems, which concentrate on specific areas of fascination, overall equilibrium systems reflect all financial benefits, with all interactions determined endogenously (Razavi et al., 2011, Vares et al., 2011).

The economic and social problems organisation of the social accountability matrix (SAM) serves as the foundation for computed overall equilibrium (COE) systems. They are an algebraic illustration of a full financial structure that may be isolated or linked to outside influences through trade (Ivanová and Čepel, 2018, Sohn et al., 2016, Tanjung and Wahyudi, 2019). The standard scenario defines the structure's stability, where everything's accounts are balanced, and all marketplaces are resolved. The conventional CGE uses mathematical equations to describe all of the bills and receipts presented in the SAM (Herman, 2018, Kostoska and Hristoski, 2017). COE, like SAM, is distinguished by its adaptable multi-product, multi-sector, multi-institution disaggregation. COE models were created primarily to clarify the country's economic achievements.

Known implementations encompass areas or individual communities, and structures may be utilised to symbolise a single family (Tanwari et al., 2000, Yiu et al., 2021, Rizki et al., 2019). The conventional system is defined in practical conditions, with agents making multiple choices based on comparative pricing. Meanwhile, although the SAM-multiplier system is totally based on demand, and modifications are constantly proportional in this system, the behavioural patterns of agents inside the COE system may be set rather significantly (Huh et al., 2011, Baah and Jin, 2019). More complex functional structures and unpredictable Engel curves in the COE may be more compatible with empirical findings in the value chain on the profitability of the firms. An additional benefit of the COE is the ability to transition amongst various operations as technology developments and cost profile

changes (Miyare, 2014, Hartog et al., 2020, Hofbauer and Sangl, 2019). This characteristic is backed by a unique problem-solving technique known as the "combined compatibility programme" (CCP).

It significantly simplifies modelling of value chain financing, where variations and production are significant and necessitates continuous reorganisation of the value chain. Winter et al. (2008) used a COE system at the village scale to examine the effects of cooking oil production value chains on Kenyan agricultural practices and destroyed forests. A value chain for several hardwood replacements, especially *Jatropha Curcas*, was constructed to assess the influence of its production on natural resource use, distribution of revenue, and availability of food at the community sector chain (Tavoletti and te Velde, 2008, Madhani, 2022). Simulations, when utilised alongside a farming theory strategy, demonstrate the prospective advantages associated with collaborative forest and communal management vs. unfettered competition for resources among participants in the Kakamega District of Western Kenya (Fernando, 2021, Goh, 2021).

Fractional disequilibrium systems are a comparison dynamic paradigm with an industry emphasis. They analyse the consequences of modifications to policy on one item whilst disregarding their influence on different products, assuming that the commodity under consideration is too tiny to have major effects on other sectors of the economy (Eravia and Handayani, 2015, Najib, 2013, Chong and Ali, 2022). As a result, these representations do not incorporate all of an economy's manufacturing and consumer accounts, nor do they aim to represent all of the economy experienced in its markets and pricing. This method enables academics to track the impact of modifications to a specific market or value chain on other marketplaces or value chains, however it primarily captures alterations in the marketplaces that comprise the system (Wihardja, 2016, Andriyanto et al., 2019, Abdelfattah et al., 2023).

Incomplete equilibrium systems are ideally designed to analyse industry improvements that are unlikely to have significant effects on overall variables. Nielsen (2018) created an incomplete equilibrium framework to determine the welfare consequences of seafood trade liberalisation in the context of sophisticated but real control systems, such as managed broad access, as well as controlled limited access (Davies and Ellis, 2000, Ketels, 2006, Guritno et al., 2015). According to the findings, the welfare consequence of trade liberalisation in an exporting nation is negative with unrestricted access and favourable with controlled access to

markets in the value chain. Lundmark (2021) used a woodland clustering partial balance model to analyse the impact of shifting market circumstances on the sawmill business.

The research aim of the study is to evaluate the impact of Value Chain Financing on the profitability of edible oil manufacturing companies in South Africa. The findings indicated that, due to the interdependence of the Edible oil industry, a boost in the market value chain in one area might have a significant impact competitive advantage. The study also suggests that value chain financing gave firms a competitive advantage among other competitors in the field and increased profitability. The next section will give the modelling and value chain optimisation.

3.4.9 Modelling and Value Chain Optimisation

The value chain model depicts the movement of intermediates and final components via design, production and marketing processes. Although individual enterprises are often held accountable for the performance of their specific level of manufacturing, the entire chain is held accountable for effective supply chain management and consumer happiness (Yilmaz, 2002, Mekić and Mekić, 2014, Riyadi et al., 2021). Currently available techniques for conducting an in-depth examination of value chain efficiency fall into the following two groups: (a) ways to evaluate remedy assessment and (b) strategies for generating solutions (Chwif et al. 2022). The first group comprises simulations and calculation approaches for evaluating various value chain architecture combinations in a "What-If" situation.

The second type of approach seeks to find the most suitable setup for a specific purpose, and comprises traditional optimisation approaches, often in conjunction with simulated (occasionally known as simulated optimization). Chwif et al. (2002) investigated the differences between spreadsheet-based assessments and simulated. The researchers suggested that simulators are seldom employed since they are a more sophisticated technique that is more difficult to manage. Worksheet analysis is simpler to use, but it does not take into consideration the changing patterns of a value chain and fails to compensate for the unpredictability (Molendowski and Żmuda, 2013, Arslan and Tathdil, 2012). Conversely, the simulation method is a dynamic-stochastic tool that evaluates the changing behaviours of the chain and compensates for fluctuation, which benefits the quality of the resulting findings.

Chwif et al. (2022) demonstrated that variations between demand and supply have a vital impact on the efficiency of the value chain through contrasting both methodologies in a

single instance of a large aluminium-processing corporation in Brazil. If this is the case, a value chain analysis needs to be assessed through a computerised model, as static evaluation using a spreadsheet may produce false findings. Vos and Akkermans (2022) reached the same result (Chwif et al., 2020). In the second group, chain optimisation is used to find the optimal arrangement for a particular target. Typically, questions about optimisation are about lowering costs (such as the transportation or manufacturing costs) or increasing internal manufacturing effectiveness and profitability to boost competitive (Molendowski and Żmuda, 2013, Arslan and Tathdil, 2012).

These issues are typically tackled by utilising linear programming approaches such as a method known as simplex dynamical programming, or mixed-integer linear programming with integers (de Mol et al., 2021). De Mol et al. (2020) created a model for both transportation simulations and optimisation in the instance of fuel made from biomass collection. Since transportation expenditures are an important cost element, the research's main purpose was to optimise (minimise) cost in value chain. Firstly, a computational model was created to determine the expenses of bioenergy transportation for one year based on several possibilities. The optimisation model was then designed to provide yearly garbage fluxes at the most affordable price.

Singer and Donoso (2021) used the optimisation techniques developed for the forestry sector to investigate whether firms in the resource-intensive sector (e.g., mineral extraction, wood, agricultural activities, and fishing) ought to concentrate on the upward or downward value chain. His primary objective of the research was to maximise the effectiveness of manufacturing. The findings recommended that the corporation should focus on downstream operations. Geunes and Pardalos (2021) produced an assortment of studies on "value chain optimisation" with an emphasis on transportation between firms.

3.5 Evaluation of the Worldwide Commodities Chain

Gereffi's Worldwide Commodities Chain (GWC) architecture attracted a lot of media coverage during the beginning of the 1990s (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020). The system is linked to the notion of governance. Governance is defined by the International Monetary Fund as "the administration of political power along with the utilisation of the resources of institutions to oversee the issues of society and concerns" (1991) (Taufik, 2007, Habaradas, 2008, Riyadi et al., 2021). World chains of commodities assessment (WCCA) does not statistically assess both input and

outcome streams at different phases of a good's life cycle. Alternatively, it fundamentally examines the social ties and balancing of power amongst every participant participating in the chain.

Gereffi's concept of management is centred on the worldwide organisation of businesses and industries that are linked by a value chain (Gereffi, 2021b). The goal of GWC is to determine whose character imposes the conditions within which others, either the upstream or downstream actors, must function. This includes organisational structures and inter-firm interactions that allow for non-market cooperation. Governance as a system is unable to be appraised whether it is beneficial or detrimental (Taufik, 2007, Habaradas, 2008, Riyadi et al., 2021). On the one hand, strong governance may reduce the costs of transactions among players, such as fixed agreements.

On the other hand, dominating players may impose particular criteria in terms of product quality or quantity, which may have comparable consequences for competitive obstacles since certain companies are unable to meet the demands. Humphrey and Schmitz (2022) identified four critical governance factors established by additional upstream actors:

- ❖ What must be generated: Definition of products
- ❖ How it must be manufactured: Description of the manufacturing procedure (technology, excellence, labour, and environmental requirements)
- ❖ Direct physical flow of products at a specific point in time:
- ❖ How much will be generated?

If organisations are created under specified circumstances imposed by others, governance mechanisms are essential to provide knowledge of the configurations and to monitor conformity. Value chains could vary in their interaction forms, for example, because of particular goods or market factors (Kharub and Sharma, 2017, Usman and Liu, 2015, Amran and Yose, 2018). As a result, it is evident that various sorts of interactions between players need various levels of governance. Gereffi (2021b) identified the following factors that were needed to categorise governance in value chains:

- a) process difficulty,
- b) process codification capability, along with
- c) the degree to which providers have the requisite competencies to satisfy the needs of consumers.

In contrast, no quantifiable approximations or indications are mentioned. A value chain that lacks governance is referred to as such 'market-coordination' chain having no influence imbalance. Transactions are generally codifiable in this context, as are the requirements for the products (Kharub and Sharma, 2017, Usman and Liu, 2015, Amran and Yose, 2018). Conversely, 'hierarchical' governance is distinguished by the inability to establish standards, the great variety of goods, with the scarcity of providers. Gereffi, (2021b) differentiated two distinct kinds of worldwide chain players which are important generators for knowledge in internationally distributed chains under a governance arrangement: (a) 'buyer-driven' chains and (b) 'producer-driven' chains (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020).

Organisations that manage certain goods through processing technologies establish the essential variables in producer-driven chains. Producer-driven chains are characterised by capitalistic and technology-intensive sectors, such as automotive, aeroplane, and software manufacturing (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020). Buyer-driven chains are characterised by demands of labour businesses, such as the manufacture of clothing, shoes, or agricultural products, and are thus very important to countries with poor infrastructure.

However, neither sort of governance chain has a compromise. Certain retailers may have both producer- and buyer-driven governance, or they may evolve from producer-driven governance to greater buyer-driven governance as time passes (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020). Several research projects involve governance framework evaluation in value chains. Gereffi et al. (2021) and Messner (2022) presented essential conceptual works that advanced the governance notion of the "globally macroeconomic pyramid" strategy. Several research studies by Humphrey (2023) are additionally important. In the example of South Africa, Kaplinsky et al. (2023) investigated the interior design value chain and its potential for improvement by poor cities.

The wood-based home furnishings business provides a chance for developing cities to engage in national marketplaces due to its substantial usage of natural resources and labour complexity. The wooden manufacturing sector is currently constantly referred to as a "buyer-driven" industry (Zamora-Torres, 2014, Gogodze, 2016). As a result, the writers examined the needs from the manufacturer's point of view with the goal to improve their value chain activities. The researchers discovered evidence that actual profitability must be enhanced

through the use of increased transfer of knowledge from the customer to the production stage. The following section will provide the Policy.

3.5.1. Policy

It is critical for an administration to have a solid set of laws and regulations that promote successful and effective strategies to build and preserve the economy of a nation, governance, food production, and schooling, along with other aspects (Razavi et al., 2011, Vares et al., 2011). Gerston (2014) describes public policy simply as "the amalgamation of fundamental choices and promises, including behaviours undertaken by individuals who hold or affect governmental positions of responsibility." Policies pertaining to agriculture frequently use several tools at the same time, which include supporting prices, subsidised inputs, or regulation of output. Public policy is one of the biggest and most significant variables in developing a product's value chain (Krstić et al., 2016b, Rajput et al., 2012). Through various value chains in agriculture, numerous difficulties can be solved only by private companies or cooperation with developers, such as creating standards for goods, implementing needed legislation, and spending in governmental facilities (Necadova and Scholleova, 2012, YIIDIZ, 2016).

As a result, the importance of good policy in a value chain ought not to be underestimated. Legislation, policies and guidelines serve as a crucial part of building a supportive setting for a product's value chain (UNIDO, 2009). Representatives of the legislature, for instance, play a key role in changing current laws or passing new legislation to enable policy execution. Furthermore, solely the appropriate government agencies can implement fertiliser and edible oil rules (Davó et al., 2011, Cinicioglu et al., 2017).

In contrast, it is critical that legislators have sufficient knowledge with the necessary facts and credible data before making a policy choice. The research revealed that policy is essential in defining norms and establishing an advantageous atmosphere for a product's value chain, which is unable to be accomplished by other players in the commercial sector or development collaborators individually (Onwubolu and Dube, 2006, Yiu et al., 2021). Within the Apartheid ideology Authorities management and the initial years of the Armed forces system in place, the South African agricultural industry was seriously repressed by implementing an enforceable government purchasing system for grain at cheaper than market prices and, as a result, providing the obtained edible oil to customers at an affordable cost (Onwubolu and Dube, 2006, Yiu et al., 2021).

Commercial starts on other industrial supplies including sugar, rubber-based products, jute fibre, and wool were banned, and these goods were acquired by the South African government at prices less than the marketplace (Chen, 2019, Oliveira et al., 2023, Strakova et al., 2021). Residential agricultural imports along with the agricultural community's harvest decisions were severely limited in South Africa as a result of the edible oil-centric policy (Samson, 2015), whereas confidential exports of agricultural produce were additionally forbidden throughout the identical time frame in order to manage local prices for customers (Okamoto, 2020). This discouraged farmers from manufacturing high-quality goods and increasing production.

The researchers emphasised that South Africa's farming has fallen short of its full capacity owing to the mishandling of various legislative constraints. South Africa's Ministry of Agriculture and Animals, including Waterways, is currently expressing enthusiasm for policies based on research (Chen, 2019, Oliveira et al., 2023, Strakova et al., 2021). Policy development based on evidence was specifically recognised as one of the major tasks for improving agriculture management in the South Africa Agricultural Policy along with Development Programme. Although various policy reforms are required to transform and revitalise South African farming, overall statistics and credible micro-data are critical to establishing evidence-informed policy choices (Chen, 2019, Oliveira et al., 2023, Strakova et al., 2021). South Africa, on the other hand, lacks credible information regarding policy formation.

The researchers emphasised the importance of having access to credible data to develop policies that are evidence-based for agricultural growth. As a result, precise and trustworthy data is critical for policy change to promote the growth of South Africa's agricultural sector (Islam et al., 2012, Horsfall and Mac-Kingsley, 2018). One of the most important areas for improvement in the agriculture-related businesses industry is policy. Multiple variables including policy along with regulatory ecology, management, human resources, property, dissemination of information, funding, facilities, securing equipment, and a competitive marketplace, business organisations that work in an emerging nation prioritise policy along with regulatory conditions and governance (Isiaka et al., 2023, Mohan and Sequeira, 2012). South Africa outperforms Thailand and Vietnam in these categories.

South Africa has experienced significant trade policy adjustments, notably in agricultural goods. The South African Ministry of Commerce has approved the shipment of Edible oil

along with food products and commodities, particularly sugar, to SADC, international and joint-venture enterprises (Breyer et al., 2015, Roubík et al., 2022). Its goals were to enhance the standards of South Africa's imported goods, boost the worldwide appetite for regional goods, and boost incomes for local farmers. According to this research, government strategy is a significant component in recruiting foreign direct investment for agricultural growth (Sachlas et al., 2019, Ranathilaka et al., 2018). As a result, although there is a shortage of adequate funding from the government in the needed facilities, a favourable policy climate will have a substantial impact on the amount of foreign direct investment thus contributing to the growth of the farming industry (Sachlas et al., 2019, Ranathilaka et al., 2018).

Good policy is frequently the result of extensive studies that give exceptionally reliable data, recognise issues, and generate remedies. Furthermore, data-based governance is a policy strategy that assists people in generating informed choices by incorporating the most reliable information into the policy process (Benito et al., 2019, Sharma et al., 2021). From 2008 to 2011, the number of nations adopting cost-benefit analysis to influence policy increased by 48% in the United States (Kurtishi-Kastrati, 2013b, Sangolkar, 2012). Evidence-based policy must provide a reasonable assessment of the issues and remedies, as well as the repercussions of those answers. The findings of these investigations revealed that studies that create trustworthy proof and accurate data performed an essential role in governance by informing legislators effectively (Kurtishi-Kastrati, 2013b, Sangolkar, 2012).

Evidence-driven knowledge may be used to generate practical policies. In today's environment, authorities have recognised the critical significance of scientific advice when making choices about policies that are not biased but impartial (Roland, 2010). Policy that lacks information is akin to a personal view, with a poor possibility of accomplishment. However, verification that does not influence legislation will probably prove to be useless information (Warren and Weitz, 2021). The Asia Foundation (2016a) proposed an idealised government cycle that emphasises the relevance of research-based decisions. The researchers emphasise that the effectiveness of a policy is heavily impacted by information based on research. In countries that are developing, the absence of credible research on present-day issues is a key impediment to policymaking, while a shortage of connectivity among policy and research contributes to the entire procedure (Mearig et al., 2021).

The absence of solid usable information, insufficient timeliness, and absence of effective assessment in doing study were all obstacles to proposing results to legislators. For effective

procedures for legislation and deployment, it is critical to correctly integrate knowledge into the public and use reputable academic contributions into campaigning for policies (Lahiri, 2016, Yakovleva et al., 2019). These researchers recognise that a lack of trustworthy information is a barrier to improving nations' governing mechanisms. As a growing and emergent democratic society, South Africa requires trustworthy research on a variety of sectors for policy making. In several emerging economies, public policy contributed an important role in creating agricultural value chains. Several alterations to policies were seen to drive the structure of the maize value chain in Zambia (Grillini et al., 2019, Scandeliuss and Cohen, 2016).

For example, regardless of calls for opening border gates, the Zambian government enforced maize exporting limits in 2016 owing to a serious local maize scarcity. The authorities were subsequently forced to provide advantages for the business community by allowing irrigated availability for maize farmers for the purpose of export (Zerbib, 2022, Kumar and Singh, 2023). Furthermore, the strong expansion of the nourishing and poultry sectors, which obtained maize as an essential raw material, was immediately attributed to advantageous laws and regulations, an expanding lower-income category, urbanisation and growing populations, and shifts in choices and preferences (Dong et al., 2020, Mani et al., 2017, Djatna et al., 2020). In the 1990s, Mexican government measures that included assistance programmes (for example, ASERCA, which sought to promote the agricultural sector's involvement in industrial markets, Procampo, which provided a revenue assistance to producers that produced fundamental essentials, and Apoyos a la Comercialización, which encouraged commercialising in official markets for sale) culminated in an expanding development in the growing of maize (Kozhaya, 2020, Jeble et al., 2018, Haryanto and Chang, 2018).

Unexpectedly, despite a decline in maize acreage because of the combined influence of global warming and the marketplace liberalisation, Mexican maize output grew owing to improvement of manufacturing, which was mostly because of irrigation (Kharub and Sharma, 2017, Tiwari et al., 2018, Roespinoedji et al., 2019). Policy measures were enforced in the above-mentioned Zambian and Mexican situations to enhance maize accessibility and pricing, as well as stability in the markets for those living there, considering maize constitutes a few of these nations' staple food items (Lasalewo et al., 2016, Kurniawan et al., 2018, Tirtayasa and Mukmin, 2017). They contended that domestic laws had a good influence on the growth of the maize industry. In certain situations, an unexpected policy might have a detrimental influence on the field in question.

It was discovered that there were four key variables creating uncertainty in Excellence in quality cassava meal (EQCM) value chains in Nigeria, one of which included repeated changes in regulation (Bakan and Doğan, 2012, Davies and Ellis, 2000, Pono and Munizu, 2021). A policy leverage position has the potential to bring about significant change in an organisation. A leverage position is a location in an organisation where a small modification has a huge influence on the entire structure (Sazegar et al., 2018, Chamsuk et al., 2015). As a result, value chain analysis may aid in the investigation of leverage points in the chain - areas wherein the greatest value can be generated or obstacles exist (Yusuf and Trondsen, 2014, Nurhayati et al., 2021, Anggraini and Tanjung, 2020). Value chain analysis is increasingly being utilised in policymaking by government departments to shape initiatives for growth (Neilson, 2014). These researchers debate the critical functions of government policies through ideas rather than empirical evidence. The next section will offer management.

3.5.2 Management

Management is an essential component of contemporary value chain growth. There is a lot of proof regarding vertical collaboration in the high value chain, usually as an institutional move to solve market-related concerns. "Management" signifies "any coordination of financial operations involving non-market connections" (Ivanová and Čepel, 2018, Sohn et al., 2016, Tanjung and Wahyudi, 2019). The management process may assist an auction system in fortifying itself in opposition to, adapting to, and overcoming disturbances that involve unstable markets along with price variations, as well as strains from a perspective that is advantageous to those who are interested in the chain (Tanwari et al., 2000, Yiu et al., 2021, Rizki et al., 2019). Furthermore, management is essential for accessibility to services and assets. Management was separated into three types by M4P (Tanwari et al., 2000, Yiu et al., 2021, Rizki et al., 2019): collaboration, rules, and inspections.

In practice, management encompasses a wide range of topics, including relationships of trust among value chain players, government laws and regulations, and informal agreements that impact those who are able to participate in value chain operations. The characteristics and usage of resources (the amount of time of manufacturing, expiration, methods of utilise, and manufacturing capabilities) determine the sorts of communication or coordinating across value chain participants (Tavoletti and te Velde, 2008, Madhani, 2022). For example, barely any amount of potato went through processing, owing to its utilisation as a plant material, whereas collectives and millers wielded greater influence across the sugar value chain due to

political affiliations, if factories were managed by a cooperative; if owned by individuals, they managed it through the manufacturing the lobby area.

Furthermore, oversight in comparatively well-organised value chains is with processing companies and manufacturers owing to their either immediate or indirect controversial connections, whereas non-retailer distributors adopted responsibility for norms and offering in comparatively unorganised value chains, owing to the wholesalers' frequent multi-functions in agricultural value chains as distributors of inputs, results consumers, and financing sources for manufacturers (Eravia and Handayani, 2015, Najib, 2013, Chong and Ali, 2022). Gereffi, Humphrey and Sturgeon (2023) highlighted ground-breaking research in the domain of value chain governance, giving an empirical basis for a better understanding of shifting regulatory structures in worldwide markets.

In this setting, value chains entail a variety of management styles that influence whether the chain operates as well as the way it might evolve over the years. Based on demand value chains, massive marketing participants contribute an essential function in controlling the complete structure and, in comparison, broad manufacturers decide the standards for governing the structure (Davies and Ellis, 2000, Ketels, 2006, Guritno et al., 2015). Governmental ties, multi-functioning, and massive operations commercialization, as determined by this research, impact the players' power throughout the chain. Leaders of enterprises in entering marketplaces may influence the value chain (Yilmaz, 2002, Mekić and Mekić, 2014, Riyadi et al., 2021).

The process of management in the worldwide value chain, or WVC, depends on the idea that value chains are rarely dynamically controlled by trade between markets (Molendowski and Źmuda, 2013, Arslan and Tathdil, 2012), while they are influenced by the decisions and actions of individual players, primarily big farmers, who dominate the availability of marketplaces at many different tiers - nearby, nearby, and national (Molendowski and Źmuda, 2013, Arslan and Tathdil, 2012). In the context of the WVC assessment, management emphasises the powerful practices and organisational structures that manage the allocation of activity amongst other players and leading farmers (Molendowski and Źmuda, 2013, Arslan and Tathdil, 2012). Leading farmers are a group of enterprises that are situated in especially significant roles throughout the chain and could impact who produces what is around the chain, at what cost, using what regulations, meeting what specific needs, and providing goods on schedule (Jraisat, 2016).

Due to these experts, leading businesses have clout in managing various value chain operations that involve exchange rate coordination, establishment of prices, and guideline establishment. Focusing on their theoretical expertise, the scholars explored this problem (Kabu and Tira, 2015). The administrative system of management is critical in establishing a value chain. Jespersen et al. (2014), for instance, evaluated the impact of governmental management regulations on edible oil value chains in four Asian nations, including Bangladesh, China, Thailand, along with Vietnam. They discovered three significant elements impacting oil industry value chains in those nations:

- (1) modes of collaboration,
- (2) rules, requirements, and qualifications, and
- (3) whole-chain management, commenting on orientation, important forces, and primary pushing processes.

Firstly, even though various kinds of coordinating among the various locations of each cooking industry value chain in four nations are examined in length, they did not describe how they constructed the value chain in their research (Müller et al., 2019). The second step is the level of regional control implementation, the trustworthiness of the certification system and requirements, and the ability to track the goods in nations that export are significant factors of increasing importing nations standing in global commerce, which is favourable of expanding marketplaces (Islam et al., 2012, Kano and Hoon Oh, 2020). Because sunflower and palm oil are consumable commodities, timely availability in markets is critical.

Thirdly, differing management processes produced varied outcomes within various nations' sunflower value chains. Bangladesh's inadequate organisational structure led in the absence of broad updates and, as a result, tailoring its goods to low-end customers, particularly the legal structure (Randall and Farris, 2009, Mazzawi and Alawamleh, 2013). For example, many entities participate in the palm oil sector's preparation, advancement of knowledge, administration, and permitting procedures, resulting in a shortage of implementation of current standards and of poor-quality sunflower oil (Larsson, 2018, Brenton et al., 2022).

Bangladesh sunflower oil has restricted their participation in foreign markets because of this. Conversely, several types of players drive the sunflower oil value chain, including accreditation, premium quality, amount, and consistent needs (Cattaneo et al., 2010, Cherrafi et al., 2022). Therefore, Thailand's robust structure of institutions had a beneficial influence

on enhancing, owing mostly to national legislation, and backing from institutions (Islam et al., 2012, Kano and Hoon Oh, 2020). Because sunflower oils are a significant-value food product, there is an intense market for excellent safety standards. As a result, quality requirements and accreditation are crucial for getting into the market (Kouwenhoven et al., 2012). According to these researchers, the implementation of rules, requirements, and the verification procedure impact accessibility to markets. Good regulation, in particular, is beneficial for reaching varied and luxurious item marketplaces, whereas insufficient regulation produces concentrated and inexpensive industries (Mkhize and Bux, 2000, Taleizadeh et al., 2018).

3.5.3 Value Chain Productivity and Sustainability

The financial implications of value chain player practices and manufacturing operations are sometimes viewed as the value chain's efficiency (Kafuku et al., 2010, Wan and Hong, 2019). Effectiveness, adaptability, reactivity and overall quality are utilised as indicators of success in agricultural products value chains (Girma and Marco, 2014). Costs, which include manufacturing, shipping, and transaction costs, as well as profitability measures notably as return on investment along with inventory, are applied to analyse the productivity of the Dutch cooking oil value chain) (Koyi and Siamba, 2017). Client fulfilment, capacity adaptability, and shipping mobility are utilised as significant markers in gauging adaptability. Fill percentage, goods being late, reactions from client time, lead duration, and shipment faults are used to assess attentiveness (Menicucci, 2018, Modak et al., 2018).

Excellence may be divided into two categories: the quality of the goods and procedure excellence. The major indications of quality of the item are sensory characteristics, security, product dependability, including simplicity, whereas the key signs of process efficiency are manufacturing structure, environmental issues, and advertising (Collier, 2015). It was discovered that product excellence as well as procedure quality concentrate on assessing value chain efficiency (Deloof, 2003, Biye et al., 2018). This is most likely due to two factors: tomatoes are a commodity with a short lifespan, and it is run in developed countries like the Netherlands.

Various components, such as mechanisation and information technological advances, impact the effectiveness of the value chains associated with agriculture (Dirman, 2020, Abah, 2020). Many researchers studied the influence of farming technology on wheat production's compaction phase. Mechanisation in the cultivation phase reduced maintenance costs

substantially (El Baz and Ruel, 2021, Ruel and El Baz, 2023). These researchers compared the technological effectiveness of conventional agriculture versus mechanical agriculture. Hormozi et al. (2012), on the other hand, discovered that mechanisation had a detrimental influence on palm oil production in Iran owing to extensive cultivation. Furthermore, Ozpinar (2020) claims that there was no substantial yield distinction in Turkey compared conventional and mechanised cultivation of wheat for winter use.

According to these researchers, despite the decreased operating costs, mechanisation has no beneficial impact on the efficiency of wheat in Turkey and has a negative influence on the productivity of oil industry throughout Iran (Schmidhuber et al., 2022, Queiroz et al., 2022b). Several researchers believe that having use of cellular phones along with online resources improves the productivity of value chains in agriculture in a variety of manner (O'Toole et al., 2015). The use of cellular phones in the less developed areas of Tanzania's Batati Province boosted the effectiveness of the value chains for agriculture at all phases of growing crops. this

Being able to get to cell-phones boosts the availability of promptly knowledge regarding marketplaces, costs, and farms practices in maize advertising in North Central Nigeria along with the agricultural regions of Batati Region in Tanzania as well as the Philippines (Schmidhuber et al., 2022, Queiroz et al., 2022b). This reduces inefficiency and increases the ability of small-scale growers in discussions with other participants, combining with distant marketplaces in maize advertising in Tanzania, the seafood marketplace in Ghana, and the agricultural sector's making decisions in Ethiopia (Muller, 2022, Ozdemir et al., 2022). It was discovered that possession of cellular phones improves the effectiveness of various value chains for agricultural products, that include recyclable maize and consumable seafood, in a number of emerging economies conditions (Muller, 2022, Ozdemir et al., 2022).

3.5.4 Confidence in the value Chain

According to Luhmann (2021), confidence is a trustworthy inter-personal position obtained through experience before, necessitating prior actions on a person's behalf while acknowledging danger. Reliability is a basic social reality of daily existence (Mazenda et al., 2022, Aman and Seuring, 2023). Interaction involving producers along with distributors is crucial in establishing a dependable marketplace system. Producers in South Africa are hesitant to create excellent agricultural output if they lack faith in their financial systems (Larsson, 2018, Bag et al., 2022).

The agricultural market relationships with various sorts of actors were classified - native distributors, retailers, agro processors, suppliers, cooperatives, and contract cultivation organisations - and it was noted that the ability to connect participants, as well as reciprocal confidence, was crucial to their achievement in developing market relationships (Moffatt, 2015, Jraisat, 2016). Relationships between companies are fundamentally dependent on the existence of confidence in one another among the many players concerned, and hence linking efforts should focus the development of this sort of credibility (Nigussie and Bekele, 2021). According to the researchers, trust is critical in developing excellent items and establishing successful market links.

Organisation, meso-level traits, and the procedure are the three foundations for trust. The organisation as an indicator of confidence encompasses the use of governmental variables that can aid in the development of confidence. It is formed through faith in the community's regulated systems and especially in its capacity to respond to breaches of trust (Breyer et al., 2015, Roubík et al., 2022). Organisational confidence may be shown in industry organisations and the judiciary. Meso-level feature-based confidence is obtained from the track record and quality of the transaction's players. Process-based confidence refers to the confidence developed through repeated interactions among individuals (Goswami et al., 2011, Ho and Burny, 2016).

Frequent payments can help to build this type of confidence. Based on hypotheses, the researchers addressed issues. If confidence is obtained via non-contractual compared to contractual interactions, it is considered a valuable commodity. Whenever the two sides can execute and uphold operations with any safeguards, confidence has a financial worth (Goswami et al., 2011, Ho and Burny, 2016). Non-contractual confidence eliminates the requirement for explicit documents, which are expensive to keep track of and implement, lowering costs associated with transactions. In the case of strong confidence, both parties to a deal might save time and money spent on traditional contractual operations (Diebold et al., 2000).

This is due to each of the transactors having faith in one another that a transactor would not be opportunistic regarding the other person even when given another chance (Daykin et al., 1993, Nchanji et al., 2021). Researchers recognise the financial benefit of confidence, especially when it comes to non-contractual structures of value chain operations. In South Africa, where non-contractual agreements predominate, confidence will be particularly

crucial in synchronising the operations of the value chains associated with agriculture (Majumdar and Pavone, 2020). Trust is becoming increasingly vital in economic interactions. Successful interaction and an honest exchange of knowledge can act as a facilitator to develop confidence among the two sides in the two alimentary chains – Oil seeds along with Oil mills - among six European nations - Germany, the United Kingdom, Ireland, Finland, more than Poland, along with Spain (Seong and Hong, 2021).

Based on the Mekong Centre's research on the maize distribution system in Kayin State, South Africa's maize growers lacked faith in established marketplaces, while distributors lost confidence in producers' output potential. As a result, confidence is a strong instrument for each engagement at various points in the value chain (Ruggeri et al., 2020). Establishing confidence is expected to be essential for finding mutually beneficial agreements among value chain operators. One of the primary variables in engaging value chain participants into trusting transactions is reliability and quality guarantee (Echenique, 2020, CHEGE, 2017). In both situations, the experts believe that the social relationship between distributors and producers, compared to other players, is a primary factor of confidence contributing to successful chain coordinating (Irfan and Wang, 2019). The following section will give the determinants of valuable player interaction.

3.5.5 Determinants of Value Chain Player Interaction

The process of connections among value chain players influences value chains in some capacity. To begin with, facilitators, including traders and mediators, serve a significant part of certain value chains in smoothing the link between producers and customers. Nevertheless, they are frequently chastised for resulting in inefficient trading and increased pricing (Kumar, Patwari and Ayush, 2022). It is mainly marketed as a panacea for enhancing a value chain by eliminating intermediaries. It is not, nevertheless, continually the most advantageous approach. Agents, on the other hand, play an administrative role by lowering discovery and matched expenses with aggregating either supply or demand to achieve economies of scale (Luvhengo et al., 2018, Fonsah et al., 2018).

Therefore, the function of intermediaries is fundamentally necessary in this scenario for successful and efficient coordinating of what happens among purchasers and sellers, despite the fact that this could add extra expenses to the transaction-related expenses of the chain activities (Benito et al., 2019, Sharma et al., 2021). Distributors execute various acts within specific agricultural value chains, especially in informal value chains, whereas various

participants in the chain are assigned diverse duties (Tiebout, 1956, Naveen et al., 2015). In India, for instance, distributors supply important commodities such as fertiliser, plant material, and loans to producers. Therefore, companies may obtain products from producers at a lesser cost. As a result, this type of performer has more influence than other performers (Oehmke and Opp, 2022).

They get not just a certain amount of control over the entire value chain, additionally receiving the highest portion of earnings in relation to their capital (Bartram and Dufey, 2001). In certain value chains, distributors played a role in sourcing a consistent amount and acceptable standard of an item for other players that included processors (Gibbon, 2021). Gibbon (2020) analyses this in the framework of distinct agricultural value chains in both rich and emerging nations, but without using real-life information. The researchers believed that distributors who performed different positions in the chain had more clout than other participants.

The duration of the connection involving producers and their consumers is viewed as the connection's structure, which has an influence on the distribution of risks and the ability of farms to move from a single purchaser to a different one (Badar, 2015, Roy and Rahman, 2022). Hotspot connections, extended, unofficial connections, and in the long run, formally established connections are the three sorts of connections.

Spot interactions are adaptable, with payments conducted among value chain participants on a company-to-company basis. A for a long-time informal connection denotes prolonged operations among the parties, which are accomplished by informal or written agreements. In the long run, legal connections relate to the participants' business connections (Dung et al., 2020, Gualandris et al., 2021). This sort of partnership is explicitly addressed in contract terms, which are typically accompanied by an efficient inspection procedure (Abel et al., 2019). Considering the absence of formalised contracts in emerging economies such as South Africa, whereby unofficial interaction is increasingly common across the chain, confidence is more vital in the in the long run, unofficial connection (Kurtishi-Kastrati, 2013b, Sangolkar, 2012).

Unofficial contacts have an impact on a value chain in both good and bad ways. Unofficial interactions offer those involved more options for dealing with adverse effects and less expensive transactions (Kurtishi-Kastrati, 2013a). Although intimate connections promote confidence and inhibit opportunistic activity in commercial environments, social networks

may operate as unofficial processes that manage value chain linkages (Paul and Singh, 2017). Nevertheless, from a safety standpoint, the efficacy of interpersonal agreements, or unofficial partnerships, decreases when uncertainty grows, even while instability has no effect. Furthermore, unofficial partnerships have limits in terms of tracking difficulties (Alam and Zulfiqar Ali Shah, 2013, Dabbadi et al., 2021).

These researchers examined them in light of reviews of the literature on developments in theory and empirical research conducted by other people. In these circumstances, social networks are a strong motivator for two people to practise their unofficial interactions. Similarly, official connections have both good and bad effects on a value chain (Makoni, 2015, Bolo et al., 2011). Conventional agreements are employed as a safety tool in official interactions. Official agreements lacked adaptability, which in most cases are unable to be voided or altered to fit unanticipated circumstances, so removing or reducing their ability to provide protections (Moran, 2011). Ex-post modifications, on the other hand, are necessary to correct maladaptation to the outside setting. As instability grows, the efficacy of official agreements declines, promoting pragmatism (Carson, et al., 2020).

In comparison with unofficial connections, a rise in uncertainty is unlikely to have a substantial influence on the efficacy of official partnerships. Despite the fact that restrictions on the efficiency of unofficial connections have been documented in the literature, little research has been devoted to them in the literature (Nunnenkamp, 2001). They express their opinions in light of the conceptual framework. Even though having official linkages may add cost to the chain's operations, they may offer stronger safety in unclear situations (Eslamloueyan and Jafari, 2019). The following section will provide value chain analysis research in South Africa.

3.6 Value chain Analysis research in South Africa

Considering the recent growth in the amount of research, most value chain research in South Africa was not concentrated on issues related to policy or places of entry. Throughout 2015 and 2016, Winrock Global, a non-governmental organisation located in the United States, undertook five value chain research studies: coffee, soybeans, with pepper in Shan State, as well as sunflower and watermelon in South Africa (Yang et al., 2019, Ghimire et al., 2019). In their coffee-related research, they discovered that producers' inferior planting practices and drying processes resulted in inferior quality coffee along with a consequence, they had less availability in markets both locally and globally (Yang et al., 2019, Ghimire et al., 2019).

Korsah et al. (2022) discovered three major problems that hindered both the standard and amount of soybeans in Shan State in soybean value chain research: a shortage of manpower, an absence of understanding of proper fertiliser administration practices, and a shortage of drying equipment. Insufficient labour resulted in increased worker salaries, resulting in greater production expenses and a restriction on the manufacturing scale; insufficient understanding of fertiliser application practices resulted in low efficiency; and the absence of dried facilities resulted in unsatisfactory soybean quality (Fonchamnyo et al., 2021). Inadequate use of pesticide practices, resulting in security concerns, hampered the increase of the market in the EU along with the US in the field of ginger production research (Korsah et al., 2022).

Insufficient farming practices including inappropriate growth companies, insufficient weed management, incorrect and unpredictable utilisation of fungicides and chemicals, and inappropriate following harvest practices harmed the amount as well as the quality of sesame oil produced in South Africa's middle evaporation region (Gilley and Rasheed, 2000).

Middle Dry Region watermelon value chain research showed that inadequate manufacturing, harvesting, and afterwards practices increased producer waste and loss levels (Winrock Global, 2016). The research found that landowners' inadequate agricultural practices and expertise, manpower shortages, and insufficient facilities all had an impact on the condition of crops and production, hurting the availability of marketplaces. Several INGOs, including the Gesellschaft für Internationale Zusammenarbeit (GIZ) and Oxfam, conducted agribusiness value chain analyses during that identical period. Throughout 2015 until 2017, GIZ worked on two agriculture value chains in Shan State: mangoes along with tea.

They emphasised that the environment along with value chain actors' lack of understanding of the way to adjust to evolving climates seriously endangered mangoes along with tea manufacturing in Shan State, all while catastrophes like landslides, floods, and shortages jeopardised the lives of individuals, which rely mostly on a small number of agricultural commodities, which involves the beverage and mangoes (GIZ, 2017). Oxfam also performed three research analyses on fishing value chains in Cape town, South Africa's western Cape Province. They noted that the gradual drop in prawn output was mostly caused by storm destruction of prawn ponds, expensive upkeep expenses, poor pricing in the marketplace, and global constraints on South Africa's exports (Joffre and Aung, 2014).

The research found that warming temperatures have a detrimental influence on agricultural and prawn output. Hence, as a component of their master's programme requirements, South African scholars conducted experimental value chain evaluations from several perspectives. Kaung Myat (2012) used a qualitative research technique to perform a value chain analysis on fruit. Accessing international markets for South African fruit was fraught with difficulties. They had a specific challenge growing mangoes to meet the demands of overseas markets because of inadequate funding from both the commercial and government sectors, as well as insufficient facilities (Edvardsson and Teitsdóttir, 2015, Flint and Golicic, 2009, Muhoro, 2014). Linn (2013) investigated the entrance points of various players, including governmental, corporate, and community organisations, in the sunflower value chain.

Insufficient technological advances, an absence of understanding of both input and result quality, and an are lacking lending opportunities are among the main variables impeding the growth of sesame oil manufacturing for producers, whereas an absence of financial backing is an important problem for other upstream participants including distributors, processing units, and exporting companies (Linn, 2013). Thus, Pyay Thar (2016) did a preliminary value chain study of fermented tea using a qualitative study technique, which gave helpful details to many parties in the chain that included distributors, manufacturers, NGOs, and regulators. She claims that the value chain is immature and inadequate because of inadequate knowledge exchange between players and their attitude of sabotaging the operations of others (Asatiani et al., 2019, Mungai, 2010).

Inadequate investment from the government, insufficient facilities, and limited availability of financing and knowledge, according to these South African researchers, hampered the growth of various value chains related to agriculture (Gomez-Conde, 2015, Vermeulen, 2010). In South Africa, limited agricultural value chain evaluations of various crops have been done for advocacy and policy objectives. Wong and Wai (2013), for example, analysed the utility's South African oil mills sector supply network. They observe that flaws in each component of the value chain hindered the expansion of the industry. Inadequate input integrity is a key obstacle to additional value chain growth in the downstream industry.

Landowners, for example, were discovered to be using contaminated and poor-quality plant material, urea fertiliser with 20% N, a figure that is substantially fewer than the normal amount of 46% N, and chemicals that are prohibited in adjacent nations. Low harvesting practices and a shortage of drying capabilities in the mid-stream sector resulted in inadequate

oil mills that had been milled (Gilley et al., 2004, Marshall et al., 2015). The lack of availability of funding, as well as the elevated cost of transport, rendered the downstream sector disadvantaged in global markets (Grillini et al., 2019, Scandeliuss and Cohen, 2016). Boughton et al. (2021) highlighted major elements that drove the healthcare industry's growth. Insufficient governmental funding for genetic and agricultural research as well as minimal private and governmental investment in logistics and manufacturing places of confinement, hampered the growth and diversity of the healthcare industry (Davis et al., 2021, Fan, 2022, Verma and Seth, 2011, Bharadwaj, 2019).

Belton et al. (2020) completed South Africa's biggest fisheries value chain analysis, concentrating on policy difficulties in the agricultural industry. These researchers discovered that small-scale producers have limited accessibility to as well as higher rates of interest on financing, that agricultural property law restricts the converting of grain territories into fish farming territory, that facilities (e.g., power, transportation, and water at high temperatures control of things), that insufficient government investments in announcing varieties of fish, and that a focus on cultivating certain creatures, which have a restricted number of overseas markets are important impediments to the ongoing growth of South Africa's fisheries business (Davis et al., 2021, Fan, 2022, Verma and Seth, 2011, Bharadwaj, 2019). bad input excellence, poor producer harvesting practices, an absence of facilities, a shortage of financial backing, and insufficient governmental funding for studies, according to these experts, impeded the growth of the aforementioned value chains in agriculture (Davis et al., 2021, Fan, 2022, Verma and Seth, 2011, Bharadwaj, 2019).

In South Africa, there are relatively fewer studies conducted by peer review on agricultural value chain analyses that address policy problems. Ben et al. (2018) discovered that unofficial easing of the regulations on transferring paddies farmland to other uses has resulted in the fast development of smaller and medium-scale fisheries. Furthermore, contrary to popular belief, fish produced in farms were mostly sold in local markets, as opposed to being shipped to international markets (Davis et al., 2021, Fan, 2022, Verma and Seth, 2011, Bharadwaj, 2019). Ebata and colleagues (2019) explored the function of management in illness management in pigs. It was discovered that increased collaboration among governmental organisations and other value chain players is required for efficient pig preventative measures (Davis et al., 2021, Fan, 2022, Verma and Seth, 2011, Bharadwaj, 2019). Ebata (2022), on the other the same direction, highlighted a lack of policies in the pig value chain in Yangon, South Africa. It was discovered that policy improvements were

necessary to lower the price of transactions for chain players and increase participation in healthcare for everyone (Davis et al., 2021, Fan, 2022, Verma and Seth, 2011, Bharadwaj, 2019). The next section will offer the Overall the Value chain financing in South Africa context.

3.6.1 Overall Value chain financing in South Africa context

The United Nations (UN) approved the 2030 Agenda for Action for the advancement of humanity in September 2015, which includes 17 Sustainable Development Goals (SDGs) spanning the areas of Society, Economy, and Ecological aspects (SEE) (Migiro and Ambe, 2008, Gerassimidou et al., 2022a, Grigorescu, 2015). Farming growth helps ensure long-term availability of food and impacts three SEE dimensions such as eliminating poverty (SEE1), avoiding hunger (SEE 2), as well as equitable production and consumption (SEE 3) (Ambe, 2016). The African Union (AU) approved Agenda 2063 from 2013, including its fifth objective aimed at modernising agriculture to boost production (Bizana et al., 2015, Ros-Tonen et al., 2018). The agricultural sector, according to South Africa's National Development Plan (NDP), has an opportunity to generate new employment through increasing agricultural in primary and secondary activities, farming underutilised land, and enabling commercial farming (Adebayo, 2012).

The purpose is to strengthen producers' Value Chain Financing (VCF) and help them transition to farming for profit (Dobroszek, 2020, Li et al., 2020). Agriculture is crucial in relieving impoverishment, and commercial AVCs are a typical way for agricultural development (Selomo and Govender, 2016). VCF must adhere to national and international regulations in situations when primary activities of food items along with associated production phases improve advertising (Nkwabi, 2019, Gerassimidou et al., 2022b, Straková et al., 2020). Primary activities along with secondary activities are altering the way of rural population and manufacturing companies. Mwale (2014); Turker and Altuntas (2014); Gituro and Awino (2007) propose that the "A fresh Global Society" presents chances for global-driven approaches to a variety of developments in agriculture concerns.

There are signs of significant advancement in recognising the prospects for primary and secondary activities in agriculture (Chemoiywo, 2014). The use of primary activities and support activities into parts of agricultural development promotes productivity within VCF and the farming industry (Mabusela et al., 2021, Shiferaw et al., 2011). However, hurdles may restrict improvements since AVCs are also characterised by inadequate understanding of

transactions, content information management, and low human and organisational capacity (Nchanji et al., 2021). Several announcing instances of advantageous VCF consequences for agricultural growth have not been enlarged, with fresh government initiatives that might combat disparities and social marginalisation by eliminating structural barriers to innovative thinking that are inclusive (Grote et al., 2021, Grote, 2014, Alnawaiseh et al., 2014).

Agriculture involving traditional farmers, rural women, indigenous groups, youth, and various other disadvantaged or marginalised individuals in rural regions requires strong political will (German et al., 2020). Regulators in the farming industry have to encourage this revolutionary VCF in the larger context of primary and support activities, since significant social ramifications have been overlooked (Ros-Tonen et al., 2019). Kudama et al. (2021), Mushi et al. (2022) and Glatzel et al. (2019) define VCF as a model and social framework that helps to improve and change each other's members in the value chain over time. Abdulai (2022) and Omulo and Kumeh (2020) define these AVCFs as socioeconomic structures in the financial, political, and cultural structures that influence the creation, implementation, usage, and control of the entire country. Conversations on the use of primary and support activities accepted by agricultural producers in AVCs ought to concentrate on the improvement of production, which is acceptance worldwide and primary activities delving into the significance of modern production at the agricultural sector (Fadeyi et al., 2022, Noort et al., 2022).

To begin this debate, it is necessary to identify the political, social, and economic factors that influence these VCF and socioeconomic structures (Temu and Marwa, 2007). This underscores the need to comprehend the current situation of research, which identifies insufficient data, resemblances, and discrepancies across AVC elements in the South African context (Evers et al., 2014, Conceição et al., 2016, Hutorov et al., 2018). Given the foregoing, the purpose of this research is to provide answers to the following two inquiries (Van der Lans et al., 2012). The first inquiry is, "How will value chain financing influence profitability in South Africa in the context of farmers?" The response to this inquiry entails identifying, realising, and assessing the advantages and obstacles that these aspects could potentially bring along for agricultural growth when the value chain is used in innovation (Barno et al., 2009, Shiferaw et al., 2013).

When the following inquiry is asked, "Exactly what are the consequences for regulatory and organisational obstacles which influence policy implications for the implementation of the

primary and secondary activities in AVCs of farmers?" the conclusion of this assessment provides a platform for further study (Asfaw, 2008). Roles that focus on management and organisational consequences will independently examine related inquiries to help academics as well as industry professionals organise, conceptualise, and perform their future studies on the value chain of farmers (Singh, 2021, Rosegrant et al., 2014, Strakova et al., 2021). The difficulty of carrying out and validating primary and secondary activities changes in these AVCs is not only necessary for producers to enhance their operations and functioning, but it can also be useful and necessary for a normal SME supply network that uses value chain (Ching et al., 2011).

This research examines and synthesises prior knowledge in order to discover critical foundations for future progress of VCF. By resolving this, a theorised knowledge of the variables influencing primary and secondary activities uptake in farmer AVCs was developed (Sensini and Vazquez, 2021, Caron et al., 2018). This might help prospective primary activities and secondary activities growth and practitioners to organise and conceptualise, as well as undertake studies concerning the value chain uptake in AVCs by producers (Mongrut et al., 2014). In three different ways, this study seeks to add to the knowledge on value chain growth. First, discuss the agricultural Value Chain (AVC) concept in South Africa. Second, the Limitations preventing South African smallholder farmers from engaging in the value chain and boosting their profitability. Finally, the research contributes to the analytical relevance of the challenges of small-scale producers in the official value chain. The following section will discuss the Agricultural Value Chain (AVC) in South Africa context.

3.6.2 Agricultural Value Chain (AVC) in South Africa's context

Agriculture is a vital industry that allows many developing-country economies to achieve economic progress (Pais and Gama, 2015). In addition, for the industry to contribute an important boost to economic expansion, it must be commercialised in order for farmers from smallholdings to have a role in the value chain (Sensini, 2020, Spiertz, 2012, Vahid et al., 2012b). Agricultural value chains in countries that are developing have seen substantial structural transformations over the past two to three decades, owing to reasons that include increased urbanisation, growing populations, rising customer affluence, and shifting consumer food habits (Al-Debi'e, 2011). Value chain restructuring is seen to be essential for decreasing poverty in rural areas and enhancing nourishment and food integrity (Baños-Caballero et al., 2012, Maestre et al., 2017).

Agriculture employs over 6.6 percent of the overall population over more than 32.15 percent of rural people and is the primary provider of revenue (Vahid et al., 2012b). As a result, the farming industry has demonstrated to be the foundation for strengthening rural lives and ensuring adequate nutrition (Akgün and Memiş Karataş, 2021, Saitone and Sexton, 2017). Following South Africa's first democratic election in 1994, the farming of smallholders became a major concern in the farming industry (Charitou et al., 2012). The growth of small-scale agriculture was prioritised by the ANC-led government (Charitou et al., 2016, Omomowo and Babalola, 2021). In addition, the industry has multiple coordinated challenges, such as institutional challenges, poor infrastructure, limited access to technological advances, and inadequate funding (Charitou et al., 2010).

South Africa is an impoverished nation along with is the 30th most dry nation across the globe in regards to drinking water per capita (Kusuma and Dhiyaullatief Bachtiar, 2018, Newton et al., 2011). Agriculture with irrigation accounts for over 30% of total crop output and is the nation's single greatest water consumer (Ho et al., 2018). According to Niu et al. (2020), Yeh (2016), and Crick and Crick (2023), farming with irrigation in rural regions can help alleviate hunger and create jobs. In a comparable manner, Ameer and Othman (2021) and Gadelius and Larsson (2019) stated that agricultural irrigation was the first step in promoting growth within underserved rural regions. According to De Marchi et al. (2020) and Belton et al. (2021), access to dependable irrigation helps small-scale farmers embrace new technology, resulting in enhanced agricultural production and value chain involvement. South African farming, especially irrigation, is seen as a dualistic industry (Liverpool-Tasie et al., 2020, Reardon et al., 2019).

Furthermore, the post-apartheid administration is dedicated to rectifying the problem by enacting appropriate water regulations that include the National Water Act 36 (1998) (NWA) (Baumüller and Kah, 2019). The dualistic organisation comprises of large-scale, well-resourced farming operations controlled by white individuals along with small-scale, underdeveloped farmers predominantly owned by black people (Sial and Chaudhry, 2012, Ambikapathi et al., 2022, Vural et al., 2012). Trade in the irrigation industry employs around 28 350 producers (Salman et al., 2014). Approximately 200 000 to 250 000 small-scale farmers engage in sustenance irrigation operations, with black females predominating (Korankye and Adarquah, 2013). According to Akindele and Odusina (2015) and Lande et al. (2022), 1.3 million hectares are irrigated, with small-scale farmers owning around 0.1 million hectares. Only 12% of the nation's land is suited for agriculture based on rainfall.

Rain-fed crops account for a substantial portion of South African farming. Hence, irrigation water needs are substantial (Zhao et al., 2021, Qureshi et al., 2015). Furthermore, Utami et al. (2019), Estiasih and Putra (2021), Moreira et al. (2022), Chaves and Pimentel (2023) mentioned that in the South African context, smallholders irrigated are commonly referred to as agricultural irrigation practised by black people. According to Nabipour et al. (2023), small irrigation producers are not uniform. These are categorised based on the level of influence they have over the supply of water, especially sourcing and delivery facilities and size operations (Danso et al., 2020, Ekpa et al., 2018).

In South Africa, smallholder farmers are divided into four categories: producers on irrigation systems, independent irrigation producers, society landscapers, and homeowners with gardens (Dastagir, 2022). According to Teplická and Straka (2020), Klyuev et al. (2019) and Umirzokov et al. (2022), the apartheid administration favoured white farmers while discriminating towards black farmers. As a result, South Africa's smallholder interpretations must include the features associated with tiny farm size and must construct partly formed ties with the larger financial system (Brodny et al., 2016, Brouwer et al., 2021, Konak and Güner, 2016). Commercial producers have complete access to global marketplaces, but small-scale producers do not (Andreeva and Krasnikova, 2020). The following section will provide a summary of South African rural irrigation systems.

3.6.3 A summary of South African rural irrigation systems (SIS)

Smallholder irrigation systems are multi-farmer irrigation initiatives in South Africa that span a region of over five hectares and are organised by black individuals and entities that assist their growth in impoverished rural regions (Gereffi, 2019, Ruben et al., 2021). Authorities have used SISs to boost agricultural output, economic growth in rural areas, food availability, and rural community life (Purnomo et al., 2020). According to Habte et al. (2020), Lund et al. (2019) and Marais and Bam (2019), there were a total of 302 smallholder irrigation initiatives in South Africa in 2010, spanning a surface of 47 667 hectares. Limpopo province offers the most farm irrigation systems in the nation, with 183 SIS containing a surface of 28 283 hectares (Rahayu and Saifi, 2019, Ruben et al., 2021). Eastern Cape province has 75 SIS spanning an amount of 9 641ha, while KwaZulu-Natal has 36 SIS spanning an amount of 6621ha (Sari and Sedana, 2020).

Drainage systems in South Africa are classified as follows: (1) Neighbourhood/garden systems: these types of systems are managed by neighbourhood people and their goal is to

generate food for human subsistence; they are typically modest in size (Al-Shubiri, 2010, Alipour, 2011). (2) Corporation-financed schemes: government funding supplies facilities down to the property gate, producers pay a subsidised watering fee, and producers make the majority of agricultural and managerial choices; (3) Bureaucratically controlled small-scale businesses schemes: cultivating is practised for the benefit of producers by government departments or agencies; and huge property schemes: are indicate or privately funded schemes: frequently overseen by drivers whose objective is to maximise the utilisation of resources through the cultivation of high-return agricultural products (e.g., tea, coffee, etc.) (Nastiti et al., 2019, Karaduman et al., 2010).

In the opinion of Sudiyatno et al. (2020), Nugraha and Riyadhi (2019) and Haralayya (2021), the majority of agricultural farmers in African smallholder irrigation initiatives generate of little importance commodities with limited inputs from farms and access to markets. Their earnings are insufficient to sustain and revitalise irrigation systems. Due to the poor performance of smallholder irrigation initiatives, the South African government has chosen to develop methods for improving smallholder irrigation infrastructure (Mansoori and Muhammad, 2012). Irrigation Management Transfer (IMT) and Regeneration are the two current agricultural growth periods in South Africa (Choi, 2020). IMT is predicated on the government delegating the duty of administering, running, and upholding projects for irrigation to producers (Eriotis et al., 2007, Bhatia and Srivastava, 2016).

By transferring property to landowners, the period attempted to enhance the efficacy of irrigation systems in South Africa (Hendricks and Singhal, 2001). The Restoration phase is intended to meet the goals of the National Development Plan (NDP) for economically encouraging and lucrative involvement in the formalised value chain in present irrigation initiatives and in local economies around the programmes (Dean et al., 2000, Le, 2019). The adoption of these Periods is the result of SIS's inability to meet the core aims of enhancing rural income, efficiency, and minority irrigator involvement in the value chain (Dahlquist and Robertsson, 2001, Singhania and Mehta, 2017). The importance of smallholder irrigation farming Agricultural cultivation in arid parts of Africa is heavily reliant on rainfall (Pindado et al., 2010, Akgün and Memiş Karataş, 2021). Small-scale producers' poor profitability is being identified as an impediment to growth (Solakoglu and Demir, 2016).

Smallholder irrigation has historically been regarded as a means of enhancing agricultural yield output and so achieving food security (Kogan and Papanikolaou, 2013, Singhania and

Mehta, 2017). As a result, there is a pressing need to strengthen the farming industry of smallholders irrigated (Smith et al., 1998). Smallholder irrigation allows producers to grow goods throughout the year since they are no longer constrained by the duration of rainfall, and small-scale producers may cultivate commodities that demand more consistent water supply, such as fruits and veggies (DeMiguel et al., 2020, Charitou et al., 2010, Bagchi and Khamrui, 2012). Value chain techniques are extensively supported as part of a holistic intervention framework for equitable smallholder growth in sub-Saharan Africa's rapidly changing agri-food marketplaces (Bassiouny, 2016). According to Abdel-Kader and Luther (2008), Buvanendra et al. (2017), and Johnson et al. (2007), smallholder producers' difficulties may be solved through increasing the value chain associated with agriculture.

A good or service must go through multiple procedures or phases before it reaches its customer (Ananzeh et al., 2022, Gonçalves et al., 2018). In order to create a feasible chain, each stage of the value chain must be immediately connected to the following (Korent and Orsag, 2018). At each level, the product undergoes more alterations or upgrades. The value chain is characterised as a chain of value-adding procedures that occurs from manufacturing to consumption via refining and marketing (Jawade, 2021, Moussa, 2018). The value chain additionally seeks to comprehend how value is produced and distributed between value chain participants (Mwakajila and Nyello, 2021). As a result, the agricultural value chain may be viewed as a collection of operations ranging from the initial input phase through various phases of production, processing, advertising, and distribution to the customer (Bargoni et al., 2023, Altaf and Shah, 2017).

A value chain, according to Al-Sabri et al. (2020), Liang et al. (2020), and Zalaghi et al. (2019), are the processes of improving the overall quality of something at various points of transmission. In addition, the primary goal of the value chain is to provide the greatest value to the ultimate customer at the lowest overall cost feasible (Sharma and Kumar, 2011). According to Rehman et al. (2019) and Adediran et al. (2019), the value chain idea offers a beneficial structure for understanding and connecting all processes in the manufacturing, change, and delivery of an item or collection of goods. Wang et al. (2019b), Haneberg (2021), and Khatib and Nour (2021) proposed that comprehending the world of making, acquiring, and marketing things through the use of a value chain. Input, manufacturing, management, shipping, and advertising are the four main participants in the value chain which are fundamental actors carrying out a variety of fundamental duties (Matar et al., 2018).

Input availability, manufacturing, processing, storing, the wholesale sector, the retail sector, and consumption are all traditionally involved (Willy and Ogeto, 2012, Al-Debi'e, 2011). Secondary activities roles assist in primary activities tasks such as transport and service administration (Nanda and Panda, 2018). Costs and worth increase as items are changed in a value chain. Worldwide markets are growing increasingly demanding in terms of quality as well as variety. As a result, an effective coordinating connection among participants in a chain is required (Dioha et al., 2018, Laghari and Chengang, 2019). The next section will provide the involvement in a value chain.

3.6.4 Involvement in a value chain

The capacity of an agriculturalist to be fully engaged in the marketplace effectively and successfully is referred to as value chain involvement (Zhao et al., 2019). This study comprises the producer's transition from subsistence agriculture to market involvement, in which inputs for agriculture are progressively acquired, value-added, and output items are traded off the farm to trustworthy marketplaces (Menon and Jain, 2021, Wang et al., 2020). The producer's capacity to fulfil consumer demands with regard to of norm, excellence, and the capacity to deliver regularity influences his or her involvement in a value chain (Li et al., 2023). According to Pandey et al. (2022), Srivastava and Dashora (2022), and Kamilaris et al. (2019), small-scale farmers can enhance their revenue and alleviate inequality by participating in a value chain. Similarly, Vu et al. (2023) and Rejeb et al. (2020) asserted that farmers that engage in a value chain are becoming profit-driven rather than subsistence-oriented.

Smallholder producers' involvement in the value chain is limited by numerous reasons, both within to the producers and exterior to their environment (Aslam et al., 2021, Högerle et al., 2020). Internal variables are barriers that contribute to the incapacity of farmers to satisfy market demands due to a lack of both financial and physical resources including loans and farmland (Chen et al., 2022a). Finally, the agricultural value chain includes multiple intermediaries between the producer and the customer, and every stage raises hazards and costs associated with transactions, which may influence market efficiency connecting smallholder farmers to consumers (Liu et al., 2019, Ray, 2012).

In addition, industrial farmers that generate substantial yields are the primary food providers in official marketplaces (Phochanikorn and Tan, 2019). According to Abdel-Baset et al. (2019), Perevozova et al. (2020), and Shukor et al. (2021), in order for small-scale

agricultural producers to reach markets, they must have accessibility to market knowledge. As Retail stores capture a large number of customers, connecting smallholder irrigation systems to official marketplaces can increase their revenue and incorporate them into the value chain (Büyüközkan and Göçer, 2018, Sharma and Kumar, 2011). Furthermore, in order for smallholder farmers to get a foothold in official markets, they must adhere to several requirements like safety rules and manufacturing requirements (Chai et al., 2023).

These requirements are difficult for smallholder irrigation systems to meet since they usually have no market knowledge (Qi et al., 2020, Kaddumi and Ramadan, 2012). In order to promote value chain involvement, the Smallholder Horticulture Empowerment and Promotion Project (SHEP) should be introduced to smallholder irrigators. The Smallholder Horticulture Empowerment Project (SHEP) began in Kenya in 2006 (Alimohammadlou and Khoshsepehr, 2022). The SHEP is a project of technological collaboration with Japan. Small-scale producers were empowered in horticulture by enhancing their ability to oversee marketplace-oriented agriculture and technical skills for growth in accordance with market demands (Rejeb et al., 2020, Samiloglu and Akgün, 2016, Garcia et al., 2011).

As a result, SHEP was established to promote small-scale producers to do market analyses and plant lucrative horticulture commodities based on consumer demand (Shahid et al., 2020). Producers comprehend not just pricing but also necessary quantities, quality, marketing circumstances, and price changes since market players and producers may exchange data that they possess (Bhat et al., 2021, Moussa, 2019). Furthermore, SHEP encourages equal treatment of women with the explicit goal of developing agricultural couples' interactions as agricultural management partners (Feng et al., 2020). Twenty-three African countries, namely South Africa, have taken part in SHEP Method workshops (Pal and Kant, 2019). Finally, after applying the SHEP Approach, producers' horticultural revenue has increased, as has their agricultural output and wellbeing (Khan et al., 2023, Purnomo et al., 2020). The following section then offers limitations preventing South African smallholder farmers from engaging in the value chain and boosting their profitability.

3.7 Limitations preventing South African smallholder farmers from engaging in the value chain and boosting their profitability.

In the words of Rejeb et al. (2020), Bhat et al. (2021), and Feng et al. (2020), contemporary markets have supplanted traditional marketplaces, which have resulted in negative consequences for small-scale producers since they are being removed from the value chain,

exacerbating the issue of rural impoverishment. Modern, competitive markets are redefining how food supply chains are managed, and small-scale producers have found it challenging to adjust to these changes (Ingram et al., 2020, Arulingam et al., 2019). Retail chains demand difficult requirements for unprepared small-scale producers to achieve, thus excluding them from the value chain (Khan et al., 2023). Mukherjee et al. (2021), Duan et al. (2020), Findlay and Hoekman (2021) observed that small-scale producers are prevented from engaging in the value chain due to an absence of comprehension of categories and requirements, binding contracts, and weak organisational frameworks.

In a comparable manner, Kano et al. (2020), Mausch et al. (2020) and Toussaint et al. (2021) claimed that some South African small-scale agricultural producers engaged in the official market. Agreements, however, were cancelled since they were unable to satisfy the quantity and standard of supplies (Chatterjee, 2010). Research suggests that formalised market rigorous criteria impede smallholder producers' involvement (Esplin et al., 2014, Andreoni and Torreggiani, 2020). Finally, because small-scale agricultural producers frequently do not have physical facilities, transaction expenses are substantial (Kumari and Mishra, 2020). The limitations that prevent smallholder farmers from getting involved in the value chain are explored in depth below. The next section will discuss financial accessibility.

3.7.1 Financial Accessibility

Accessibility to financing is frequently viewed as a vital component in increasing output from agriculture and value chain growth (Gentry and Shen, 2010). In addition, prompt access to and accessibility of loans, as demonstrated by Kumari and Mishra (2023), Konchitchki and Patatoukas (2014) and Rapp (2010), allow small-scale farmers to generate commodities that match the formal value chain's accepted standards. According to Mausch et al. (2020), as well as Azadegan et al. (2020), availability of financing might help small-scale producers engage in agricultural innovations and land upgrades like crops with high yields and chemical fertilisers that boost output to fulfil market demand. As a result, loan availability stimulates the implementation of new technologies, raising agricultural inputs and profitability (Heikal et al., 2022, Andreoni and Torreggiani, 2020).

Small-scale producers in underdeveloped nations have difficulties in obtaining agricultural credit. The commercial banking industry views loans to small-scale producers as high-risk ventures (Lee et al., 2022). According to Sang (2021), Shinkevich et al. (2021), as well as Chunsheng et al. (2020), who investigated trends in lending to small-scale agricultural

producers in the Republic of South Africa, loans are frequently supplied to large-scale producers, but smallholder producers may have extremely little or no opportunity to obtain them due to organisational constraints. Ching et al. (2011), Sensini and Vazquez (2021), and Alvarez et al. (2021) observed that small-scale agricultural producers frequently have trouble getting finance, and that lending organisations are usually biased against small-scale producers, especially women producers.

Pais and Gama (2015), Chiriboga et al. (2020) as well as Raugei et al. (2020) discovered that banks had difficulty lending to minority farmers since their business mission concentrated on larger farms with a guaranteed, proven track record (credit history), and economies of size. In a comparable manner, Pettit et al. (2019) and Pettit et al. (2010) said that banking organisations ask producers to provide evidence before granting them loans. Because small-scale agricultural producers have little access to agricultural tenure assurances and guarantees, they are at a competitive advantage in the value chain (Hohenstein et al., 2015, Kano et al., 2020). According to Pettit (2008), Novak et al. (2021), Sá et al. (2020), insufficient market intelligence and integration into the value chain impede small-scale agricultural producers from obtaining finance. Datta (2017), Pettit et al. (2013), and Tukamuhabwa et al. (2015) discovered that the majority of financial institutions in Mozambique are wary of lending to small-scale producers.

In South Africa, financial institutions depend solely on farmers who are businesses. As a result, smallholders must rely on unauthorised lenders to meet their loan demands. However, these financial resources are insufficient to meet all agriculture needs (Ivanov, 2021, Iwara and Kilonzo, 2022, Pakdel and Ashrafi, 2019). They are only available for a limited time, causing small-scale producers to miss out on purchasing machinery for farming as well as additional inputs (Shishodia et al., 2023). Finally, according to the International Finance Corporation (IFC), financial institutions only loan roughly 1% of their money to Africa's farming sector. This shows that financing to producers is scarce, and the majority of small-scale producers have difficulty obtaining loans from conventional banks (Negri et al., 2021, Hansen et al., 2022). Moreover, this is primary cause of subsistence producers' marginalisation. The following section then provides the accessibility to markets.

3.7.2. Accessibility to markets

3.7.2.1 Amount and quality

Dependable resources such as water, land, and financial resources are critical components of production. According to Chofreh et al. (2019), Liu et al. (2020), and Tong et al. (2021), small-scale producers lack appropriate contemporary crop cultivation and, after harvesting, processing equipment required to produce goods of superior quality for official marketplaces. The bulk of small-scale cultivators generate goods of poor quality in limited quantities (Foran et al., 2014). According to Maestre et al. (2017), Bizikova et al. (2020), Marsden and Morley (2014), small-scale producers lacked the predictability, security requests, and supply timetables required by the official market. According to Caron et al. (2018), as well as Farmery et al. (2021), small-scale producers rarely grasp what they are producing, when and in what amounts or quality standards, how marketplaces function, and why values change. As a result of the shortage of knowledge, smallholder farmers are less likely to participate in the value chain (Grant, 2015, Carmody, 2020).

Small-scale producers cannot meet all of the demands of highly valuable food markets because there are no intermediaries' participants guaranteeing relationships between different fields and coordinating the supply chain to address the market flaws that affect small-scale agricultural producers (Foran et al., 2014). Because of increasing food rules as well as quality requirements, the majority of small-scale producers are not connected to market needs (Maestre et al., 2017, Hibistu, 2020). According to Bizikova et al. (2020), Caron et al. (2018), Farmery et al. (2021), 76% of small-scale farmers questioned in Limpopo do not have accessibility to trading knowledge, particularly market pricing and seasonal patterns for agricultural goods. Producers were also uninformed of quality criteria and pricing for goods at the neighbourhood and customer level, as well as better venues to market their crops (Liu et al., 2020).

In a comparable manner, Tong et al. (2021) and Fei et al. (2016) discovered that official marketplaces were unpopular amongst small-scale producers in Limpopo province, leading to minimal involvement in the value chain. Due to a lack of marketplace knowledge, subsistence producers' engagement in the value chain is overlooked (Li et al., 2022b, Hibistu, 2020). The agricultural capacity to make educated judgements is enhanced by being able to take advantage of market knowledge (Amicarelli et al., 2022). For knowledge of markets,

small-scale producers frequently depend on informal sources (friends and family) and governmental development officials (Nikolina, 2019, Stathers et al., 2020).

These sources of information, however, may not be as trustworthy (Bukhari et al., 2018). Subramanian et al. (2022); Lund-Thomsen and Lindgreen (2014); Darsani and Sukartha (2021) on the other hand, discovered that unofficial sources were more successful at supplying producers with vital knowledge that would enable them to engage in value chains. Accurate market information is critical for small-scale agricultural producers seeking to boost their profitability (Alfina et al., 2018). According to Ernawati et al. (2019), Sari (2021), Monika and Noviari (2021), erroneous price information has a detrimental impact on small-scale producers, and if the details are erroneous the producers may suffer a financial loss. In a comparable manner, Shmatkovska et al. (2022), as well as Helgesen (2021) claimed that the majority of smallholder agricultural products are wasted or offered for sale at low rates after gathering. According to Syafrizal and Ilham (2023), Al-Harbi (2019), and Ghassim and Bogers (2019), although having the chance to get involved, farmers are forced to accept the market price owing to a shortage of pricing data. Lastly, this indicates that greater effort is required to increase smallholder producers' access to marketplaces. The following section will provide the inputs supplied.

3.7.3 Input supply

3.7.3.1 Transaction Price

Small-scale producers encounter several obstacles in countries that are developing. Addressing requires measures that involve alterations to institutions that promote effective rural service shipment, physical facility enhancement, and expanding markets (Arifin and Yaqin, 2020, Stathers et al., 2020, Paul and Mitra, 2018). The agriculture industry is becoming more commercialised (Khanlarzade et al., 2022). Farmers who are smallholders, as a result, demand institutions that are sensitive to their demands, such as involvement in the value chain as well as accessibility to trade knowledge (Rahayu and Saifi, 2019, Queenan et al., 2020).

However, due to a variety of impediments, smallholder farmers in much of South Africa have discovered it is challenging to engage in the value chain (Gill et al., 2010). For most small-scale agricultural producers, transaction expenses represent entry obstacles to value chain involvement and profitability (Charitou et al., 2010, Sako and Zylberberg, 2019). High

expenses for transactions have been identified as one of the primary causes for smallholder producers' absence from a value chain in multiple research, including Appuhami (2008), Lazaridis and Tryfonidis (2006), and Nobanee and Haddad (2014).

In distant places, most smallholder farmers are far from suppliers and large customers. As a result, higher barriers to financial markets, insufficient infrastructure, and imprecise knowledge all add to the expenses associated with entrance (Makori and Jagongo, 2013). According to Napompech (2012), Padachi (2006), and Vishnani and Shah (2007), expenses tend to be considerable during rainfall because agricultural roads are impassable, and in situations when buyers supply transportation, this reduces the rates that purchasers are willing to give to producers. As a result, expensive transaction fees dissuade smallholder irrigators, making it impossible for them to participate in competitive marketplaces (Mansoori and Muhammad, 2012, Lanari et al., 2021). The next section then offers the storage locations.

3.7.3.2 Storage locations

According to numerous research studies, smallholder farmers lack storage space for their collected and processed products (Farooq, 2019, Sunjoko and Arilyn, 2016). According to several research, the majority of smallholder farmers distribute newly harvested goods by nonrefrigerated transit, leading to deterioration and rejection by distributors and merchants. According to Wibowo and Rohyati (2018), Amanda (2019), and Sekeroglu and Altan (2014), producers in underdeveloped nations suffered 30-35% losses owing to inappropriate preservation practices. Farmers require warehouses that include refrigerators to maintain their food healthy and marketable (Innocent et al., 2013). They also maintain the nutritional value of fragile agricultural goods after collection.

As a result, inadequate refrigeration causes farm goods to lose value and fail to satisfy market standards (Alavinasab and Davoudi, 2013, Mohamad and Saad, 2010). Bagchi and Khamrui (2012), CHISTI (2013), Pouraghajan and Emamgholipourarchi (2012) discovered that intermediaries take benefit from small-scale producers in research on technological effectiveness in vegetables at Tugela Ferry. They purchase producers' commodities at an affordable cost and resell them at an increased cost to urban consumers (Ponsian et al., 2014). The explanation for this is that there aren't sufficient warehouse capabilities to keep the goods when the market prices drop. Furthermore, smallholder farmers lack the ability to benefit from stockpiling (Mansoori and Muhammad, 2012, Nguyen et al., 2020).

3.7.3.3 The cost of input

According to Ching et al. (2011), Sensini and Vazquez (2021), and Mongrut et al. (2014), the vast majority of smallholder farmers in nations that are developing utilise delayed seeds, resulting in low returns and poor-quality production. Poor germination of these seeds produces oil seeds that are rejected in official markets (Nguyen et al., 2020). For example, a study carried out in a few East African countries showed that small-scale producers are having difficulty advertising agricultural products because they are too prohibitively costly (Pais and Gama, 2015, Sensini, 2020). As a result, producers have significantly decreased their consumption of quality ingredients including pesticides and fertilisers (Sensini, 2020).

According to Tanzania's Agriculture and Human Growth 2007 report, 87% of the small-scale farmer population did not use chemical fertilisers, 77% did not use modified seeds, and 72% did not use insecticides (Basyith et al., 2021, Phuong and Hung, 2020, Usama, 2012). The high expense for high-quality resources was the motivation for adopting low-quality inputs. As a result, producers fail to manufacture in the amount and quality required by the official market (Le et al., 2018). According to Nguyen et al. (2020), and Singhania and Mehta (2017), the majority of small-scale cultivators live in areas with low soil composition. Farmers need fertilisers to raise productivity in order to further enhance soil quality, and these supplies are prohibitively expensive (Le, 2019).

According to Altaf and Shah (2018) and Paul and Mitra (2018)'s research on risks associated with supply chains and smallholder agricultural producers in Gauteng province, producers expressed dissatisfaction about the expense of the inputs, claiming that they were excessively costly. As a result, they had to decrease their expenditure on different inputs while lowering the amount they produced in order to finance certain inputs (Panda and Nanda, 2018, Setianto et al., 2022). As a result, productivity and earnings decreased. As a result, a fall in the level of output excludes producers from participating in an official market that needs steady quality as well as quantity. According to Altaf (2020), Laghari and Chengang (2019), even when the federal government supplies input, the difficulty is that fertiliser and seed transportation is infamously delayed, and its availability is typically limited to a few well-connected producers.

3.7.3.3.1 Infrastructure and logistics

Accessibility to input as well as output sectors is dependent on the accessibility of infrastructure as well as logistics. Poor local construction of infrastructure limits smallholder producers' utilisation of consumers (Ding et al., 2013, Ben-Nasr, 2016). According to Charitou et al. (2010), as well as Högerle et al. (2020), inadequate infrastructure in rural areas contributes to greater transaction expenses for smallholder farmers. Transportation infrastructure has a significant impact on farmer value chain involvement, especially if they are situated distant from consumer hubs (Moss et al., 2021). Producers can move their goods to marketplaces more swiftly and safely if suitable roads are built (Dharmayanti, 2019, Dewi and Yasa, 2020).

Poor transportation links, on the other hand, impede rural farmers' accessibility to agricultural inputs and product markets (Ann and Manurung, 2019). Fitri and Munandar (2018), Sugeng et al. (2020) discovered, for instance, that certain small-scale producers in Limpopo province have a duty to transfer what they produce to big farms since they can negotiate and have access to marketplaces because they have convenient transportation. Because of the absence of facilities in rural regions, small-scale producers are at a competitive disadvantage when it comes to engaging in a value chain (Nugraheni and Murtin, 2019, Akinola et al., 2020). Routes are closed during particular seasons. Similarly, Ernawati et al. (2019), Santini and Indrayani (2020), Gunawan and Resitarini (2019), claimed that small-scale cultivators in South Africa are located in rural regions distant from public highways, and producers are served by gravel paths that have inadequate upkeep and frequently become impassable throughout the time of year when it rains.

As a result, it inhibits farmers' capacity to acquire supplies and deliver commodities on time, resulting in high cost of transportation and transaction expenses for consumers as well as sellers, and leads to unattractive, authoritarian marketplaces (Savitri and Rahmawati, 2017, Eisenreich et al., 2022). A great deal of small-scale farmers do not possess automobiles and must rent delivery to bring their commodities to marketplaces (Straková et al., 2020). According to Strakova et al. (2021), Sun et al. (2021), and Rajnoha et al. (2019), many small-scale farmers in Msinga rely on public or rented cars to deliver their goods to the market. This jeopardises smallholder farmers' involvement in the value chain. The results presented here are consistent with the findings presented by Dilyard et al. (2021), as well as Gao et al.

(2022), who found that transportation resources were insufficient to maintain agricultural programmes in most rural locations.

According to Huang et al. (2022), and Xue et al. (2017) the majority of irrigation projects are located in distant locations with little facilities, access to markets, and value chain participants. As a result, systems are difficult to enter, limiting farmers' availability of manufacturing supplies and limiting farmers' ability to move their output to markets (Ye, 2022). Finally, inadequate infrastructural circumstances reduce the worth of farmers' goods, making them unsustainable and excluding them from economic involvement in value chains (Zhang et al., 2022a, Li et al., 2022a). Aspects influencing smallholder farmers to obtain profitability. Various variables have been identified as influencing smallholder producers' profitability. These factors may be beneficial or detrimental to smallholder irrigators (Liu et al., 2020, Moussa, 2018).

Age, proximity to market, production, the amount of land owned, agricultural level of education, and previous experience are a few of the recognised characteristics impacting smallholder agricultural profitability (Tarekegn et al., 2020). Gebre et al. (2022), Ouma and Jagwe (2010), and Gebre and Rik (2016) discovered that increasing age has a detrimental impact on the profitability of small-scale producers. As the agricultural worker ages, he loses assurance, his ability to be inventive, and his physical ability to undertake manual labour (Mohamad and Saad, 2010). As a result, the power required for producing a significant quantity of commercial food is compromised, which has a direct detrimental impact on the profits made by farmers (Gerassimidou et al., 2021). Kakadellis and Harris (2020) and Blanc et al. (2019), on the other hand, suggested that a rise in family age may have a favourable impact on farm profitability.

This might be attributable to the reality that farmers who are older have more expertise and are able to utilise their acquired expertise and knowledge to utilise supplies with greater effectiveness (Kung et al., 2012, Shafique et al., 2017). The greater the separation between the producing region and the markets, the less opportunities to engage in a value chain, and thus the lower the revenue due to transportation expenses (Alghababsheh et al., 2022). Hence, since the majority of smallholder irrigation systems are situated in isolated regions, it has a detrimental impact on their profitability (Habib et al., 2020, Amjad et al., 2022).

According to Rupa and Saif (2022) and Herrmann et al. (2021), there is a favourable connection between learning and profitability. Producers may make more educated choices

with the support of education. An experienced farmer is going to understand the importance of the credit system and will accept new technology (Seman et al., 2012). As a result, excellent agricultural practices and farm planning improve output and earnings. According to Umar et al. (2022), Eltayeb and Zailani (2014), and Rao and Holt (2005), farmers who are smallholders possess small plots of land, leading to poor profits. In addition, a rise in the amount of land may have a favourable impact on profitability since bigger land size leads to increased overall productivity. Profitability is predicted to rise as a result (Khan et al., 2021).

The following section will provide the Challenges of small-scale producers in the official value chain.

3.7.3.4 Challenges for small-scale producers in the official value chain

Several academics have found stories of achievement in which small-scale producers from South Africa effectively engage in a formal value chain (Raut et al., 2019). According to Suki et al. (2023), and Ahmed et al. (2018), small-scale agricultural producers in South Africa have access to a variety of marketplaces, including greengrocer stores, unauthorised markets, and agricultural markets.

3.7.3.4.1 Manufacturers of Sentraal-Suid Koöperasie ltd (SSK ltd)

Sentraal-suid koöperasie ltd (SSK ltd) Manufacturing company is in South Africa's Northern Cape Province (Pacheco et al., 2017). This is a rural coloured community. Olive oil for currants is grown by small-scale producers. The region has 600 hectares of irrigable land, which is farmed by 76 families, each of which farms an average of 3.6 hectares (Purnomo et al., 2018, Susanti and Maryudi, 2016). The Eksteenskuil Producers' Organisation (EFA) received Fairtrade Labelling Organisation (FLO) accreditation in 2003 for shipping its selected quality currants to Tradecraft, a Trade linked customer representing the United Kingdom (UK) (Shigetomi et al., 2020). Participants produce autonomously, and producers transfer their goods to the South African olive Oil (SAO) warehouse (Varkkey et al., 2018, Harahap et al., 2019, Chatterjee, 2012). SAO assesses currants to guarantee that they satisfy the demands of the market. Producers can only take advantage of the benefits under the commodities they sell under the equitable commerce programme (Qaim et al., 2020). SAO is the neighbourhood's only fair-trade authorised processor, while producers can only offer their currants to SAO if they are prepared to engage in the fair-trade value chain (Moreno-

Peñaranda et al., 2015, Gan and Li, 2014). The next section then provides the value chain of soybean and olive oil: Thandi oil.

3.7.3.4.2 The value chain of soybean and olive oil: Thandi oil

Thandi was part of an initial farming initiative in South Africa that benefited from the government's AgriBEE (Black Economic Empowerment (BEE) programme. Employees were able to purchase farms and became dependents because of this branding (Obidzinski et al., 2012, Khasanah et al., 2020, Jelsma et al., 2017). The Thandi programme is a marketing and promotion programme for smallholder producers' soybeans with olive oil production (Ayompe et al., 2021). This initiative is a collaboration of employees, producers, soybeans with olive oil enterprises, olive oil exporting corporations, and the government (Afriyanti et al., 2016, Rahman et al., 2023). This represents one of the most profitable companies since it has lasted over ten years in an extremely demanding economic climate, despite a disadvantageous trade approach (Niresh, 2012).

Small-scale agricultural producers, as suggested by Kushairi et al. (2018), and Kushairi et al. (2019), require engaging in collaborative endeavours to overcome the problems of high transaction expenses and boost their ability to negotiate in order to raise their competitive edge. Employees from seven wine farms were brought united as subcontractors to the export company Capespan in this scenario (Khatiwada et al., 2021, Austin et al., 2015). According to Gao et al. (2022) and Huang et al. (2022), farm labourers could end up being joint proprietors of an effective competitive agri-business. This, fortunately, requires the political will to succeed, solid cooperation, and finance. The following section will provide Perspective with different Countries.

3.7.4 Perspective with different Countries

The notion of tying value chain financing is not recent. The strategic utilisation of value chain financing for farming in a creative and structured manner, utilising adapted methodologies and technology, is only recently discovered (Dalemans et al., 2019, Abel et al., 2019).

The following is a summary of the findings of a few studies on value chain financing in the sub-Saharan region of Africa.

3.7.4.2 Kenya - Various value chains

Most Kenyans are small-scale agriculturalists and fisheries. Agricultural growth and development are vital to Kenya for several factors, including the influence on revenue from agriculture, well-being of the population, and the availability of food (Supriyanto et al., 2023). Quentin (2021), John and Owoeye (2022) and Musaba and Mseteka (2014) mentioned that analysis of Kenya's dairy value chain in four areas led to a good consequence, as other banks became interested in funding new initiatives utilising the value chain financing technique. Hence, prior to this being able to be implemented even more, an excellent analysis of several of the Kenyan value chains was required (Asad et al., 2019, Müller et al., 2019).

The researchers used a two-pronged technique, first sifting through the literature on the value chains selected based on their characteristics, followed by surveys and scheduled interviews. The practical supply-demand links, economic importance, availability of food, banking institution fascination, social agenda, and accessibility to goods were the research's primary topics for the information that was obtained and examined (Alabi et al., 2020, Tuomala and Grant, 2022). The most promising six value chains had conversations with different banking institutions to gauge their enthusiasm for additional funding for these chains. The results of the research by Dalemans et al. (2019) and Sadiq et al. (2018) were outlined as follows:

- i. The banking industry was more likely to assist the less hazardous value chains that placed them first, such as seafood, milk products and vegetables.
- ii. Seafood and milk are functioning effectively value chains that enable many Kenyans to produce beneficial results by engaging in successful businesses that generate a lot of attention from creditors.
- iii. The banking industry evaluated various hazards, such as rice and maize, which were rated third and fifth in the survey, accordingly, but were deemed too dangerous by many institutions.

They consider them excessively dangerous because of political involvement in generating cost and unpredictability to bring in regulations, which are a visible risk to prices, as well as elevated production risk due to government regulations regarding water watering in the case of rice (Glenday et al., 2015). The excessive intervention from the government in maize prices hampered the ability of agricultural producers to repay their debts (Bui, 2020, McKay, 2020, Bellouma, 2011).

3.7.4.3 Rice value chain financing in Rwanda

Bui (2020) and Ocholi and Ayila (2018) performed research in Rwanda to investigate the link between value chain financing as well as accessibility to credit for small-scale agricultural producers. Employees of agricultural and financial institutions were questioned. In Rwanda, agriculture value chain financing (AVCF) has proved an accomplishment in resolving the concerns and limitations of small-scale producers' ability to obtain credit (Manova, 2014, Grabs and Ponte, 2019). The results revealed that value chain financing was directly linked to improved rates of profitability and productivity among small-scale agricultural producers (Charitou et al., 2012). In addition, the research conducted by Walters et al. (2020), Barayandema et al. (2017), Kwizera (2016), and Mugenzi et al. (2020) demonstrated advancements in social conditions and income in locales where AVCF was established, particularly in Mukunguli, southern Rwanda.

Hence, the SWOT assessment performed during the research revealed deficiencies including difficulties with infrastructure that were neglected and developed from higher output, necessitating storage facility upgrades (Sibiya and Barnard, 2020, Barrientos et al., 2019). A further issue identified was a lack of leadership and oversight as a result of the transition of small-scale cultivators from poverty to agricultural production, which required to be addressed (Lind et al., 2012). Rwanda's financial system is highly reliant on farming, which accounts for 80% of its international revenues; in 2009, farming accounted for 39% of GDP, which renders it the major worker (Muhammad et al., 2012). As a result, AVCF has an opportunity to facilitate the expansion of the farming industry, with small-scale producers participating in future economic expansion and addressing concerns regarding impoverishment and availability of food (Agyekumhene et al., 2018, Makule et al., 2022).

3.7.4.4 Multiple African countries - Sorghum beer growth in the value chain

Orr (2018) and Kwizera (2018) performed a cross-case study over five sorghum beer growth in value chain collaborations in Sierra Leone, Ghana, Uganda, and Zambia. SAB Miller, Heineken, Guinness, and different regional non-profit organisations were among the beer corporations. The primary objective of the research was to examine these connections and their influence on the value chain, as well as how they relate to modernising at the point of production (Wijk and Kwakkenbos, 2012, Strange and Humphrey, 2019). The research conducted highlighted the significance of learning and innovation for effective crop

cultivation of excellent flavour and productivity, allowing small-scale producers to satisfy the expectations of producers. This research emphasised the investigation's difficulties in obtaining finance outdoors the chain, highlighting the requirement for more study on the evaluation of the future viability of these shifts in institutions as facilitated by value chain connections, the long-term consequences of focusing on a single crop, and the necessity of continuing to review project viability outside the fact that there is the assistance (Musara et al., 2019).

3.7.4.5 Ghana - Value chain of household chickens

Deters (2011) and Wilson and Lewis (2015) performed research in Ghana to examine the impact of players' actions and connections throughout the value chain, as well as how they affect the production of household chickens in Techiman, Ghana. To evaluate the trends and prevalent themes from the data obtained, qualitative data acquired through focus sessions and semi-structured interviews was processed using content analysis (Haggblade et al., 2012). The research's primary results were that the success of household chicken farms was highly connected to the amount of production processes and the quantity of input employed (Orr et al., 2017, Nair, 2021, Charitou et al., 2012). Manufacturing activities comprised all areas of manufacturing, including the technical components and the societal and organisational processes that supported the firms (Charitou et al., 2016).

The great achievers, on the other hand, were those with greater connections to manufacturers and providers. The difficulties identified stemmed from the production company-buyer connection, which was controlled by consumers (Charitou et al., 2010). Buyer domination resulted in poor business connections among chain participants and market regulators, which harmed productivity (Orr et al., 2017). The suggestions for policies followed in order for enhancing this value chain, specifically more effectively availability of private funding for manufacturing participants; improvements to the infrastructure, specifically in shipping, advertising, and storage purposes; and, finally, encouragement of backing institutions for household chicken businesses to guarantee business profitability (Nygaard and Bolwig, 2018, Simpson et al., 2019).

3.7.4.6 Agro-sector finance in Latin America and the Caribbean

Roldan et al. (2013), Diao et al. (2023) and Tumukunde et al. (2020) investigated the availability of funding by small and medium-sized enterprises (SMEs), in addition to proof of

how it is influenced by connect-firm connections, particularly interactions with big companies. There is literature describing how SMEs receive into cash flows via value chains, providing they might be assisted by either private funding supplied by major enterprises or the SMEs' connectivity to bigger companies, offering more funding prospects (Casella et al., 2019, Li et al., 2019). Connections with bigger enterprises gave greater possibilities by providing SMEs with secured purchases and, consequently, more assurance about their future finances, while overall affiliation with bigger companies had a good reputation influence on the SMEs (Gordon et al., 2011).

The study's findings revealed that collaboration with bigger companies improved SMEs' ability to obtain credit. Moreover, proof was discovered that independent assistance, which includes value chain management, was required, which is critical for SMEs' ability to obtain finance (Adu et al., 2021, Lund et al., 2020). Value chain finance in Argentina's agro sector has shown that the presence of a significant customer or trade has increased farmer reliability, rendering them more secure and putting them in a favourable position to be considered by creditors. Barrientos and Bobie (2016) and Speich et al. (2023) also highlighted that possessing an established market was not the only criterion they were going to evaluate; however, it did play a positive influence in the array of different grades, underlining the function of chain management as one of the vital components in financial evaluation. The following section will offer Financing in the Value chain and Profitability.

3.7.5 Value Chain Financing

Value Chain Financing (VCF) is a realistic strategy for funding that can assist in increasing profitability. Value Chain Financing provides an opportunity to decrease financial costs and risks while reaching over to agricultural producers (Achoja, 2019, Jian et al., 2019). For manufacturing firms, Value Chain Financing provides an incentive to think further than the immediate recipient of funding to comprehend the sector's ability to compete, dangers, and to build goods that best match the demands of their companies mostly in the Value Chain (Sori and Wana, 2019). Furthermore, most of the ready cash to Value Chains comes from both financial firms, as well as from certain value chain partners.

Viskari et al. (2011) and Nabi et al. (2023) discovered how money frequently looks completely different while delivered through a value chain rather than through financial firms. Numerous financial assets could be utilised to boost financial access while lowering expenses, as well as identifying dangers through the company (Jraisat, 2016). Through a

quick production environment, value chain financing will be utilised, which has several significant factors and implications (Chong and Ali, 2022). The movement of financing to value chain initiatives inside a value chain is referred to as value chain financing. The firm can leverage its value chain to generate profits by itself while also gaining a competitive advantage over its competitors (Mofolo, 2018, CHEGE, 2017). In recent years, the value chain, particularly in agribusiness, has gained less funds, owing to the dangers associated with it, due to disintegrating capital (non- financing of the Value Chain) (Kabu and Tira, 2015).

Moreover, a few organisations remain resilient in the face of adversity. They have discovered new ways to exploit agricultural production and have managed to make it their primary company (Kouwenhoven et al., 2012, Henson and Humphrey, 2010). Therefore, value chain financing is critical in meeting the needs and restrictions of value chain actors. Hence, the results-based perspective (RBP) focuses on Value Chain activities and their influence on business profitability (Randall and Farris, 2009). This occurs when abilities and asserts seem to be devoted toward maintaining Value Chain practices. Upon these primary purposes, demand management aids in the management of consumer demand by documenting escalating knowledge (Vonsée et al., 2019, Tran et al., 2013). Further, the management of customer relations preserves as well as creates long-term relationships with consumers through analysing data and comprehending consumers' demands (Müller et al., 2019). The next section will offer value chain financing in raw materials.

3.7.5.1 Value Chain Financing and Raw Materials

The accessibility of raw materials would be critical to the survival of every firm. Throughout the edible oil sector, raw materials are obtained through contract farming and local market purchases, as well as raw material imports (Islam et al., 2012, Kano and Hoon Oh, 2020). The main factor is obtaining raw materials at the lowest possible cost and of the highest quality when they are available for manufacturing to maximise the implemented manufacturing capability (Randall and Farris, 2009, Mazzawi and Alawamleh, 2013). Contract farming is becoming more popular, perhaps a tool for incorporating local manufacturers into contemporary value chains. Contract farming is a buyer-driven value chain approach that is commonly used in food production, agribusiness, supermarket chains, and huge production companies (Orr, 2018).

Willowton Group has been in business since 1970 and has evolved to become one of Africa's largest edible oil producers as well as a major player in the South African FMCG sector (Oberholster et al., 2015, Koyi and Siamba, 2017). The group has manufacturing sites in Pietermaritzburg, Johannesburg and Cape Town and operates across South Africa. The Willowton Group employs the principle of “contract farming”, in which small farmers grow vegetables in accordance with the company's quality criteria (Islam et al., 2012, Fu, 2020). Farmers are not required to sell their produce to the company under a contract growing agreement. Another approach by the Willowton Group's procurement system allows many limited vegetable producers to engage in their supply chain (Chauhan and Murray, 2019). Farmers benefit from a guaranteed market, fewer transportation costs, and lower labour costs. They are also paid on schedule and receive a reasonable mass of the crop. However, there is currently no cost guarantee for agricultural producers (Larsson, 2018, Brenton et al., 2022).

The majority of empirical studies on contract farming have concentrated on revenue (as in Mapanga et al. (2018)), a few variations of income (e.g., agricultural income or earnings), or other conduits for revenue (for example, profitability, as in Badar (2015)). Revenue, as well as other dependent variables, are suitable results to examine due to their being relatively straightforward to quantify and out of a practical standpoint (Cattaneo et al., 2010, Cherrafi et al., 2022). It is simple to argue that even if income increases, so does wellbeing.

According to Singh and Chatterjee (2022) and De Villiers et al. (2011), centralised committee of experts, as well as auxiliary contract structures, have become more common. Along with a centralised approach, an agricultural firm buys a predefined quantity of crops out of a huge variety of producers while adhering to strict quality standards (Kouwenhoven et al., 2012). Farmers could or might not receive suggestions from the company. Contract farming is most connected with merchandise that require a great level of refining (Mofolo, 2018, Gölgeci et al., 2023). Contract farming lowers the expense while also ensuring the supply of raw materials as well as the public assistance of farmers. Project scheduling and financing of contract farming guarantees supply (Caron et al., 2018).

3.7.5.2 Value Chain Financing and Working capital

Working capital relates to a company's ability to pay for current assets. Monitoring the firm's working capital seems to be a daily action that ensures the firm has the resources to maintain operating (Mkhize and Bux, 2000, Taleizadeh et al., 2018). This includes a variety of tasks relating to the company's cash receiving as well as pay-out (Yang et al., 2014). To interact

with factors and somewhat unexpected financial outflows and inflows, most businesses require a certain degree of working capital (Alabi et al., 2020).

Challenges such as unconnected supply chain processes, surplus stock due to its non-integrations, insufficient working capital conditions, and inefficient lending choices necessitate more working capital than would be essential (Kafuku et al., 2010, Wan and Hong, 2019). Whereas the two are cash flow domains, integrating supply chain operations and lowering the amount of inventory that is expected to operate (Konur et al., 2017). Businesses attempt to keep as little money in non-productive stocks as possible to minimise payment terms for accounting records, and to extend cash transactions to accounts receivable much further than practicable (Aransiola et al., 2012, Yi et al., 2016). According Huh et al. (2011) and Muckstadt and Sapra (2010), there is a favourable association between both working capital management and a company's profitability. There is a positive correlation between the size of the business as well as its profitability.

3.7.5.3 Value Chain Financing and Primary activities

Primary activities include the actual creation of a product, trading, and marketing, with after-customer support (Girma and Marco, 2014). This includes complete interrelationships, inbound logistics, operations, as well as the business interrelationships, outbound logistics, advertising, purchases, and then after support (Jansen, 2016, Sane Zerang et al., 2018). Value-added operations are often described as "those that customers view as adding utility to goods or services they acquire." Companies which can attract across several main activities, boost profitability (Kumar and Rajeev, 2016).

3.7.5.4 Value Chain Financing and Support activities

Support activities offer the necessary assistance for primary activities. This includes the company's facilities and human resource planning, innovation interconnections (technological progress), as well as purchasing interconnections (purchasing) (Koyi and Siamba, 2017). These operations are still not a sufficient portion of the nearest value chain; rather, they have been contained in the overall value chain functions (Porter, 1985). Profitability is improved when there are enough investments in various support activities (Porter and Millar, 1985, Wang et al., 2019a).

3.7.5.5 Firm characteristics

Capital structure and firm size both have an influence on profitability. The moderating variable in this study will be the characteristics of the firms (Chumaidiyah, 2017, Tesfay et al., 2016). The following are signs of the company's size per study: Total assets, sales, and market value (Aivazian et al., 2003). In addition, bigger companies have cheaper lending costs and improved availability to the financial markets than smaller companies (Menicucci, 2018, Modak et al., 2018). Financial companies are much more willing to lend money to bigger companies because they are also more likely to have stronger credit ratings. Therefore, larger businesses ought to have greater leverage ratios (Ndirangu, 2021).

3.7.5.6 Profitability

Existing research on manufacturing service provision has employed a variety of firm profitability indicators, including revenue growth and value for shareholders (Cantika and Arief, 2023, Nyiatagher and Ocholi, 2015). While future research could develop normative ideas for the best measure to utilise, the choice will undoubtedly be influenced by the methodological perspective and evidence-based setting of the investigation (Collier, 2015). The research investigated how firm characteristics could influence the causal link between services as well as profitability. The information provided in the organisation's accounting system was used to measure business performance.

The success of the organisation is assessed using the Price Earnings Ratio (PER), Return on Investment (ROI), Return on Equity (ROE), Earnings Per Share (EPS), Economic Value Added (EVA), and Market to Book Ratio (MBR). The following are reliable indicators and proxies: profit margin, return on investment, sales growth, and company performance (Deloof, 2003, Biye et al., 2018). Deyganto and Alemu (2019) contend that a firm's performance is a product of its resources and capabilities, as well as its competitive nature. Hence, these funds and competencies must be focused toward assuring the company's success because those that are not predisposed towards maintaining operations and business procedures have a detrimental impact on the organisational (Dirman, 2020, Abah, 2020). The organisation's assertions and capabilities must be successfully utilised and run at total capacity.

3.7.6 Financing in the Value chain and Profitability

There may be equity financing or debt financing in the value chain. Internal value chain financing occurs when input suppliers provide working capital loans to farmers, or when large companies fund market intermediaries (Quynh and Huy, 2018). External value chain financing is activated through value chain interactions and processes. For example, banks extend credit to farmers based on contracts with trusted buyers or storage receipts from known storage facilities. According to Kunadu et al. (2018), Miklyaev et al. (2020) and Cooney (2021) as this affects value chains and financial systems, funding in agricultural value chain finance should be viewed from the perspective of a broader context, which includes both the value chain itself and the market condition. A classic example of exterior Value Chain funding may be seen in South Africa, where small fruit and vegetable producers can obtain bank financing for agrochemicals (Cao and Yu, 2018, Caron et al., 2018, Nguyen et al., 2016).

Before distributing the net revenues to the farmer group, the export market needs to pay the food producers through the bank, which deducts the regular loan instalments (Barrientos and Bobie, 2016). Integrated market systems, or chains, are gradually replacing fragmented production and marketing partnerships in the agribusiness sector (Mansoori and Muhammad, 2012). Multinational agribusinesses are progressively dominating the industry due to competition and the modernization of the farming industry, with increased vertical and horizontal connections and integration (Anane-Taabeah et al., 2016, Spiertz, 2012).

In addition, push adjustments, which include tighter compliance, timeliness, and quality requirements, are the market and customer interests (Ma et al., 2022). Lenders inside in the internal value chain evaluate all funds, including credit costs, against their overall productivity and profitability (Le et al., 2018). Their loan companies could be ready to take on greater amounts of risk and loss as long as the earnings from the eventually resulting production offer an ethical approval level of interest (Nygaard and Bolwig, 2018, Saitone and Sexton, 2017).

Since these actions may be included in production activities and hence help both production and payback goals, internal value chain borrowers might extra readily endure the trading expenses of stringent customer security checks and tracking, as well as enforcement mechanisms (Roldan et al., 2013). They differ from money provided by financial institutions in that they allow for a "two-way street" between borrowers as well as lenders (D'heur, 2014,

Omomowo and Babalola, 2021). Participants in the value chain depend on one another, such as loans as well as repayment arrangements, product promotions, and product manufacturing (Rashid et al., 2013). Lenders offer loans to help businesses achieve their goals in the product market, such as supplying enough raw materials for processing and trading (Lallana et al., 2021, Newton et al., 2011).

Value Chain lenders are regularly used by borrowers as input suppliers, marketing channels, and funding sources (Gordon et al., 2011). On this "two-way street," lenders should determine which one to loan to, where to assess their clients' achievement, or where to effectively recover their lending (Rezaei and Pourali, 2015). In addition, borrowers should determine if lenders will uphold half of the bargain, including timely delivery of promised inputs, purchase of their commodity upon harvest, and timely and equitable payment (Roldan et al., 2013, Premanandh, 2011, Wang et al., 2023).

Value Chain analysis may be used to ascertain how these connections between investment and business markets impact the accessibility of Value Chain financing (Islam et al., 2012). The set of actors (personal, governmental, and network operators involved) and the sequence of value-adding actions that take a product from the point of manufacturing to the ultimate customer are referred to collectively as the value chain by Adu et al. (2021), Tseng et al. (2021) and Bui et al. (2021). They might be viewed as a collection of agricultural flows and processes that take place from farm to table.

According to Kunadu et al. (2018) and Schröder et al. (2020) empirical research, value chain analysis is an evaluation of the performers and variables affecting an industry's performance, as well as interactions among attendees, to identify the barriers that prevent increased productivity and innovativeness of a sector, as well as how such obstacles could've been resolved. Kunadu et al., (2018) discovered that the goal of value chain finance is to discuss the possibilities and restrictions that exist both inside and outside the value chain (Vahid et al., 2012a). Value chain financing is the movement of investment products to and/or via value chain players to solve but rather relieve guiding expansion restrictions (Makarani and Bineshian, 2013, Teo et al., 2019).

In an experimental study, Adu et al. (2021) and Sandoval et al. (2021) discovered that African value chain participants are more motivated by the need to expand marketplaces than by financial viability. The types and motivations of buyers for Value Chain financing frequently vary. Traders frequently utilize funding like purchasing facilities, but feedback

providers frequently use it as a portion of a purchase's incentive plan (Husain and Alnefae, 2016). It provides a method for financial organizations to reduce risk and costs associated with delivering financial services (Barrientos and Bobie, 2016, Reardon et al., 2019, Attard, 2021). Leading to a shortage of leverage or distribution costs, value chain financing provides a method for members to access financing that would otherwise not be possible. It can also provide a way to ensure a market for recipients like smallholder farmers or individuals who buy their goods (Bui, 2020). The following section will provide Financing in Raw Material and Profitability.

3.7.7 Financing in Raw Material and Profitability

A contract with a supplier, traders, or raw material import is the principal source of raw material. According to Bogetoft and Olesen (2002), CEPAL (2023) and Ray (2021) contract farming consists of three factors: guarantee coordination of activities (the right produce is produced at the ideal time) and focus on motivation (the farm and company have argument to produce coherent conclusion, keeping both as low as possible. We guarantee our commitment to running at a performance cost (by decreasing transaction charges. For example, coordination enables stakeholders to guarantee that their operations are compatible with those of their counterparts: agriculture recognizes how much produce to provide and how much processing capacity is required (Toušek et al., 2023, Ambikapathi et al., 2022).

The specific terms of the contract, which specify the necessities for either the farm or the corporate as well as the pricing points, enable coordination (Fernández-López et al., 2020). In order to attain contract efficiency, one must ensure that interactions between farms and businesses run more smoothly (attempting to avoid delays and perverse incentives), but that neither entity (particularly the business) receives extreme rental costs (Baena-Moreno et al., 2020, Ahn et al., 2022, Shubita, 2013). A supplier contract is a non-transferable contractual agreement between farmers and other businesses that outlines one or more conditions for production and one or more requirements for marketing an agricultural product, according to Yanti and Hartono (2019) and Lee et al. (2012a) .

Per empirical research by Nariswari and Nugraha (2020), Shao et al. (2022) and Lin et al. (2018), a company's profitability dramatically rises when it purchases the right value chain tactics, including devoted monitoring of the company's supply chain's main objectives, technical progress, and product and service growth. The findings aided the current investigation in considering the growth of the distribution chain as being one of the selected

variables, and though they did not include further independent variables influencing profitability, that was lacking in the research (Ghassim and Bogers, 2019, Qureshi et al., 2015).

Jones et al. (2020), Chen et al. (2022c) and de Souza Rodrigues et al. (2010) discovered observationally there had been a considerable outflow of cash produced by agricultural producers, as well as a difference in efficacy in cost reduction by utilizing new Value Chain techniques on the performance of small-scale agricultural firms. The study discovered that implementing proper and enhanced Value Chain techniques was a formula for a firm's high profitability. The report could not completely explain how overall profitability was affected (Ahmadpour and Rostami, 2012, Jang et al., 2002). The current study will examine how profitability in value chain finance in the South African edible oil industry has been impacted by the independent variable of assisting food producers as raw material suppliers across providers' agreements. The next section will discuss Financing in the Working Capital and Profitability.

3.7.8 Financing in Working Capital and Profitability

Hill et al. (2010) and Moreira et al. (2022) address working capital management from an operational perspective, including inventory, receivables, and payables. Al-Mudimigh et al. (2004) and Oino (2019) claim that the supply chain is therefore considered part of the value chain. The profitability proportion is a metric used to gauge the pressure of manufacturing. Speed losses, small stops, idling, or empty situations all cause profitability issues (Eti et al., 2004, Organization, 2021). These losses, stoppages, and idling can all be attributed to stock control issues. For instance, the boundary might well be halted due to a scarcity of raw materials (Dalci et al., 2019). Material flow is hampered by a lack of raw materials that also reduces productivity and shutdowns (Ren et al., 2019, Sage, 2013). Such disruptions and shutdowns are the causes of excessive idle time for production equipment. These losses result in inefficient operations (Bhutto et al., 2018).

Any difficulty, delay, or halt in the raw material flow can result in increased idle time and stoppages of the manufacturing equipment, resulting in poorer operational efficiency (Ren et al., 2019). Inventory is the starting point for material flow in a manufacturing system (Tanveer et al., 2016). Raw materials, finished products, and extra component supplies are examples of stock control types. Each inventory has a unique effect on system efficacy (Pirttilä et al., 2020, Lee et al., 2012b). Spare part management, for example, affects the time

of maintenance tasks, which affects equipment availability (Akgün and Memiş Karataş, 2021). Moreover, raw material and stock control seems to be this double unit of currency that links the production system to manufacturing, that is the first process in the flow of material in the manufacturing process (Vahid et al., 2012b, Sunjoko and Arilyn, 2016).

The most essential benefit of excellent raw material and inventory management is that it optimizes material flow and continuously tracks raw material demand (Akinlo, 2012). Mohamad and Saad (2010) and Nimoh et al. (2020) claimed that consumers could have different funding criteria. Companies provide and collect trade credit at the same time. Inventory management Value Chain financing affected profitability, according to Baños-Caballero et al. (2012) and Muslim (2023), although the results did not include an in-depth investigation of the inventory board's impact on profitability. Previous research did not offer specific data on such impacts, as the latest research has. Enqvist et al. (2014) and Koskei et al. (2019) discovered that planning processes, sourcing, production, and delivery all have an impact on inventory turnover, which impacts profitability.

In South Africa, little research is being conducted on the link between managing working capital and profitability. Mahmood et al. (2019), Chauhan and Murray (2019) and Johl and Toha (2021), on the other hand, conducted research on the link between the handling of working capital and the profitability of firms registered on the Johannesburg Stock Exchange. Mahmood analysed the accounting records for every JSE-listed firm between 2011 and 2022. Those corporations registered for all ten years were taken into consideration, and all insurer and financial institution organisations were eliminated since their activities were seen to have little influence on the handling of working capital (Alvarez et al., 2021, Sunjoko and Arilyn, 2016, Mekonnen, 2011). The key independent factors were the financial converting process and its elements, while the dependent factor was the net profit (Anton and Afloarei Nucu, 2020). The outcomes revealed a highly probable unfavourable correlation between profitability and the cash transformation period (Ray, 2012).

Alvarez et al. (2021) and Chauhan and Murray (2019) conducted a comparable research project, but this time they concentrated on the variables impacting managing working capital in South African value chain financing in manufacturing companies. Alvarez employed net flexible flow and working capital demands as approximations for managing working capital, expanding on earlier studies (Thenuwara and Ekanayake, 2021). The effect of manufacturing, turnover, ratio of debt to the flow of cash, and return on assets on the metrics was

investigated using various approximations (Jahfer, 2015). The findings revealed no sector's influence on managing working capital. While exact data were employed, meanwhile, the researchers discovered that turnover had the biggest effect on managing working capital (Muhammad et al., 2015, Tuffour and Boateng, 2017).

Value Chain financing, based on the study, boosts market expansion, cash flow, gross margin, operating margin, net margin, return on assets, as well as return on investments. According to Anton and Afloarei Nucu (2020) and Kakati and Roy (2017) the physiological mobility of commodities, product innovation procedures, inventory management, delivery schedules, innovation, and development all play a substantial impact on the success of South African nourishment industry sectors. This research explains the design process for food industries, inventory management, and take orders profitability through the elimination of unnecessary costs such as delay, wasted time, and the difficulty of meeting customers' expectations on time (Al-Debi'e, 2011). The following section will discuss Financing in the Primary activities and Profitability.

3.7.9 Financing in Primary Activities and Profitability

Value chain financing is a complete strategy that includes a methodical analysis of the entire value chain as well as the connections between their components (Asaduzzaman and Chowdhury, 2014). The Value Chain and business model define the real tools and applications which are chosen before the Value Chain evaluation (Baah et al., 2021). This will alter as circumstances do, and they ought to be flexible enough to accommodate the preferences and skills of the chosen partner as well as the program's implementation (Miller, 2011). Pattiruhu and Paais (2020) and Kumar et al. (2021) tested the link between value chain strategies and their financial effects in a firm that was still developing. The study investigated the relationship between Value Chain strategic consistency and product supply, demand volatility, chain architecture, and corporate profitability.

Rochmah and Ardianto (2020), and Mauris and Nora (2019) conceptualise whether revenue along with capital-related performance variables affect business worth and the way operationally primary activities impact all these value determinants. Profit-related aspects broadly include revenue growth and operating efficiency, both of which are being heavily researched in the setting of service-level optimisation or lowering expenses (Song et al., 2021, Nielsen et al., 2019, Barman et al., 2021). Fixed-capital productivity, which may be attained through entire productive maintenance, and working-capital performance are two

capital-related criteria (Sun et al., 2019). Work-capital management connects movements of goods, knowledge, and inbound and outbound logistics with insight on the financial consequences of primary activities (Hadi et al., 2020, Madani and Rasti-Barzoki, 2017).

In addition, many research investigations have been conducted to highlight the importance of primary activities along with their elements to achieving profitability. In addition, the intricate interaction between value chain-related value factors with profitability consequences is understudied (Long et al., 2022). There are two sorts of financial performance indicators: internal accounting-based indicators and external financial market-driven ones (Afum et al., 2020). Account-based measurements incorporate profitability ratios like return on investment (ROI) along with asset utilisation factors like return on assets (Guo et al., 2016, Jian et al., 2019). Other financial performance measures assess the return of equity (ROE) generated (Song and Gao, 2018).

These accounting-based measures deconstruct readily into operational effectiveness variables. Financial market-based measures, on the other hand, assess anomalous stock returns or market-to-book value, allowing for an external appraisal of a company's financial achievement (Li et al., 2021a, Dey and Saha, 2018). Hence, with the Value chain information available, financial market-based measures with their connection to practical value chain effectiveness are frequently explored (Giri et al., 2019). Considering the variability inherent in evaluation and the multiplicity of associated models and measurements presented, performance evaluation and value-driver assessment are crucial to both studies and organisational practice (Li et al., 2021b, Chen et al., 2022d). Mathematical ways to understand the link between value generation and operational value chain performance variables are gaining popularity (Wang et al., 2021).

Structures that conceptualise operations-finance interaction are supplemented by formal models that may be used for cash-flow planning or inventory control in the context of financial concerns (Li et al., 2021a, Dehghan-Bonari et al., 2021). Moreover, such models frequently lack evidence-based backing for the value consequences of operational value chain efficiency. Hu et al. (2022); and Zhao et al. (2018) conducted to assess the effects of a company's operational primary activities and value chain financing practices on its company's performance and profitability. Hu and Zhao used quantitative research which obtained primary data through secondary data from annual publications or company databases (for a comprehensive overview (Zhou et al. (2021); Rehman et al. (2016). Large-scale

questionnaires examined using modelling and structural equations show that various value chain financing capacities, including competitive advantage and profitability, have positive correlations (Tarekegn et al., 2020, Gebre et al., 2022). Such research may still have flaws that include inadequate response rates or overlooked variations in the industry (Tadesse and Temesgen, 2019).

Event research approaches, or linear regression models, are commonly used in secondary data studies for profitability in the value chain environment (Gebre and Rik, 2016). Research on events discloses the financial consequences of interruptions or modifications to the structure, but they do not indicate which operating value chain performance variables are associated with profitability (Ouma and Jagwe, 2010, Berhe et al., 2008). Regression models using panel data evaluate collect achievement connections throughout sectors, however offer little data about sector-specific variations in the value chain working model, pertinent performance enhancement controls, and the consequences for profitability (Kaplinsky, 2004, Mahutga, 2012). Other research efforts are limited to certain sectors and companies. Although these publications give evidence that functional performance has a beneficial influence on profitability, they fail to offer cross-industry evaluations (Werner et al., 2014).

When the best Value Chain method was utilized, the firm observed enhanced profitability in the form of higher Return on Investment (ROI), as well as conversely (Agyabeng-Mensah and Tang, 2021). The present research used ROI as the dependent variable and item supply-demand as the independent variable to examine how supporting the production company value chain to measure of project market dynamics between many attendees affects profitability in value chain financing in South African edible oil companies. Information flow, capacity and skills management, demand management, customer relationship management, supplier relationship management, service delivery management, and cash flow were all analysed independently by Doktoralina and Apollo (2019). Based on this research, efficient Value Chain financing strategies boosted business market performance and profitability. These conclusions were likewise achieved in the investigations by employing the same indicators. The next section will provide Financing in the Support activities and Profitability.

3.7.10 Financing in Support activities and Profitability

Management has (to) focus on value chain practices that consistently impact organisational performance. While assets and resources are guided toward the long-term viability of Value

Chain practices, this occurs (Baltacioglu et al., 2007, Sunjoko and Arilyn, 2016). By keeping the necessary information up to date, purchasers require management aid in controlling and balancing client requirements (Acquah et al., 2023). Customer service management assists in the maintenance and development of long-term customer connections by consistently creating excellent information and knowing what consumers want (Saputra, 2022). Leadership, IT adoption, training, and customer orientation are VCF aspects that greatly ensure profitability. Other financial firms and local receivables inside the Value Chain may provide funding for the Value Chain. Pattiruhu and Paais (2020), Roy et al. (2023) and Rahman (2020) mentioned that debt financing is further subdivided into long-term lending and short-term lending, with a company's debt financing prospects being decided by its credit rating, securities, and lender ability.

As per research, Value Chain financing strategies have a substantial impact on company profitability and increased business market performance (Sreih et al., 2019, Wibowo and Rohyati, 2018). To examine the effects of Value Chain financing approaches on profitability, Nguyen et al. (2021) and Soyemi and Olawale (2019) used the indicators: internal operating processes; data flow, information quality, delay management, customer service, and competitive supplier relationships. The research found that Value Chain financing techniques have a substantial impact on profitability.

The results were confirmed by Paltrinieri et al. (2021) and Solakoglu and Demir (2016). Saleh and Abu Afifa (2020) with Nkundabanyanga et al. (2020) discovered that the value chain finance approach's originality and efficiency had a significant influence on the company's effectiveness. This was also identified by Tahiri Jouti (2019) and Johnson et al. (2007). Fuertes-Callen and Cuellar-Fernandez (2019), Činčalová and Hedija (2020) and Nyarko et al. (2017) revealed that effective Value Chain analysis for numerous farm products improved the company's profitability on multiple dimensions, including social, economic, and environmental.

Nariswari and Nugraha (2020) and Obeten and Ocheni (2014) discovered that Value Chain processes had a substantial impact on organizational profitability in their empirical investigation. Value Chain approaches have a significant influence on corporate performance and sales success, as per Ichsani et al. (2021); Kinyua et al. (2015) and Lwiki et al. (2013). Value chain financing strategies, according to Sari et al. (2022) and Kimaiyo and Ochiri

(2014), have an influence on profitability but fail to incorporate other crucial aspects, including ABC analysis as well as efficient inventory management.

The present research examined the impact of support activities including company operations, sourcing of products and services, data flows, research and development, and contest monitoring on the profitability of South African edible oil manufacturing companies using independent variables from the previous study. Nariswari and Nugraha (2020) and NdiranguKung'u (2016) revealed that Value Chain financing techniques, including governance, IT implementation, mentoring and client focus, had a significant impact on the company's success. By utilizing independent variables like data flow, temporary suspension methods, management of customer relationship supplier relationship partnerships, information quality, shared risk and reward, and agreed-upon vision and goals, Ichsan et al. (2021) and Ogbo and Ukpere (2014) discovered that Value Chain expansion had an impact on firm performance.

Virtanen et al. (2022) and Abdulrasheed et al. (2011) provided empirical evidence that streamlining Value Chain finance processes enhances usable capacity, reduces levels of inventory, and raises income, all of which increase the organization's profitability. According to the report, Value Chain financing maximizes income while minimizing costs. The following section will discuss the Moderating Impact of firm characteristics and profitability.

3.7.11 Moderating Impact of Firm Characters and Profitability

The empirical research investigates how financial indicators, including leverage and dimensions, affect business profitability and growth (Afum et al., 2020). These properties are easily assessed using data from edible oil manufacturing companies that are readily available (Fatikasari et al., 2021, WAJO, 2021). In organizational research, one of the most significant features is firm size. Firm size has been linked to company costs, ability to focus, consolidation, and total industry profitability (Alabdullah and Ahmed, 2020). The extent to which a corporation employs fixed-income assets, including loans and preference shares, is regarded as firm leverage (Baah et al., 2021).

High-interest payments accompany a high level of financial leverage. In concentrated product markets, leverage increases the potential for competitive predation, as per Firțescu and Terinte (2019), Nyabwanga and Ojera (2012) who also link the performance impact of leverage to the level of industry rivalry. Hence, capital structure represents other aspects that

might impact the worth of a company. Companies must find successful options to achieve their financing requirements (Umar et al., 2022). Since a firm has a capital structure that is perfect, which can minimise the total cost of capital usage, a cost-effective financing option may be made (Mujino and Wijaya, 2021, Amahalu, 2018).

The firm needs to have evolving circumstances; thus, the goal of the company will fluctuate depending on its circumstances (Al-ahdal and Hashim, 2022). Organisations must investigate the elements that impact capital structure identification (Abdillah et al., 2019, Purwanti, 2019). The size of the firm will be one of the criteria examined in evaluating the value of the companies. The scale of defining the size of a firm is viewed by the sum of its total assets, including the amount of revenue (Fernández-López et al., 2020).

Large organisations are thought to have greater accessibility to the financial market, allowing them to acquire finance from sources inside and outside the organisation (Dovgalyuk et al., 2020, Sunday and Joseph, 2017). Significant companies are typically established, and this is usually well received by shareholders, increasing the worth of the firm (A Ali and AlSondos, 2020). Furthermore, if confronted with economic issues, huge corporations have a comparatively low risk of insolvency. Liquidity reflects the ability of an organisation to meet its immediate cash needs with current assets protected (Alabdullah et al., 2021, Anwar, 2018). Organisations that can satisfy their commitments promptly are in a liquid condition since they have a source of repayment or current assets that exceed the amount they owe (Rehman et al., 2016).

Whether the firm is liquid or not has an influence on its financial condition, which subsequently in turn has an impact on its potential profitability (Fujianti and Satria, 2020). Obviously, shareholders will be more drawn to investing in organisations that are in excellent financial health or are liquid. Hence, reconciling the organization's ability to protect borrowers with its present resources might alter the value of the organisation (Tanjung and Wahyudi, 2019). Wahyuningrum et al. (2020), Isnurhadi et al. (2018) and Florén et al. (2013) discovered a positive but modest connection between capital structure and profitability in their research on the link between capital structure along with profitability of insurance businesses in South Africa. It has been empirically demonstrated by Nguyen and Nguyen (2020) and Vermaak et al. (2010) that the profitability of American life insurance businesses is favourably correlated with company size. The next section will offer a brief description of literature and research gaps.

3.8 Conceptual Framework

The conceptual framework for this research explains the inter-relationships among research variables discovered through a review of the literature on value chain financing in manufacturing firms. The research revealed six components, that are depicted in Figure 3.2 below, in the conceptual framework. Profitability is a key dependent variable in the value chain conception and is produced by the associated four independent variables (Viskari et al., 2011, Lwiki et al., 2013). In the conceptual framework, the diagram depicts the relationship between the moderating variable and the dependent and independent variables. value chain financing from components at various stages of the value chain can help edible oil manufacturing firms improve capacity utilisation.

The first stage is to boost raw material availability by prolonging the value chain to agricultural producers so that they can generate key raw materials through the provision of inputs and technical support, as well as securing the supply of raw materials needed for capacity utilisation (Viskari et al., 2011). Financial decisions in the value chain include working capital requirements, primary activities such as inbound logistics and outbound logistics, as well as financing in support activities including firm operations, management costs, and development costs and marketing and sales (Mofolo, 2018, Alrjoub and Ahmad, 2017). Appropriate financing gives manufacturers a competitive advantage and increases firm profitability. By incorporating several characteristics and indicators as independent variables and profitability as a dependent variable, the conceptual model aims to image the notion of value chain financing in South African edible oil companies. Firm characteristics are also identified as influencing the link between independent and dependent variables in the conceptual framework.

The conceptual framework clarifies the connection among the variables in the research and helps to analyse how they influence one another. The concept of value chain financing identifies the various aspects of the value chain where finance is considered necessary. Financing is needed at four phases of the value chain: (1) Raw Material, which is determined by the ratio of raw material acquired to charge of products sold; (2) Working Capital, which evaluates Current ratio; (3) Primary activities, which assesses the ratio of financing in inbound logistics, outbound logistics, activities, advertising, sales as well as maintenance to Overall Investment; and (4) Support activities, which evaluates the ratio of financing in Firm

operations, financing in development as well as public relations. Each phase is regarded as a separate independent variable.

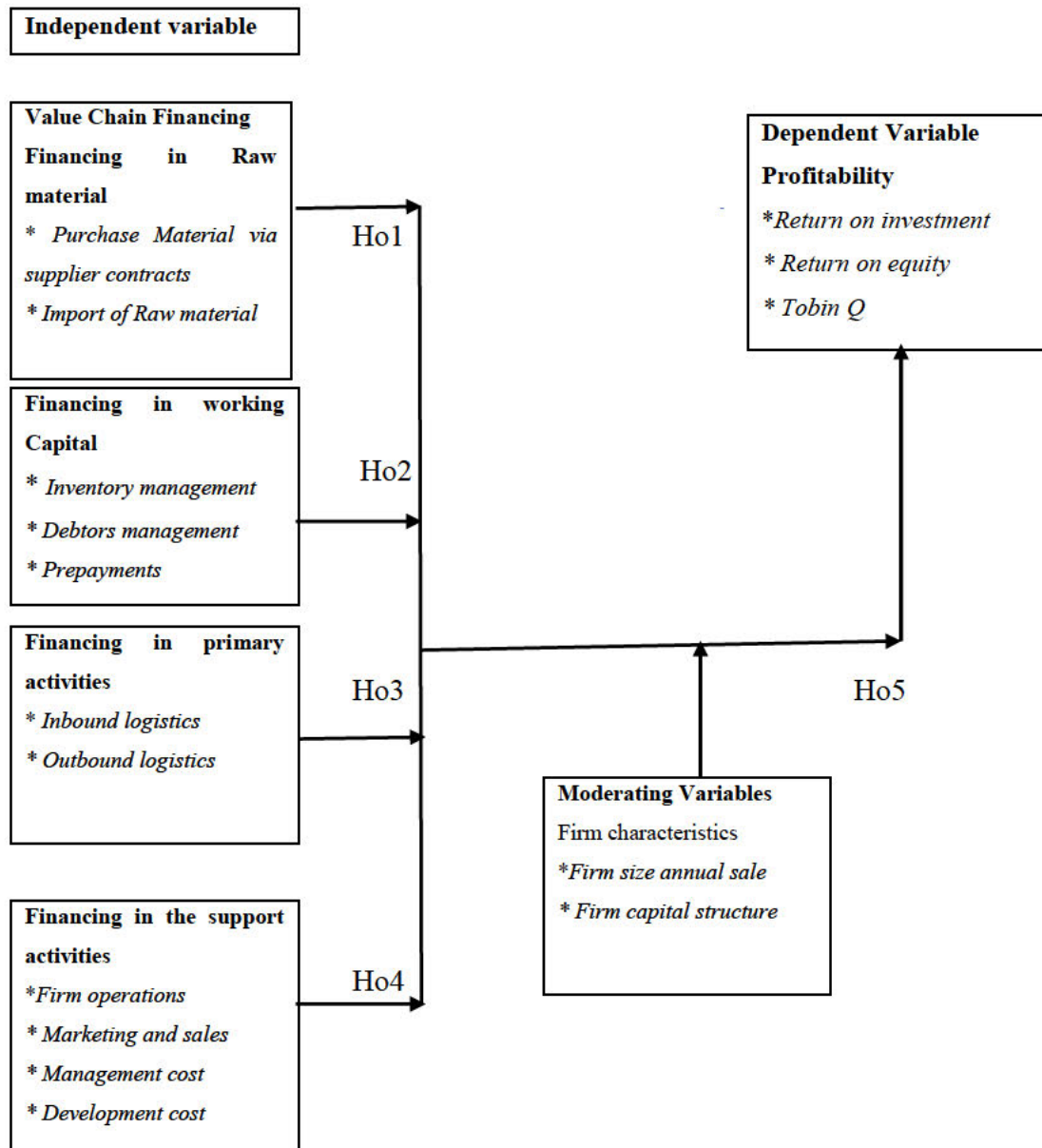


Figure 3.2 Conceptual Framework

Source: adapted from Anyona *et al.* (2023)

Finance is needed by one or more participants in the value chain at each phase. To understand each phase, it can be pitted into variables that can be determined using data from the manufacturing sector. A dependent variable in the research is profitability as determined

more by ratio of return on investment, return on equity as well as Tobin Q (Achoja, 2019, Mwangi, 2016). The conceptual framework depicts its operational links among an independent variable of value chain financing and the dependent variable of profitability. A conceptual framework shows how firm characteristics regulate the link between value chain financing, which is an independent variable, and profitability, which is a dependent variable.

In addition, the conceptual framework portrays the connection between the different variables and the null hypotheses Ho1 to Ho4 for every independent variable. The hypotheses have been analysed at the 5% level of significance, along with independent variables, the profitability of edible oil manufacturing companies is not substantially affected. Ho5 moderating variable, or firm characteristics, did not substantially influence the connection between value chain financing and the profitability of South African edible oil manufacturing companies. The conceptual framework contributed to the development of the models throughout the research, which explained the practical connection among the research variables including the moderating influence of the moderating variable with profitability of the company.

3.9 A Brief Description of Literature and Research Gaps

In line with the findings of the literature review, firms that invest in contract farming, core working capital, primary, as well as support activities in value chain strategies offer themselves a competitive advantage as well as boost their profitability in the South African edible oil manufacturing industry.

Table 3.1 A brief description of literature

Author (s)	Context of the study	Relevant Findings	Research Gaps	The purpose of this research
Baghersad and Zobel (2021)	An empirical analysis of the financial effect of managing supply chains on small companies	Companies of all sizes employ managing supply chain efforts far more than smaller enterprises and managing supply chains results in considerable gains in utilisation of resources and income	The research focused on the impact of managing supply chains on the composition of small and big organisations while ignoring other techniques.	As independent factors in the present research, working capital, primary, and support methods were evaluated.

		production.		
Abdolazimi et al. (2021)	Retailers in the United Kingdom ABC evaluation as a method of inventory control	Determine the financial worth of every item of stock to aid the company in maintaining the optimal amount resulting in the highest possible value.	Inventory management is crucial to assuring the company's profitability.	However, the research did not consider the other techniques that affect profitability.
Wagner et al. (2012)	Manufacturing companies in the United States, the United Kingdom, Germany, Austria, Switzerland, and France. Relationship Between Supply Chain Integration and Corporate Profitability	While the link between managing the Supply chain and firm profitability appears to be reasonable and clear.	The topic of the research was on managing supply chain, but it did not give enough information on what else might be relevant for clarifying value chain financing as a factor in company profitability.	Other independent variables influencing the profitability of South African edible oil firms were explored in this research.
Felix et al. (2020)	Expansion of U.S. Supermarkets and Food Retailing: Benefits of Supply Chain Management Practices	Supply chain management organisations combine to save money on the operation of stores, retail products sourcing, advertising expenses, and delivery of products.	This research looked at how supply chain management and the combination of incoming and outbound logistics can boost profitability.	The research examined the implementation of Supply chain management contracts with suppliers in the edible oil company in south Africa, as well as other independent factors such as working capital, main operations, support activities, and managing inventory.
Mchopa et al. (2021)	Tanzanian Sunflower Farmers: Enhancing the	Provides a comprehensive systematic approach to	The extent to which this happened was unclear; in reality, the	Hence, the research revealed the impacts of support activities on the profitability

	Value Chain Small-Scale Sunflower Farmers: Enhancing the Value Chain	developing interventions to create efficiency that improves the disadvantaged. Initially companies with an opportunity for efficient and balanced distribution of rewards are chosen, and a schedule of actions is developed to implement this approach.	benefits of profitability were lost in efficiency.	of South African edible oil firms.
Loury-Okoumba and Mafini (2021)	South Africa on managing its supply chains for cost reduction: Effect of Chain of Supply Optimisation on Small Scale Agricultural Enterprise Productivity	Implementing fresh supply chain approaches Producers' revenue increased substantially, and there was an important variation in cost reduction efficiency based on the profitability of small-scale agricultural enterprises following	The report did not completely clarify how overall profitability was affected.	The research examined the implementation of managing supply chain deals with suppliers in the edible oil sector in South Africa, as well as other independent factors such as working capital, primary activities, support activities, and managing inventory.

Source: Adapted from Anyona *et al.* (2023)

3.10 Chapter Summary

The chapter covers the research's review of empirical literature. The chapter includes empirical and conceptual reviews connected to value chain financing and profitability. Moreover, empirical and conceptual literature demonstrated the perspective with different countries on how the strategic utilisation of value chain financing for farming in a creative and structured manner, utilising adapted methodologies and technology. In addition, the empirical literature was divided into four categories: the effect of Financing in Value Chain strategies on profitability, the effect of Financing in the Value Chain practices on profitability, the effect of Inventory Management Value Chain on profitability, and the effect of Value Chain and profitability. The conceptual framework for this research explained the

inter-relationships among research variables discovered through a review of the literature on value chain financing in manufacturing firms, which linked with the research hypotheses.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1. Introduction

This chapter describes all the study's methods utilised in the present research that empirically evaluates the value chain financing and profitability of edible oil manufacturing companies in South Africa. The accomplishment of the research objectives is unquestionably dependent on the suitability of the research methods as articulated by conducting an appropriate determination of research paradigm, research procedure, research findings, research plan, study population, sample process, data collection techniques, data analysis, and method employed in research completion. In order to solve this issue, the chapter opens with the research design. The third section will select the research paradigm, explaining the philosophical views, approaches to research, and procedures used. The fourth section of the chapter describes the empirical model and how it will be used with independent and moderating variables. The fifth section of the chapter describes the population targeted along with the study's unit of analysis. Section six also discusses the data collection procedure utilised in data analysis. Finally, the chapter is summarised in the last section, with a focus on crucial methodological features which are data management analysis and diagnostic tests. The last section also includes a research mapping that was utilized in this research.

4.2. Research design

The research was intended to investigate the value chain financing and profitability of Edible oil manufacturing companies in South Africa. Furthermore, the research aimed to evaluate the impact of Value Chain Financing on the profitability of edible oil manufacturing companies in South Africa. To accomplish this aim, the research first ascertains the impact of financing in the raw materials on the profitability of edible oil manufacturing companies in South Africa. Second, it assesses the impact of financing in the working capital on the profitability of edible oil manufacturing companies in South Africa. Third, it ascertains the impact of financing in the primary activities on the profitability of edible oil manufacturing companies in South Africa. Fourth, it determines the impact of financing in the support activities on the profitability of edible oil manufacturing companies in South Africa.

Finally, the research establishes the impact of firm characteristics on the link between financing in value chain and profitability in edible oil manufacturing companies in South Africa. The research employed a descriptive research design to attain its specific objectives. According to Dasman et al. (2021), descriptive research obtains data that results in statistical findings. Descriptive research entails measuring and analysing causal correlations between variables relevant to the study (Christakis et al., 2020, Çakar and Aykol, 2021). Considering addressing the research problem necessitated the collection of data that had the potential to be statistically examined to determine the relation among the factors stated in the preceding section, the descriptive research design was selected.

According to Creswell and Creswell (2017), secondary data are obtained for an explanation other than the one for which the information was initially collected. Furthermore, collecting primary data is unneeded if secondary data is sufficient to achieve the study objectives. The research design was chosen because it enables the data to be acquired more credible and less prone to debate. Furthermore, secondary data was employed for the study since it is cost effective, saves time and money, and aids in the comprehension of the situation. It also serves as a foundation for comparing the data acquired by the researcher.

In a descriptive study, the researcher will achieve cross-sectional research with a retrospective panel design, collecting data on the current and past of oil companies in South Africa and recording data from various periods. The research design will specify the study's structure and organisation. It will be a logical thread that connects all the research's main components so that they may be deduced (Christakis et al., 2020, Çakar and Aykol, 2021). Descriptive research will allow quantitative data to be used to rebuild the "what is" of research. The project will use descriptive research to accurately explain edible oil companies in South Africa. From 2012 to 2022, cross-sectional data will be used for the study. In the descriptive design, the goal would be to characterise features of specific groups as well as variable research that takes place at a particular moment in time. The next section will offer the research paradigm.

4.3 Research Paradigm

A research paradigm is a collection of concepts relating to information on a particular subject. It is then gathered, assessed as well as utilised; whereas doxology (whatever is believed to be accurate) and epistemology (whatever is accepted as being correct), comprises a wide range of research approach perspectives (Crossan, 2003, Bougie and Sekaran, 2019).

Therefore, the purpose of science is to convert doxa (belief) into episteme (knowledge). In the Western scientific tradition, there are two major research perspectives: positivist (also identified as scientific) and interpretivist (also identified as anti-positivist).

4.3.1 Positivism Paradigm

Positivists consider actuality to be permanent and that is seen but expressed accurately without affecting the disciplines being studied (Levin, 1991). They contend that investigations have to be repeatable so the event must be differentiated. This includes the truth of adjustments within one independent variable to find regularities throughout, as well as constructing relationships among a few of the most fundamental features of the social situation (Gunarsih and Ismawati, 2018). 3-2 predictions could be established based on prior seen and stated facts, as well as each other's inter-relationship (Balarabe Kura, 2012, Hendren et al., 2023, Islamiati and Suryandari, 2021). "Positivism has a long and illustrious history. It is so ingrained in our culture that information claims that are not founded on positivist paradigm are simply discarded as scientific and thus invalid " (Diantimala, 2018).

Alavi and Carlson (1992), Weerasingha et al. (2023), and Hamdani et al. (2023) discovered, in an overview of 902 IS academic journals, that almost all epidemiological research used a positivist approach. Positivism and the physiological and scientific fields of science have enjoyed an especially fruitful interaction (Masi et al., 2018). Moreover, various scholars have suggested that the positivist paradigm is not wholly suitable for social scientists, including several proposing a collaborative approach to IS study design (Strijker et al., 2020). Whilst researchers would also not discuss more specifics upon this point, that is pertinent to our research, even though data sources are classified as social sciences instead of physical sciences since they are concerned with the relationship of people and technology (Balarabe Kura, 2012, Vebrianto et al., 2020).

As such, a few of the obstacles faced with IS research, including evident outcomes inconsistency, might well be connected towards the positivist paradigm's inadequacy for such a field (Rovanto and Bask, 2021). Furthermore, a few factors and components of actuality may have come to be viewed as unquantifiable and hence went unresearched within the positivist paradigm (after Galliers, 1991) (Thoring et al., 2020, Gusmerotti et al., 2019). To complete the research, the positivist paradigm will be used, which will include quantitative measurements and data collection from South African edible oil producers, as well as statistical data processing procedures such as hypothesis testing. The concept emphasises the

importance of facts among variables under investigation through hypotheses that are either affirmed or rejected. Positivism paradigm is also acknowledged as a scientific and objective method for developing and experimentally testing conceptual and theoretical structures (Sarja et al., 2021).

4.3.2 Interpretivism

Individual perception and participation, according to interpretivists, are required to completely comprehend reality. Research of phenomena in their naturalistic settings is central to the interpretivist ideology, along with the acknowledgement that researchers cannot prevent modifying the phenomena to those who research (Sousa-Zomer et al., 2018). Sousa-Zomer et al., (2018) recognise the presence of several understandings of rationality but assert that such perspectives are part of the scientific understanding they have been seeking. The interpretivist tradition is neither shorter nor less remarkable than the positivist tradition (Svensson and Funck, 2019, Ünal and Shao, 2019).

4.3.3 Selecting a Research Methodology

The study will use a Positivist research method since it is quantitative and involves hypothesis testing. Positivists will believe that facts exist and can be quantified. The researchers who use the positivist paradigm are not influenced by the study's results and do not consider the results of the participants' opinions or feelings, for example. According to Wikipedia, the "positivist paradigm comes into play when quantitative data can be used in finding a cause-and-effect connection among variables". According to McMillan and Schumacher (2010), positivism is employed when research is founded on ideas that can be employed to construct hypotheses that are statistically tested to offer factual results. As a result, the research obtained quantitative secondary data for statistical analysis.

4.4. Description and Measurement of Variables

Table 4.1 Description and measurement of variables

<i>CATEGORY</i>	<i>VARIABLE</i>	<i>DESCRIPTION</i>	<i>MEASUREMENT</i>
<i>Independent Variable</i>	Financing in raw material	Material obtained via Supplier Settlements	Tang et al., (2022) model. Ratio of raw material acquired regionally via a supplier agreement divided by the

		Raw Material Importing (RMI)	cost of items produced in one year. The ratio of raw materials acquired via contracts with suppliers to the cost of items produced each year
Financing in working capital		Inventory management (IM)	Ratio of Inventory to Current assets
		Creditors management (CM)	Ratio of Creditors to current liability
		Prepayments or current assets	Ratio of prepayments to Current assets
Financing primary Activities		Inbound logistics (IL) or transportation or fixed asserts	Ratio of Financing by companies in developing facility for raw material storage with warehouses and tie-ups logistic companies for collection to their stores in each year to total investment
		Outbound Logistics (OL) and Distribution Logistics	Ratio of Financing by companies in developing facility for finished product storage and tie-ups with logistic companies to reach the customer in each year for total investment.
		Operations cost, profits and loss	Ratio of Financing by companies in operations costs each year for total investment.
		Marketing & sales	Ratio of Financing by companies in marketing & sales in each year to total investment.
Financing support Activities		Firm infrastructure costs	Ratio of Firm infrastructure cost to cost of goods sold
		Human Resource Management Cost	Ratio of Human resource management cost to cost of goods sold

		Technology Development cost	Ratio of Technology Development cost to cost of goods sold
--	--	-----------------------------	--

<i>Category</i>	<i>Variable</i>	<i>Operationalization</i>	<i>Measurement</i>
<i>Moderating / Control Variable</i>	Firm Characteristics	Firm Size (Annual Sale)	Logarithm of sales
		Firm Capital structure or financial leverage or loan	Debt equity Ratio

<i>Category</i>	<i>Variable</i>	<i>Operationalization</i>	<i>Measurement</i>
<i>Dependent Variable</i>	Profitability	Return on Investments (ROI)	Ratio of Earnings Before Tax And Interest/Total Assets
		Return on Equity (ROE)	Ratio of Earnings Before Tax and Interest / Equity
		Tobin Q	Ratio of Total asset value for replacement value of assets

Source: Author's Estimation

4.5. The Empirical Model

The research builds an empirical model that will be practical and helpful in determining the impact of Value Chain Financing on profitability after thoroughly evaluating theoretical and empirical studies. It is typical practice to start with a theoretically based benchmark (or base) description and thus include or subtract variables depending on adjusted R² as well as t-statistics to identify the best regression model. The explanatory variables (description and measurement) included in the empirical model are explained in section 4.4. Regression analysis will be favoured in this empirical analysis because it will offer observations into analytical questions that cannot be addressed using cross-sectional data alone (Schmidhuber et al., 2022, Mertova and Webster, 2019). Further, regression analysis will estimate the relationship between a dependent variable and one or more independent variables, as by Tang

et al. (2022), Cipriani et al. (2023) and Dasman et al. (2021). **The main linear equation that frames the empirical analysis will be used to start the regression analysis that follows:**

$$\Pi_{it} = \alpha + \sum_{j=1}^J \beta_j X_{it}^j + \sum_{m=1}^M X_t^m + \varepsilon_{it}$$

where Π_{it} is the profitability of company i at time t with $i=1, \dots, N$, $t=1, \dots, T$; α is the regression constant, X_{it}^j is the vector of company-special features (j) of company i at time t , that also varies with time and company; X_t^m is the vector of moderating variables (m) as well as $\varepsilon_{it} = \nu_i + \mu_{it}$ is the perturbation, with ν_i as the undetected company-special influence/heterogeneity between companies, which may be extremely huge provided the changes in corporate management as well as μ_{it} the idiosyncratic error. This is a one-way error factor regression model in which $\nu_i \sim IIN(0, \sigma_\nu^2)$ and $\mu_{it} \sim IIN(0, \sigma_\mu^2)$ are independent. The next regression function is constructed for research purposes based on the general form:

4.5.1. Using an Empirical Model to Test Independent Variables, Moderating Variables and Profitability.

For our panel data, the study will employ pooling methods to merge cross-sectional and time series data to create the model. Panel data models will be strong research tools that will allow researchers to accommodate for every impact that cross-sectional data from cross-sections can include and ultimately determine relevant empirical model. When applying panel data, it is meaningful to contain both impacts of time and individual heterogeneity described by company-special fixed or random variables and relates to biased outcomes if abandoned in cross-sectional or time series estimation. Modelling edible oil manufacturing companies will be based on the components and modifying variable and company qualities to see if it modifies the connection and influences profitability. The following model was developed to test independent variables and moderating variables as well as profitability:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + U_{it}$$

Y_{it} = signify the profitability metric. where Y_{it} = is the dependent variable (take ROI, ROE, and TQ separately and add them all simultaneously)

β_0 = is the intercept

β_1 to β_5 = is regression coefficients for X_{1it} to X_{5it}

X_{1it} = the independent variable- **Financing in Raw Material**

X_{2it} = the independent variable- **Financing in working capital**

X_{3it} = the independent variable- **Financing in primary activities**

X_{4it} = the independent variable- **Financing in support activities**

X_{5it} = the Moderating variable - **Firm Characteristics**

U_{it} = the error term

Profitability is the dependent variable in this model (ROI, ROE, TQ separately and a combination as all three combined), and all the independent variables are incorporated as the study's VCF from X_{1it} to X_{5it} . The research will utilise regression analysis to examine the functional relationship between the independent variable and the dependent variable through regressing the independent variable onto the dependent variable. Propper and Van Reenen (2010) utilised a comparable method to assess the impact of nursing wage legislation on hospital quality in an empirical investigation Data: 209 NHS hospitals in the United Kingdom from 1997 to 2005.

4.6. Population Targeted

The demographic to which the study's findings will be applied is referred to as the target population (Bloom et al., 2012, Ezer and Aksüt, 2021). The research was targeting all 27 edible oil manufacturing companies in South Africa. These companies are involved in manufacturing 95% of South Africa's edible oil.

4.6.1 Units of analysis

The objects that were evaluated to develop summary descriptions and explain distinctions between them, are the units of analysis. The study's unit of analysis included 22 edible oil manufacturing firms in South Africa.

4.6.2 Sampling Method and Sample Size

The study period was from 2012 until 2022. The time was chosen from the launch of South Africa's Vision 2030 in 2012. The research utilised data coming from Edible oil manufacturing companies in South Africa to cover the context-specific gaps in present

research. Based in the SA Fryer Oil Initiative (SAFOI), South Africa has 27 edible oil manufacturing companies, as shown in Table 4.2 below.

Table 4.2 The Edible oil manufacturing companies in South Africa

Rfg holdings limited	Sentraal-suid koöperasie ltd (SSK ltd)	Lapithos Olive Growers
Unilever Food Solutions	Elangeni Oil (Pty) Ltd	Majesty Oil Mills (Pty) Ltd
Acorn Agri & Food	Epic Foods (Pty) Ltd	PC coetsee
Clover SA (Pty) Ltd	Epko Oil Seed Crushing (Pty) Ltd	PhilAfrica Foods (Pty) Ltd
RCL foods	Free State Oil (Pty) Ltd	Porterville Olives (Pty) Ltd
Pioneer foods	Lactalis South Africa (Pty) Ltd	Sea Lake Investments (Pty) Ltd
BID Corporation Ltd.	Ladismith Cheese Company (Pty) Ltd	Sime Darby Oils South Africa (Pty) Ltd
Siqalo Foods (Pty) Ltd	Southern Oil (Pty) Ltd	Standerton Oil Mills (Pty) Ltd
Sunola Oil Mills (Pty) Ltd	Vest-Activ Four (Pty) Ltd	Wilmar SA (Pty) Ltd

Source: SAFOI (2023)

There are 22 edible oil manufacturing companies with financial statements available from Bloomberg database, McGregor database, and the public domain. As a result, only those manufacturing companies with available financial statements were selected for these objectives. The study also received other companies' financial statements that were available via email, a sample of which is in Appendix 1. Other manufacturers were omitted from the research. This is because the financial statements were not available. Those five firms were later excluded, and data was obtained from only twenty-two edible oil manufacturing companies through 2012 and 2022. This resulted in 242 observations for each of the variables in the analysis, as compared to 297 observations previously for 27 firms.

Current research includes all companies from the Edible Oil sector, which is in line with past studies that involve (Bloom et al., 2015, Mukherjee, 2019). Furthermore, as indicated by Bloom et al. (2012) and Britton and Propper (2016), the analysis involving enough financial statement data for calculating accounting ratios for at least five straight years from 2018 to 2022 was included. Edible oil companies are not listed on the Johannesburg Stock Exchange (JSE). Table 4.3 lists the number of companies chosen for this research.

Table 4.3 Sample and numbers of Edible Oil Manufacturing Companies

1. Wilmar SA (Pty) Ltd	9. Sunola Oil Mills (Pty) Ltd	16. Lapithos Olive Growers
2. RFG holdings limited	10. BID Corporation Ltd.	17. PhilAfrica Foods (Pty) Ltd
3. Clover SA (Pty) Ltd	11. Sentraal-suid koöperasie ltd (SSK ltd)	18. Porterville Olives (Pty) Ltd
4. Free State Oil (Pty) Ltd	12. Epic Foods (Pty) Ltd	19. Sime Darby Oils South Africa (Pty) Ltd
5. Acorn Agri & Food	13. Epko Oil Seed Crushing (Pty) Ltd	20. Standerton Oil Mills (Pty) Ltd
6. RCL foods	14. Southern Oil (Pty) Ltd	21. PC coetsee
7. Pioneer foods		22. Sea Lake Investments (Pty) Ltd
	15. Vest-Activ Four (Pty) Ltd	Ltd
8. Siqalo Foods (Pty) Ltd		

Source: Author's Estimation

4.7 Data Type

The panel data utilised in the research enabled for the "pooling of observations from successive cross-sectional data for eleven years." Panel data is an appropriate dataset due to its short time series dimension, which delivers findings that are unaffected by the shortcomings of pure time series or cross-sectional investigations. Panel data research depends on a huge number of observations. The advantage of using panel data is that it minimises collinearity between independent variables while simultaneously increasing degrees of freedom, improving econometric estimate efficiencies. Furthermore, using panel data, the heterogeneity of the individual variables of the companies might be reduced (Bloom et al., 2015, Mukherjee, 2019). Panel data provides the basic benefit of removing the

challenges associated with evaluating regression coefficients in the context of a cross-section or time series regression.

4.8 Data Collection Procedure

The annual financial statements of these edible oil companies were obtained from the Bloomberg database, the McGregor database, and the public domain to calculate financial ratios. The secondary data for the variables emanated from the extracted annual financial statements of the manufacturing companies, such as their balance sheet, income statement, and cash flow statement. The data was compiled between 2012 and 2022. The research attempted to explore the impacts of financing in raw materials, working capital management, primary activities, and support activities on company profitability. This collected data will be useful in establishing how strong a link exists between two or more quantitative variables. The coefficient of correlation denotes the degree of relationship.

4.9 Data Management Analysis and Diagnostic Tests

To produce a composite index, data was analysed utilising descriptive statistical analysis, correlation analysis, quantitative analysis, as well as panel data regression models. The Hausman test, a pre-estimation test with unit root for stationarity as well as multicollinearity, was used in the study to determine the type of model. The study included post-estimation tests such as normality tests.

4.8.1 Composite Index's

The research utilised a principal component analysis (PCA) to generate a composite index for dependent and independent factors. Composite Index's describes an approach for converting a collection of n correlated factors, X_1, X_2, \dots, X_n , to m uncorrelated variables (main factors), Y_1, Y_2, \dots, Y_m , where $m \leq n$, as well as the variances of YS seem to be in order of decreasing, with the total amount of these m variances equivalent to such "salient" or non-random variance of the XS. PCA will mostly be utilised to reduce and analyse data.

The primary factors are linear functions of the form's set of variables.

$$Y_j = e_{1j}X_1 + e_{2j}X_2 + \dots + e_{nj}X_n \quad (1) \text{ with}$$

$$e_{1j}^2 + e_{2j}^2 + \dots + e_{nj}^2 = 1 \quad (2)$$

For $j = 1, \dots, n$. These are better defined when they are produced sequentially. The first main factor is the linear function of sort (1) subject to (2) for $j = 1$, in which the variation of Y_1 has the largest variance among the acceptable linear functions of the initial variables subject to (2). This variation is known as λ_1 . The second main factor, Y_2 , is a linear function, unrelated to Y_1 with the next highest variance $\lambda_2 \leq \lambda_1$. Similarly, each primary component is unrelated to the difference and exhibits the greatest variance λ_j subject to

$$\lambda_1 \geq \dots \geq \lambda_n \quad (3)$$

In fact, there are always significant disparities in (3). Thus, the main factors are uncorrelated linear adjustments with decreasing variance of the initial variables. The raw data in its original scale can be used for the main factors analysis commonly used to relate to structured variables. A structured variable is a variable generated from the initial variable by take-off the average as well as dividing by the standard deviation. These main factors extracted from secondary data would differ among the others extracted from normalised data. When applied to the initial variables, the variables with the greatest variations can have a significant impact on the outcomes. All variables are handled identically when the analysis is done on standardised data. The principal factors approach makes no data assumptions. The sample size is usually large, applicable to random samples of a population. However, this is not always the case, and there is a frequent emphasis exclusively on comprehending the sample data itself. Each company's profitability dependent variables in the study can be quantified using three metrics: Tobin Q, return on investment (ROI), as well as return on equity (ROE). All variables were evaluated using ratios. The PCA principle was employed in the study to generate a single composite index for profitability, which will then be used for data analysis.

4.8.2 Data Analysis

Data was examined utilising descriptive statistics, hence, mean and standard deviations showing company profitability, heterogeneity in profitability between years, heterogeneity in profitability among firms, and profitability across years for all companies. The study performed a correlation analysis between all the independent variable composites and the dependent variable composite, getting a P value and a correlation with profitability. The statistical significance of a linear relationship between the two variables was calculated using

Pearson's simple correlation coefficient (r). It has a value of between -1 and +1. Cross tabulations are habituated to assimilate their linkage among dependent and independent variables.

The coefficient of determination (R^2) was deduced by squaring the correlation coefficient (R) among the sample data as well as the estimated data. This was calculated of such amount of variability in the estimated event and has values between 0 and 1. The coefficient of determination will be an important result of the regression study. It is understood as a fraction of the variation predicted by the independent variable in the dependent variable. The study hypotheses were generated and examined to confirm their significance. The study looked at the level of increase throughout value chain financing, which is an independent variable, and how it affects profitability, which is a dependent variable.

These predictions will be applied to put together a prediction prototype (calculation) which connects its size to the independent variable. Static panel data regression models will be employed in the research. Two distinct factors motivate it. Panel data must be used to restrict undiscovered time-invariant heterogeneity in cross-sectional models, and panel data must also be used to untangle variance factors and approximate transition probabilities. In general, the research seeks to understand the dynamics of cross-sectional populations. These interpretations are connected to the fixed effects and random effects models in the panel data literature. To confirm that the information is capable of analysis using a panel data regression model, the study ran the diagnostic tests listed below.

4.9 Diagnostics Tests

Diagnostic tests were performed as part of the study to guarantee that the findings will sometimes be generalised as well as applied in the edible oil industry.

4.9.1 The Hausman Test

In this research, the Hausman test was used and any Fixed Effect Model (FEM) or the Random Effect Method (REM) was utilised for data analysis for the panel data regression model. This test determined whether the parameter evaluations of the two approaches differ. The null hypothesis states that the unique errors (u_i) do not connect to the regressors. A fixed effects model was run, and the predictions got stored; however a randomized model was run and the predictions were recorded, and finally the Hausman test was done. This measurement

is neither essential nor necessary for distinguishing between fixed and random effects. The size of the sample is important (both number of units and number of observations per unit), the degree of connection among affiliative and unit impacts, as well as the quantity of within-unit change in the independent variable in comparison to the dependent variable.

4.9.2 Stationarity Test Unit Root

The study used STATA software to run unit root testing. A unit root test was performed with an autoregressive model to evaluate whether all-time series variables are non-stationary. The null hypothesis in this test was that all the panels contained a unit root. Once all of the tests were confirmed to be adequate, the analysis was completed. It is also necessary to check for stationarity while predicting. It can inform us what sort of procedure should be included into models to generate reliable estimates.

4.9.3 Test for Multicollinearity

The study performed a multicollinearity test to check that the error term in the model has a consistent variance. R^2 's was calculated for every independent variable that is method regressed on the existing independent variables. For the multicollinearity test, the variance inflation factor (VIF) assesses the relationship between all explanatory variables at the same time. It describes whether a coefficient's variance is exaggerated owing to linear dependency on other explanatory factors. When the VIF is lower, there is less multicollinearity across explanatory variables, as well as the general rule of thumb is that any variables with such a VIF larger than 10 are presumably of significance.

4.9.4 Normality Test

Normality tests were tested in the study. Various statisticians have created several normality tests. To confirm that the sample data was the skewness as well as kurtosis of a normal distribution, the Jarque-Bera goodness-of-fit test was utilised.

4.10 Validity and Reliability

The principles of validity and reliability are closely related, though they are not identical; instead, they illustrate various elements of measurement instrument. A measurement instrument may prove both reliable and invalid. While independent reliability is insufficient to determine validity, when an instrument for measurement is valid in all scenarios, it is

believed to be reliable (Bloom et al., 2015, Mukherjee, 2019). In addition, offering a valid and reliable instrument is critical to ensuring the accuracy of the research outcomes (Bloom et al., 2015, Mukherjee, 2019). Finally, validity implies consistency and stability in all of the results generated in the research, which is expected to be built by another scholar (Propper and Van Reenen, 2010, McNabb, 2020). Several tactics were used in this research to improve the data's reliability. This research depends on the number of publications that provide pertinent material for this research. The research relied on several documented and approved publications on value chain financing to show this perspective. In addition, the researcher underwent a content analysis data collection to generate composite index for the profitability, and an agreement was achieved among the researcher and the supervisor. Throughout the coding procedure, the student verified and examined the work to guarantee that it was on the correct track and that the data was valid.

Moreover, for the collection and analysis of data on value chain financing and profitability, Data was examined utilising descriptive statistics, thus mean and standard deviation showing company profitability, heterogeneity in profitability between years, heterogeneity in profitability among firms, and profitability across years for all companies. The research utilised a principal component analysis (PCA) to generate the composite index for dependent and independent factors. The researcher just generated an excel file with simple methods for computing the relevant ratios especially composite index for the profitability after reviewing the financial statements from the firms. This excel spreadsheet was used to determine the different ratios for firms. This aided the study in keeping accurate data across all firms and to ensure validity and reliability.

4.11 Ethical consideration of the study

The researcher assured that the method of protecting these people's rights, data confidentiality and rules would be strict. According to Tunggal and Fachrurrozie (2014), the research needs to be focused on reliability and respect for the rights of individuals. The sample demographic consisted of 22 Edible oil manufacturing companies. Ethical considerations necessitate that someone explain the importance of values in the research process, as well as the function of professional organisations (Propper and Van Reenen, 2010, McNabb, 2020). The School of Accounting, Economics and Finance provided ethical approval for secondary data.

4.12 Research Mapping

Research mapping is a structured process that can assist the research in describing the specifics of research concepts. This will be beneficial once the research includes appropriate strategic planning.

The following research mapping depicts the present study's research process:

Figure 3.1 Research mapping of the study

VALUE CHAIN FINANCING AND PROFITABILITY OF EDIBLE OIL MANUFACTURING COMPANIES IN SOUTH AFRICA



Research objectives

- ❖ To ascertain the impact of financing in the raw material on the profitability of edible oil manufacturing companies in South Africa.
- ❖ To assess the impact of financing in the working capital on the profitability of edible oil manufacturing companies in South Africa.
- ❖ To ascertain the impact of financing in the primary activities on the profitability of edible oil manufacturing companies in South Africa.
- ❖ To determine the impact of financing in the support activities on the profitability of edible oil manufacturing companies in South Africa.
- ❖ To establish the moderating impact of firm characteristics on the link between value chain financing and profitability in edible oil manufacturing companies in South Africa.



Secondary data



Analysis



Findings

4.13 Chapter Summary

This chapter described the procedures employed in this research. The researcher employed a descriptive research design to attain its specific objectives. The chapter started by outlining the accepted research paradigm. Furthermore, positivism was chosen as the epistemological approach for the purpose of the research. In general, the present research deals with Edible oil manufacturing companies in South Africa. The research will build an empirical model that will be practical and helpful in determining the impact of Value Chain Financing on profitability after thoroughly evaluating theoretical and empirical studies. The sample frame was generated using a list of Edible oil manufacturing companies in South Africa between 2012 and 2022. The sample size was 22 Edible Oil manufacturing companies. The annual financial statements of these edible oils were obtained from the Bloomberg database, MC Gregor database, and annual reports on public domain to calculate financial ratios.

The secondary data for the variables emanated from the extracted annual financial statements of the manufacturing companies, such as their balance sheet, income statement and cash flow statement. Data is examined utilising descriptive statistics, thus mean and standard deviation showing company profitability, heterogeneity in profitability between years, heterogeneity in profitability among firms, and profitability across years for all companies. The study performs a correlation analysis between all the independent variable composites and the dependent variable composite, getting a P value and a correlation with profitability. Diagnostic tests were performed as part of the study to guarantee that the findings would sometimes be generalised as well as applied in the edible oil industry. The following chapter then provides the data presentation and analysis.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.1 Introduction

This chapter covers the presentation and analysis of data collected during the study. The various findings of the study are presented and discussed according to the various study objectives. The results for the test of the aim and objectives are presented in this chapter. Furthermore, tables and other common econometric tools such Descriptive Statistics, Panel Unit Root test, Correlation and Panel Least Square (which include fixed and random effect regression model) are used in presenting and analysing the data generated. Furthermore, brief explanatory discussions are attached to tables for easy comprehension and clarity purposes. The study also used the Hausman test to select the appropriate model to use for our estimate between fixed and random effect regression. In addition, the study used the Normality test to guarantee that the findings could be generalised and utilised in the edible oil industry. The next section offers data presentation and analysis.

5.2 Data presentation and Analysis

Data was collected from the financial statement presented by each of the companies under the study which is presented on their respective websites with regards to years and variables under consideration. The study equally presented descriptive statistics, also known as summary statistics, to describe the nature of the data. First and foremost, the researcher studied the nature of the movement of the variable that was used in this applied work. This was investigated using the company code in Table 5.1. Below is Table 5.1 below which shows the Company Code and Meaning as used for the analysis.

Table 5.1 Company Code and Meaning

No	Company Code	Company Name (Million Rand)
1	CL	Clover (Pty) Ltd
2	WS	Wilmar SA (Pty) Ltd
3	RFG	RFG Holdings Limited
4	FSO	Free State Oil (Pty) Ltd
5	AAF	Acorn Agri & Food
6	RCLF	RCL foods
7	PF	Pioneer foods
8	SF	Siqalo Foods (Pty) Ltd
9	SuOM	Sunola Oil Mills (Pty) Ltd

10	BCL	BID Corporation Ltd.
11	SSK	Sentraal-Suid Koöperasie Ltd (SSK Ltd)
12	SPP	Epic Foods (Pty) Ltd
13	EOSC	Epko Oil Seed Crushing (Pty) Ltd
14	SO	Southern Oil (Pty) Ltd
15	VAF	Vest-Activ Four (Pty) Ltd
16	LOG	Lapithos Olive Growers
17	PF	PhilAfrica Foods (Pty)Ltd
18	PO	Porteville Olives (Pty) Ltd
19	SDOS	Sime Darby Oils South Africa (Pty) Ltd
20	SOM	Standerton Oil Mills (Pty) Ltd
21	PC	PC coetsee
22	SLI	Sea Lake Investments (Pty) Ltd

Source: *Author's Estimation*

5.3 Descriptive analysis

The descriptive analysis of the research's variables is presented in this section. To understand the characteristics of the connections among the research's variables, the research data has been laid out utilising metrics such as central tendency and cross tabulations.

5.3.1 Evaluation of Profitability

The study possesses three metrics for Profitability: return on investment, return on equity and Tobin Q, assessing the profitability of these edible oil manufacturing companies. To decrease the number of variables that are important into a lesser number of factors, the principal components analysis (PCA) approach was utilised. The PCA analyses every variance in the variables and reorganises them into a new set of components equivalent to the number of original variables. For instance, PI for firm 1 for the year 2012 had been calculated as follows: Dependent variable profitability for firm 1 for the year 2012 = $0.1714 \cdot \text{ROI} + 0.8631 \cdot \text{ROE} + 0.167 \cdot \text{TQ}$. ROI represents the return on investment, ROE serves as return on equity and TQ represents Tobin's Q estimation of firm 1 for of the year 2012. The results for the composite index are summarised in Appendix 5. The PCA-based index proposes a simple and resilient measurement of the values and classifications of which have been only modestly changed by shifts in socioeconomic environments. The PCA, or principal component analysis was applied to create a composite index of dependent variables based on twenty-two edible oil companies throughout the 11-year period from 2012 to 2022. The research further determined means and standard deviations for profitability based on ROI, ROE, and Tobin Q, and the results are shown in the Table 5.2.

Table 5.2 Summary statistics description for Profitability (Dependent variables)

Variables	Mean	Standard Deviation
Profitability	0.7087	0.8035
Tobin Q	0.5296	0.6128
Return on Investment	5.3487	5.9303
Return on Equity	6.8003	8.2041
Profitability Composite index between companies	0.7087	0.7512

Source: *Author's Estimation*

There is a significant difference in profitability among the edible oil companies in South Africa, as shown by statistics of the composite index for Profitability for all the edible oil companies, which have a mean of .7087 and a standard deviation of .8035. The standard deviation of the variation in Profitability between the firms is .7512, which indicates a disparity of 0.0523 units between the standard deviation of the total of all companies (at 80.35) and between the profitability of the firms throughout the years 2012 to 2022. Return on equity (ROE) has a highest mean of 6.8003 whereas Tobin Q has the lowest mean of 0.5296. The return on equity (ROE) has a highest standard deviation of 8.2041, although the Tobin Q's lowest standard deviation is 0.6128. The standard deviation measurements provide information on the three distributions' shapes and the distances between each of the variables and their respective means.

Compared to return on equity, return on investment and Tobin Q have the lowest difference among the mean and standard deviation, reflecting an average data distribution. The results support research by various other researchers such as Lee and Kwon (2022), Vanti and Supandi (2020), and McGrath et al. (2020), who further looked at profitability, which included return on equity, return on investment, and Tobin Q. They measured the dependent variable utilising principal component analysis and discovered that Tobin Q had a smaller deviation compared to the mean than return on equity and return on investment, suggesting that all three variables have relevance and add in different degree to the profitability composite index. The next section will then provide the statistics description for the independent and moderating variables.

5.3.2 Statistics description for independent and moderating variables

Independent variables incorporate Financing in raw material, Financing in working capital, Financing in primary activities, Financing in support activities, and a moderating variable.

Firm characteristics were explained by utilising descriptive statistics of mean and standard deviation. Greater standard deviation signifies a wider range of scores, and variation in the data is recognised through the mean and standard deviation. This ensures that the set of results is normal and suitable for further research. Table 5.3 presents the descriptive statistics in an overview, including the overall mean and standard deviation of the independent and moderating variables.

Table 5.3 Summary statistics description for independent and moderating variables

Variables	Mean	Standard Deviation
Financing in Raw Material & Operation		
Purchase of material	215595445.8	1579404699.01
Raw material	1534359.094	5126611.034
Financing in working capital		
Inventory management	2239106.973	4699988.033
Creditors management	27169510.00	198120034.9
Prepayments (current asset)	2592675.292	5196199.378
Financing in primary activities		
Inbound logistics	1394673.722	5097322.707
Outbound logistics	1663837.392	3599800.183
Financing in support activities		
Firm operation	1742714.134	6507720.718
Management cost	415391.7294	1985176.154
Development cost	2116015.930	5571926.710
Marketing and sales	6214405.4704	1866067.462
Firm Characteristics		
Firm size	19705689.92	64969979.67
Firm capital structure	808030.6517	2348203.663

Source: Author's Estimation

Table 5.3 explains the independent variables in the research by describing the mean and standard deviation of all variables with the whole edible oil manufacturing companies in South Africa through 2012 to 2022. It discusses the average of all variables calculated based on the 11-year financial ratio of every firm. A lesser standard deviation means a lesser mean variance, whereas a larger standard deviation means a larger mean variation. Standard deviations inform that each firm's cost of various variables varies from the industry average for every firm.

In raw material financing, standard deviation is less in purchase of raw material, but mean for financing import of raw material is much less compared to financing purchase of raw material. In addition, working capital financing deviation from the mean is highest in financing Creditors management, compared to inventory management, and prepayment,

which is the lowest deviation from the mean. In prepayment, further deviations are highest from mean, but as high as inventory management. In primary activities, financing deviation is highest in inbound logistics compared to outbound logistics, but the mean is highest in financing in Outbound logistics compared to inbound logistics. Furthermore, in support activities, financing the mean is highest for marketing and sales financing, followed by firm operation, and development cost, while the deviation is highest for firm operation financing followed by development cost, management cost along with marketing and sale.

In firm characteristics, deviation from the mean is highest in firm size, followed by capital structure. A comparable study of value chain financing and its impact on profitability was made in the Nigerian companies' industries by Nnama-Okechukwu et al. (2020) and Nnama-Okechukwu and Okoye (2019). In the findings of the research, it is claimed that value chain financing gave firms a competitive advantage among other competitors in the field and increased profitability as in this current research.

5.4 Correlation analysis

Correlation is a statistical measure that expresses the degree to which two variables are linearly related (meaning they change together at a constant rate). It is a common tool for describing simple relationships without making statements about cause and effect. To evaluate the connection between the independent variables and the composite index of the dependent variable, the research further computed a Pearson product-moment correlation coefficient. A statistical indicator of the significance of the connection was established using Pearson's product-movement correlation coefficient (r). Its value is between -1 and +1. To evaluate the relationships among the variables, cross tabulation was utilised. The outcomes of correlation analysis can be found in Table 5.4.

Purchase of materials via Supplier Agreements with Raw material import. Raw material imports with Inventory management. Inventory management with inbound logistics and development costs as well as firm size. Furthermore, creditors management along with Prepayments (current asset). In addition, inbound logistics with firm infrastructure. Outbound logistics with marketing, sales, and firm capital structure. Firm operation with management costs, development costs, marketing and sales. Firm size with Firm capital structure. Lastly, the development cost with firm size. The following section then provides the correlation of financing independent variables and profitability.

Table 5.4 Correlation of financing independent variables and Profitability

Variables	Profitability	Purchase material	RM	IVM	CM	Prepayment	Inbound logistics	Outbound logistics	Firm operation	Mgt Cost	Dev. Cost	Marketing & sales	Firm Size	Firm capital structure	Tobin Q	ROE	ROI
Profitability	1																
Purchase material	.30 (.481)	1															
RM	-.030 (.424)	-.025 (.383)	1														
IVM	.201 (.012)	-.043 (.397)	.436 (.000) *	1													
CM	.162 (.09)	.101 (.115)	.008 (.463)	-.026 (.8310)	1												
Prepayment	-.018 (.386)	-.043 (.306)	-.012 (.443)	.308 (.000) *	-.017 (.420)	1											
Inbound logistics	.078 (.132)	-.023 (.394)	-.056 (.252)	.279 (.000) *	.006 (.473)	.491 (.000) *	1										
Outbound logistics	.123 (.261)	-.050 (.275)	.557 (.000) *	.335 (.000) *	-.008 (.461)	.312 (.000) *	.262 (.001) *	1									
Firm operation	.075 (.142)	.131 (.060)	.110 (.095)	-.006 (.472)	.297 (.000) *	-.036 (.335)	-.052 (.268)	-.046 (.292)	1								
Mgt cost	.078 (.138)	.145 (.042) *	.434 (.000) *	.255 (.001) *	.202 (.008) *	.071 (.200)	.179 (.016) *	.046 (.293)	.200 (.008) *	1							
Dev. cost	.131 (.043)	.251 (.001) *	-.067 (.215)	-.123 (.071)	.209 (.006) *	-.145 (.042) *	-.082 (.165)	-.084 (.160)	.438 (.000) *	.020 (.405)	1						
Marketing & sales	.085 (.382)	.450 (.000) *	-.073 (.193)	-.082 (.164)	.393 (.000) *	-.010 (.454)	-.070 (.204)	-.034 (.341)	.311 (.000) *	.092 (.137)	.463 (.000) *	1					
Firm size	.146 (.034) *	-.032 (.352)	.235 (.002) *	.172 (.020) *	-.021 (.402)	.078 (.178)	.089 (.145)	.133 (.057)	-.016 (.426)	.152 (.035) *	-.087 (.150)	-.038 (.327)	1				
Firm capital structure	-.082 (.146)	-.024 (.390)	.336 (.000) *	.233 (.003) *	-.016 (.423)	.241 (.002) *	-.066 (.215)	.323 (.000) *	.002 (.492)	-.032 (.352)	-.034 (.345)	-.091 (.141)	.105 (.107)	1			

Tobin Q	-.033 (.225)	.085 (.156)	-.187 (.013) *	-.180 (.016) *	.035 (.339)	-.177 (.017) *	-.084 (.158)	-.171 (.020) *	.005 (.478)	-.066 (.218)	.005 (.475)	-.023 (.392)	-.111 (.093)	-.194 (.010) *	1		
ROE	0.15 (.3560)	-.091 (.140)	.019 (.413)	-.013 (.437)	-.103 (.111)	.199 (.009) *	.072 (.197)	.059 (.242)	-.059 (.243)	-.102 (.114)	-.020 (.000) *	-.203 (.008) *	-.065 (.222)	-.081 (.168)	-.049 (.281)	1	
ROI	.039 (0.310)	.193 (.010) *	.186 (.013) *	-.045 (.298)	.484 (.000) *	.039 (.320)	-.100 (.117)	.083 (.162)	.246 (.002) *	.121 (.075)	.012 (.400)	.181 (.015) *	-.068 (.209)	.037 (.331)	.200 (.008) *	.250 (.001) *	1

*Note: * Represents a significant relationship at 5% level*

Source: Author's Estimation

Table 5.4 lists the P-values for each connection among each independent and moderating variables and the profitability variables, as well as the degree and direction of each correlation. One * indicates a level of significance (P-value) of 5% for every relationship.

Furthermore, the research summarised the degree of the correlation and direction for each of the five (5) research's particular objectives, incorporate moderating variable, as well as described both its strength (P-value) and direction. The findings of Pearson's product-movement correlation coefficient (r) and significant value (P) for financing in raw material & activities with profitability are presented in Table 5.5.

Table 5.5 Correlation of financing in raw material with profitability

Variables	Profitability	Purchase of material	Raw Material
Profitability	1		
Purchase of material	.30 (481)	1	
Raw Material	-.030 (424)	-.025 (765)	1

*Note: * Represents a significant relationship at 5% level*

Source: Author's Estimation

The connection among financing in raw material along with profitability in the edible oil industry has a negative correlation among the two variables, but it is not statistically significant ($r = -0.030$, $p = .424$). However, the connection among financing in the purchase of material via agreements with suppliers and profitability in the edible oil industry has a positive correlation between the two variables ($r = .30$, $p = .481$). In summary, there was a somewhat negative connection between raw material financing and the South African edible oil industry's profitability. An increase in financing for the purchase of material ($r = .30$, $p = .481$) is associated with a reduction in profitability. The financing of the raw material variable was also not significant at the 5% level of significance, as indicated in Table 5.5. The purchasing of material, however, is more substantial than the purchase of raw materials via suppliers' agreement at the 5% level of significance. Bijman et al. (2020) as well as Panda and Nanda (2018) examined a different research whereby raw material financing using agreements with suppliers was investigated. They evaluated and proved that effectiveness in agreements is achieved by guaranteeing a link between the agricultural operation and the company, therefore it boosts profitability.

Inventory management and creditor management, including prepayments, were used to assess the research's second objective, namely the financing of working capital. The findings of Pearson's product-movement correlation coefficient (r) and significant value (P) for working capital financing and profitability are presented in Table 5.6.

Table 5.6 Correlation of financing in working capital with profitability.

Variables	Profitability	Inventory management	Creditors management	Prepayments
Profitability	1			
Inventory management	.201 (.012)	1		
Creditors management	.162 (0.09)	-.026 (.761)	1	
Prepayments	-.018 (.386)	.308 (.000) *	-.017 (.840)	1

*Note: * Represents a significant relationship at 5% level*

Source: Author's Estimation

The connection among inventory management along with profitability in the edible oil manufacturing has a positive correlation ($r = .201$, $p = .012$), the connection among financing in creditors management and profitability in the edible oil company has a positive correlation ($r = .162$, $p = 0.09$) but is not significant. Furthermore, the connection between financing in prepayment and profitability in the edible oil company has a negative correlation ($r = -.018$, $p = (.386)$) which is not significant. In summary, there seemed to be a weak positive connection among working capital financing and profitability in the South African edible oil company. Increased working capital financing ($r = .201$, $p = .012$) correlates with increased profitability. Furthermore, as indicated in Table 5.6, financing in working capital variables was not statistically significant at the 5% level of significance. In addition, inventory management is of greater significance than prepayments and creditor management at the 5% level of significance. Weak positive correlation indicates that there is no significant link between financing working capital and profitability, but the direction is positive, implying that more financing aids in boosting profitability.

This conclusion is comparable to that reported in the research of inventory management by Rai et al. (2021), Rai et al. (2023), and Ray et al. (2020), demonstrating that adequate financial aid in material flow optimisation and profitability. Further research by Ding and Wan (2020) as well as Dary and James Jr (2020) carried out experiments and confirmed that

enterprises concurrently provide credit, indicating that the gap between prepayments and creditors needs to be appropriately evaluated and funded to maximise profitability.

The third research objective, financing in primary activities, was evaluated using inbound logistics and outbound logistics. The outcomes of Pearson's product-movement correlation coefficient (r) and significant value (P) for financing in primary activities with profitability are summarised in Table 5.7.

Table 5.7 Correlation of financing in the primary activities with profitability

Variables	Profitability	Inbound logistics	Outbound logistics
Profitability	1		
Inbound logistics	.078 (.132)	1	
Outbound logistics	.123 (.261)	.262 (.002) *	1

*Note: * Represents a significant relationship at 5% level*

Source: Author's Estimation

The connection among inbound logistics and profitability in the edible oil company is positive but not significant ($r = .078$, $p = .132$), while the connection among financing in outbound logistics and profitability in edible oil manufacturing is positive but not significant ($r = .123$, $p = .261$). South Africa's edible oil company has a moderately favourable connection between financing in primary activities and profitability. An increase in financing in primary activities is moderately favourably connected with an increase in profitability. Furthermore, as indicated in Table 5.7, between the primary activities, outbound logistics ($r = .123$, $p = .261$) with inbound logistics ($r = .078$, $p = .132$) were not significant at the 5% level of significance. The research's positive and substantial connection between primary activities and profitability suggests that investing in primary activities greatly enhances the connection, increases and more financing.

Other research, conducted by Wong et al. (2020b) and Wong et al. (2020a), examined the influence of technology and consumer uncertainty on the link between integrated supply chains (inbound logistics) and consumer delivery outcomes (outbound logistics), as well as the implications for profitability. Bekele et al. (2022) and Panda and Nanda (2018) discovered a favourable association among primary activities and profitability in their research concerning Supply Chain Management Practices and their Influence on the Profitability of Kasapreko Company Limited in Ghana. Comparable to this research,

Benseddik (2019) and Nagalingam et al. (2021) experimentally investigated the management of supply chains by incorporating logistics in advertising and sales and discovered a favourable association among inbound logistics and outbound logistics with profitability. The fourth research objective, financing in support activities, was calculated using firm operation costs, management costs, development costs, and marketing and sales.

The outcomes of Pearson's product movement correlation coefficient (r) and significant value (P) regarding financing in support activities with profitability are summarised in Table 5.8.

Table 5.8 Correlation of financing in support activities with profitability

Variables	Profitability	Firm operation	Management cost	Development cost	Marketing and sales
Profitability	1				
Firm operation	.075 (.142)	1			
Management cost	.078 (.138)	.200 (.016) *	1		
Development cost	.131 (0.043)	.438 (.000) *	.020 (.810)	1	
Marketing and sales	.085 (.382)	.311 (.000) *	.092 (.274)	.463 (.000) *	1

*Note: * Represents a significant relationship at 5% level*

Source: Author's Estimation

The connection among financing in management cost with profitability in the edible oil company has a positive correlation among the two variables ($r = .078$, $p = .138$) which is not significant, as does the connection among firm operation cost and profitability in the edible oil company ($r = .075$, $p = .142$). While there is a positive correlation among the two variables ($r = .131$, $p = 0.043$) and significant relationship and financing for development costs and profitability in the edible oil company, there is also a positive correlation between the two variables ($r = .085$, $p = .382$), and significant relationship with financing for marketing and sales and profitability. In summary, there was a moderately favourable link between financing in support activities and the profitability of the South African edible oil company.

Profitability growth and increased financing in support activities are somewhat positively connected. In addition, as indicated in Table 5.8, mainly the development cost ($r = .131$, $p = 0.043$) was significant at the 5% level of significance from the support activities. However, compared to firm operation and management costs, marketing and sales are more significant at the 5% level of significance. Different research by Nugraha et al. (2016) and Sari and

Sedana (2020) suggest that executives ought to concentrate on value chain practices (support activities), which have a consistent impact and a favourable link with the company's profitability. Yolandika et al. (2021) and Hamelin and Bonelli (2022) draw similar conclusions in their research, concluding that value chain practices have a considerable impact on corporate success.

The current analysis confirms earlier research by Yap and Tan (2012), Haydarov (2020), and Devitamala and Apollo (2022), that found a favourable association between value chain practices and company profitability. Moderating variable firm characteristics was the fifth research objective, which was assessed using firm size and firm capital structure. Table 5.9 presents the findings for the moderating variable influencing profitability using Pearson's product-movement correlation coefficient (r) and significant value (P). The next section then offers the correlation of firm characteristics with profitability.

Table 5.9 Correlation of firm characteristics with profitability

Variables	Profitability	Firm size	Firm capital structure
Profitability	1		
Firm size	.146 (.034)*	1	
Firm capital structure	-.082 (.146)	.105 (.214)	1

Note: * Represents a significant relationship at 5% level

Source: Author's Estimation

The connection among firm capital structure with profitability in the edible oil company has a negative correlation among the two variables ($r = -.082$, $p = .146$), but it is not significant. Conversely, the connection among firm size with profitability in the edible oil manufacturing has a positive correlation among the two variables ($r = .146$, $p = .034$). In summary, it found a positive link between profitability and moderating variable firm characteristics in the South African edible oil company. Profitability growth is positively connected alongside an increase in firm characteristics. In addition, as indicated in Table 4.9, merely firm size ($r = .146$, $p = .034$), one of the moderating variables, proved to be significant at the 5% level of significance, whereas the remaining variable, firm capital structure, was not significant.

The influence of firm size on profits was experimentally evaluated by Putri et al. (2018) as well as Pattiruhu and Paais (2020) who discovered a positive association among firm size

with profitability. An identical connection was observed in the present research, while both studies showed the connection to be highly significant. Other empirical research conducted by Kamau (2010) and Dirman (2020) found a strong correlation between capital structure and profitability in the South African insurance sector. In a comparable manner, our research revealed a favourable, substantial correlation between profitability and capital structure. The following section then provides the diagnostic tests.

5.5 Diagnostic Tests (pre-estimation tests)

Several pre-estimation tests were carried out to achieve the greatest quality findings. The tests involved the Unit root test to confirm that the data was stationary, the multi-collinearity test to guarantee that the independent variables had not been correlated along with the Hausman test to aid in choosing the best model for the data among the fixed effect model with the random effect model. For multi-collinearity testing, Variance Inflation Factor (VIF) testing was used, and any variables having more than 10 (VIF) were excluded from the model sequentially until the VIF for all variables contained was less than 10. The next section then provides unit root stationary test.

5.5.1 Unit Root Stationary Test

This study adopted Levin and Chu test (LLC) test as presented in Table 5.10 below to investigate the stationarity of the panel data variables at the level stage and beyond.

Table 5.10 Unit Root Stationary Test

Variables	Integration order	Statistic	p-value
Purchase of material	I (0)	-2.60611	0.0046
Raw material	I (1)	-5.55910	0.0000
Inventory management	I (1)	-17.1955	0.0000
Creditors management	I (0)	-8.16732	0.0000
Prepayments	I (0)	-4.91606	0.0000
Inbound logistics	I (1)	-5.99858	0.0000
Outbound logistics	I (0)	-13.8892	0.0000
Firm operations	I (0)	-18.5493	0.0000
Management cost	I (1)	-13.5866	0.0000
Development cost	I (1)	-2.58798	0.0048
Marketing and sales	I (0)	-8.77462	0.0000
Firm size	I (0)	-4.18829	0.0000
Firm capital structure	I (1)	-5.80724	0.0000
Tobin Q	I (0)	-24.3805	0.0000

Return on equity	I (0)	-701.419	0.0000
Return on investment	I (0)	-11.7381	0.0000

Source: Author's Estimation

The results of the panel unit root test showed that these variables attained stationarity at the level stage I (0) and after the first difference stage I (1). Since we are not interested in studying the long run relationship or equilibrium between the panel variables, hence there is no need for cointegration analysis. The following section then offers a multicollinearity test.

5.5.2. Multicollinearity Test

Both independent and moderating variables are involved in multi-collinearity. To demonstrate multi-collinearity to the test, Variance Inflation Factors (VIF) have been determined for all the panel data's independent with moderating variables. Independent or moderating variables and VIF values greater than 10 were eliminated. The test was performed in order to compute the VIF of these variables. All independent variables and moderating variables were less than 10 in this approach. Table 5.11 summarises all the independent and moderating variables which had a VIF of less than 10 and were incorporated into the model.

Table 5.11 Multicollinearity Test

Variables	VIF	Tolerance
Purchase of material	1.310	.763
Raw material	3.006	.333
Inventory management	1.485	.673
Creditors management	1.297	.771
Prepayments	1.685	.593
Inbound logistics	1.688	.593
Outbound logistics	2.147	.466
Firm operations	1.388	.720
Management cost	1.723	.580
Development cost	1.525	.656
Marketing and sales	1.789	.559
Firm size	1.083	.923
Firm capital structure	1.359	.736
Mean VIF & Tolerance	1.653	.598

Source: Author's Estimation

The mean VIF for each of the variables incorporated into the model is 1.653 (suggested drop off that's lower than 10) while the Tolerance for all chosen variables is similarly less than 10. This indicates that the model's specified variables will not have a correlation issue amongst

themselves. This meant that the panel data regression model was able to be applied with the chosen variables following the Hausman test to determine whether the optimal model for the data was a fixed effect model and a random effect model. The next section then offers a Hausman test.

5.5.3. Hausman Test

Using the research's panel data, the Hausman test was used to identify the most appropriate model among fixed effects with random effects. The null hypothesis in the Hausman test indicates that the model of choice is the random effects model, while the alternative hypothesis is that the fixed effects model is used. It simply checks whether unique errors (u_i) relate to the regressors, with the null hypothesis being that they are not. The two estimation methods ought to be identical in any systematic way. If there is a systematic disparity in the estimates, the assumptions on which the most effective estimator relies should be questioned. If the P-value is less than .05, the fixed effect model is employed; alternatively, the random effect model is utilised. Table 5.13: Hausman test for selection of model 1 is below Table 5.12.

5.6. Panel Data Regression

Based on the conceptual framework and multiple variate analysis model described in Chapter 4, this research performed Panel data regression analysis. The explanatory multivariate approach of Panel data regression analysis was utilised in this portion of the research to analyse correlations among variables along with demonstrate the validity of the Panel data regression models. The research then compared the independent variables and moderate variables (raw material, working capital, inventory management, creditors management and primary activities costs via inbound logistics, outbound logistics, marketing and sales, and support activities via firm infrastructure, human resource cost, development cost and moderate variables via firm size with firm capital structure) to the dependent variables' profitability (ROE, Tobin Q and ROI). The research model is employed to assess the dependent variable with independent variables and moderating variables:

$$Y_{it} = \beta_0 + \beta_1 RM_{it} + \beta_2 WC_{it} + \beta_3 PA_{it} + \beta_4 SA_{it} + \beta_5 FC_{it} + U_{it}$$

In accordance with the evaluation of profitability the research assessed various variations of the model.

Sub model 1: includes a return on equity.

Sub model 2: includes Tobin Q

Sub model 3: includes a return on investment.

Sub model 4: includes a Composite for profitability index.

Table 5.12, 5.14, 5.16 and 5.18 below summarize the fixed and random regression output. Table 5.13, 5.15, 5.17 and 5.19 were the tables of Hausman test used to choose between the fixed and random effect model.

5.6.1. Value chain financing regressed with Profitability (ROE)

Table 5.12. summarises the outcomes of the research, which regressed each independent variable and moderating variables against the return on equity.

Model 1 (Return on Equity)

Table 5.12 Regression Results with Profitability (ROE)

Variables	Fixed Effect Model				Random Effect Model			
	Coefficient (β)	St. Error	t-Statistic	P-value	Coefficient (β)	St. Error	t-Statistic	P-value
Purchase of material	-4.79E-08	2.94E-08	-1.631271	0.1067	4.55E-09	6.27E-09	0.726476	0.4694
Raw material	-7.83E-07	4.82E-07	-1.624010	0.1083	1.54E-07	2.20E-07	0.699864	0.4857
Inventory management	2.23E-08	1.09E-07	0.203542	0.8392	-3.03E-08	1.02E-07	-0.691132	0.7669
Creditors management	1.95E-08	1.40E-08	1.386957	0.1693	-3.84E-09	5.56E-09	-0.691132	0.4912
Prepayments	-4.13E-07	2.66E-07	-1.555190	0.1238	1.45E-07	1.34E-07	1.086418	0.2801
Inbound logistics	-5.96E-07	1.47E-07	-4.039020	0.0001 *	-2.89E-07	1.26E-07	-2.298172	0.0238 *
Outbound logistics	4.13E-07	3.18E-07	1.277023	0.2052	6.64E-08	2.33E-07	0.285134	0.7762
Firm operations	6.41E-07	5.11E-07	1.254356	0.2133	-1.77E-07	2.21E-07	-0.81715	0.4247
Management cost	-3.20E-07	3.08E-07	-1.038886	0.3019	-3.22E-07	2.79E-07	-1.155219	0.2509
Development cost	0.647846	.3700031	1.750001	0.0431 *	-1.69E-07	1.35E-07	-1.256504	0.2120
Marketing and sales	5.87E-08	5.18E-07	0.113279	0.9101	-5.49E-07	4.62E-07	-1.190016	0.2370
Firm size	-4.09E-09	6.34E-09	-0.646075	0.5201	-4.45E-07	6.08E-09	-0.731785	0.4661
Firm capital structure	-4.38E-07	2.01E-07	-2.181393	0.0321*	-4.44E-07	1.90E-07	-2.333504	0.0218*
Constant β₀	9.989031	1.491290	6.698248	0.0000	6.163931	0.879502	7.008431	0.0000

Note: * Implies significant at 5% level of significance.

Source: Author's Estimation

Table 5.13 Hausman test for selection of model 1

Correlated Random Effects -Hausman Test Test cross-section random effects			
Test Summary	Chi-square	Chi-sq. d.f	Prob
Cross section	88.980681	12	0.0000

Source: Author's Estimation

H0: Random effect model is consistent H1: Fixed effect model is consistent.

From the above Table 5.13, it suggests that fixed effect model is appropriate, hence, we accept the alternative hypothesis that fixed effect model is consistent. Therefore, the parameter estimation for model 1 in this study was done using the fixed effect regression model.

Table 5.12 indicates that the coefficients of the model are significantly different from 0 and the P-value 0.000 is less than 5%. There are also analysed significant tests of individual coefficients for each predictor's variable in the model. The coefficient of determination demonstrates a solid linear model that describes the phenomena that occurs in the twenty-two analysed variables in an amount of 51.2%, corresponding to the explanation variables. The rest of the 48.8%, refers to the impact of unidentified or unconsidered factors on the profitability of South Africa's edible oil company. Holding all other variables constant, each edible oil company is expected to have $\beta_0 = 9.98$ units of profitability (with respect to return on equity) with a probability value < 0.05 .

The results further indicate that the firm capital structure (P-value = 0.0321) and inbound logistics (P-value = 0.0001) and development cost (P-value = 0.043) are very significant and affect profitability at 5% level of significance. Other predictor variables are not significant at 5% level of significance. In the research they conducted, Ishak (2019), Chamsudi and Melan (2015), and Satriono et al. (2020) analysed shareholder value as a profitability measurement, and this research additionally evaluated the value chain on ROE as a financial indicator to see which metric of profitability is ideal for the purpose of this research. The research discovered an r-sqr of 51.2%, which explains 51.2% of the variance. The following section then provides the Regression of Value Chain Financing with profitability (Tobin Q).

5.6.2. Regression of Value Chain Financing with profitability (Tobin Q)

Table 5.14 summarises the outcomes of the research, which regressed all independent variables with Tobin Q.

MODEL 2 (Tobin Q)

Table 5.14 Regression Results with Profitability (Tobin Q)

Variables	Fixed Effect Model				Random Effect Model			
	Coefficient (β)	St. Error	t-Statistic	P-value	Coefficient (β)	St. Error	t-Statistic	P-value
Purchase of material	-6.13E-10	3.2E-09	-0.187191	0.8520	-8.81E-11	6.01E-10	-0.146667	0.8837
Raw material	-2.73E-08	5.38E-08	-0.508058	0.6128	-2.59E-08	1.98E-08	-1.309858	0.0193 *
Inventory management	4.59E-09	1.22E-09	0.227080	0.8209	-2.27E-09	1.03E-08	-0.220108	0.8261
Creditors management	3.56E-10	1.57E-09	0.227080	0.8209	1.56E-10	5.97E-10	0.261048	0.7946
Prepayments	-4.75E-09	2.96E-08	-0.160337	0.8730	-3.96E-09	1.26E-08	-0.315462	0.7531
Inbound logistics	9.03E-09	1.64E-08	-0.550162	0.5837	-1.19E-08	1.22E-08	-0.974689	0.3322
Outbound logistics	2.50E-08	3.55E-08	0.704383	0.4832	2.02E-08	2.41E-08	0.836587	0.4049
Firm operations	1.48E-08	5.70E-08	0.258927	0.7963	6.54E-09	2.38E-08	0.275259	0.7837
Management cost	7.94E-09	3.43E-08	0.231422	0.8176	8.78E-09	3.05E-08	0.287853	0.7741
Development cost	-3.83E-09	1.66E-08	-0.231422	0.8177	3.22E-09	1.31E-08	0.246406	0.8055
Marketing and sales	-4.53E-08	5.78E-08	-0.785003	0.4347	-4.08E-08	4.41E-08	-0.924881	0.3574
Firm size	5.22E-11	7.06E-10	0.073945	0.9412	-3.35E-10	6.30E-08	-0.573107	0.5679
Firm capital structure	-2.87E-08	2.24E-08	-1.284506	0.0261 *	-3.35E-08	2.06E-08	-1.630903	0.0163 *
Constant β₀	0.541786	0.166254	3.258786	0.0016*	0.553059	0.060825	9.092554	0.0000*

Note: * Implies significant at 5% level of significance.

Source: Author's Estimation

Table 5.15 Hausman test for selection of model 2

Correlated Random Effects -Hausman Test			
Test cross-section random effects			
Test Summary	Chi-square	Chi-sq. d.f	Prob
Cross section	8.312819	12	0.7602

Source: Author's Estimation

H0: Random effect model is consistent H1: Fixed effect model is consistent.

From the above Table 5.15, it suggests that random effect model is appropriate, hence we accept the null hypothesis that random effect model is consistent. Therefore, our parameter estimation for model 2 in this study was done using the random effect regression model.

Table 5.14 indicates that the coefficients of the model are significantly different from 0 and the P-value 0.000 is less than 5%. There are also analysed significant tests of individual coefficients for each predictor's variable in the model. The coefficient of determination demonstrates a bad linear model that describes the phenomena that occurs in the twenty-two analysed variables in an amount of 43.8%, corresponding to the explanation variables. The rest of the 56.2% refers to the impact of unidentified or unconsidered factors on the profitability of South Africa's edible oil Company. Holding all other variables constant, each edible oil company is expected to have $\beta_0 = 0.553$ units of profitability (with respect to Tobin Q) with a probability value < 0.05 .

The results also indicate that the firm capital structure (P-value = 0.0163) and raw material (P-value = 0.0193) are very significant and affect profitability at 5% level of significance. Other predictor variables are not significant at 5% level of significance. Tobin Q solely as an indicator of profitability reduced the justification of model to 43.8% and the greatest compared the ROE and ROI as an evaluation of profitability and Tobin Q has just been looked at as intellectual property assessments in the estimation and profitability research on Tawan semi-Transformer company by Indah et al. (2021), Albab and Azis (2021), and Trunfio et al. (2017) with utilizing Tobin Q by itself will not be a good representation to the profitability of the company. The following section then provides the Value chain financing regressed with profitability.

5.6.3. Value chain financing regressed with profitability (ROI)

The research regressed every independent variable with return on investment and the findings are reported in Table 5.16.

MODEL 3 (Return on Investment)

Table 5.16 Regression Results with Profitability (ROI)

Variables	Random Effect Model				Random Effect Model			
	Coefficient (β)	St. Error	t-Statistic	P-value	Coefficient (β)	St. Error	t-Statistic	P-value
Purchase of material	-321E-03	0.45E-04	-0.102101	0.5020	1.24E-03	0.45E-03	1.364012	0.0002
Raw material	-2.30E-05	1.33E-03	-0.020202	0.4010	5.15E-04	1.33E-04	2.235213	0.0003
Inventory management	-9.17E-09	1.28E-07	-0.071539	0.9432	-2.12E-07	1.06E-07	-1.991962	0.0492 *
Creditors management	8.18E-09	4.32E-09	1.894504	0.0370 *	1.15E-08	3.43E-09	3.357141	0.0011 *
Prepayments	-1.49E-07	3.08E-07	-0.484037	0.6298	3.27E-07	1.08E-07	3.022163	0.0032 *
Inbound logistics	-7.31E-08	1.70E-07	-0.429011	0.6691	-1.42E-07	1.09E-7	-1.299746	0.1967
Outbound logistics	-5.25E-08	2.20E-07	-0.239293	0.8115	-1.67E-07	1.98E- 07	-0.842025	0.4018
Firm operations	-9.87E-08	1.76E-07	-0.560699	0.5767	1.09E-07	1.35E-07	0.804311	0.4242
Management cost	-1.72E-08	3.22E-07	-0.533666	0.5952	-5.72E-07	2.92E-07	-1.957701	0.0531
Development cost	-6.22E-08	1.78E-07	-0.349986	0.7273	-1.67E-07	1.28E-07	-1.299876	0.1967
Marketing and sales	1.07E-06	6.15E-07	1.745421	0.0250 *	-8.98E-08	3.91E-07	-0.229520	0.8189
Firm size	3.26E-09	7.52E-09	0.433565	0.6658	-9.72E-09	6.51E-09	-1.492098	0.1389
Firm capital structure	-2.48E-07	2.31E-07	-1.073939	0.0486 *	-1.68E-07	2.09E-07	-0.802266	0.4243
Constant β ₀	6.394484	1.419638	4.504308	0.0000 *	5.708411	0.631841	9.034575	0.0000 *

Note: * Implies significant at 5% level of significance.

Source: Author's Estimation

Table 5.17 Hausman test for selection of model 3

Correlated Random Effects -Hausman Test			
Test cross-section random effects			
Test Summary	Chi-square	Chi-sq. d.f	Prob
Cross section	69.359210	12	0.0000

Source: Author's Estimation

H₀: Random effect model is consistent H₁: Fixed effect model is consistent

From the above Table 5.17, it suggests that fixed effect model is appropriate, hence, we accept the alternative hypothesis that fixed effect model is consistent. Therefore, our

parameter estimation for model 3 in this study was done using the fixed effect regression model.

Table 5.16 indicates that the coefficients of the model are significantly different from 0 and the P-value 0.000 is less than 5%. There are also analyzed the significance tests of individual coefficients for each predictor's variable in the model. The coefficient of determination demonstrates a slightly good linear model that describes the phenomena that occurs in the twenty-two analysed variables in an amount of 49.3%, corresponding to the explanation variables. The remaining 50.7% refers to the impact of unidentified or unconsidered factors on the profitability of South Africa's edible oil company.

Holding all other variables constant, each edible oil company is expected to have $\beta_0 = 6.394$ units of profitability (with respect to return on investment) with a probability value < 0.05 . The results also indicate that firm capital structure (P-value = 0.0486) and creditors management (P-value = 0.037) and marketing and sales (P-value = 0.025) are very significant and affect profitability at 5% level of significance. Other predictors variables are not significant at 5% level of significance. In exclusive research by Akoto et al. (2013), Mabandla and Makoni (2019), and Makori and Jagongo (2013) experimentally developed the connection between the value chain methods and their financial issues, affecting that they were moving forward, influencing up in the company and determining profitability alongside return on investment and discovering significant connections among profitability and value chain approaches.

Another research project, based on Aldubhani et al. (2022), and Amponsah-Kwatiah and Asiamah (2021) found that financial Value Chain management affects profitability calculated by return on invested capital (ROIC). Based on this research, supply chain financing is a financial remedy that offers mutually beneficial effects for all the power source those who participated in the supply-side Value Chain and might improve commercial economic strength in the sales and keep competitiveness. Research conducted by Ukaegbu (2014), Abuzayed (2012), and Al-Shubiri (2010) revealed that Value Chain planning assists the organization to get a genuine return on investment.

The research additionally showed that supply chain finance is a financial approach that produces mutually beneficial solutions results for all the respondents in the supply-side Value Chain. Each of these research studies enhances the profitability of the company. The research's correlated independent variable using return on investment r-sqr value description

variation is 49.3%. This outcome would contrast with the outcome of the return on investment and Tobin Q to determine our model that describes the largest variance in profitability of edible oil manufacturing companies in South Africa. The following section then offers value chain financing regressed along with Profitability composite Index.

5.6.4. Value chain financing regressed with Profitability Composite Index

Table 5.18. summarises the outcomes of the research, which regressed each of the independent and moderating variables against the Profitability composite index.

Model 4 (Profitability Composite index)

Table 5.18 Regression Results with Profitability Composite Index

Variables	Fixed Effect Model				Random Effect Model			
	Coefficient (β)	St. Error	t-Statistic	P-value	Coefficient (β)	St. Error	t-Statistic	P-value
Purchase of material	2.23E-08	1.09E-07	0.203542	0.8392	-3.03E-08	1.02E-07	-0.691132	0.7669
Raw material	-7.83E-07	4.82E-07	-1.624010	0.1083	1.54E-07	2.20E-07	0.699864	0.4857
Inventory management	-4.79E-08	2.94E-08	-1.631271	0.1067	4.55E-09	6.27E-09	0.726476	0.4694
Creditors management	-5.96E-07	1.47E-07	-4.039020	0.0001 *	-2.89E-07	1.26E-07	-2.298172	0.0238 *
Prepayments	-4.13E-07	2.66E-07	-1.555190	0.1238	1.45E-07	1.34E-07	1.086418	0.2801
Inbound logistics	1.95E-08	1.40E-08	1.386957	0.1693	-3.84E-09	5.56E-09	-0.691132	0.4912
Outbound logistics	0.647846	.3700031	1.750001	0.0431 *	-1.69E-07	1.35E-07	-1.256504	0.2120
Firm operations	6.41E-07	5.11E-07	1.254356	0.2133	-1.77E-07	2.21E-07	-0.81715	0.4247
Management cost	-3.20E-07	3.08E-07	-1.038886	0.3019	-3.22E-07	2.79E-07	-1.155219	0.2509
Development cost	4.13E-07	3.18E-07	1.277023	0.2052	6.64E-08	2.33E-07	0.285134	0.7762
Marketing and sales	5.87E-08	5.18E-07	0.113279	0.9101	-5.49E-07	4.62E-07	-1.190016	0.2370
Firm size	-4.48E-07	2.02E-07	-2.181493	0.0331*	-4.44E-07	1.90E-07	-2.333504	0.0228*
Firm capital structure	-4.09E-09	6.34E-09	-0.646075	0.5201	-4.45E-07	1.90E-07	-0.731785	0.4661
Constant β ₀	9.999031	1.492290	6.698348	0.0000	6.163941	0.879512	7.008441	0.0000

Note: * Implies significant at 5% level of significance.

Source: Author's Estimation

Table 5.19 Hausman test for selection of model 4

Correlated Random Effects -Hausman Test Test cross-section random effects			
Test Summary	Chi-square	Chi-sq. d.f	Prob
Cross section	84.781781	12	0.0000

Source: *Author's Estimation*

H0: Random effect model is consistent H1: Fixed effect model is consistent.

Table 5.19 above suggests that a fixed effect model is appropriate, hence we accept the alternative hypothesis that a fixed effect model is consistent. Therefore, our parameter estimation for model 4 in this study was done using the fixed effect regression model.

Table 5.18 indicates that the coefficients of the model are significantly different from 0 and the P-value 0.000 is less than 5%. There are also analysed significant tests of individual coefficients for each predictor's variable in the model. The coefficient of determination demonstrates a solid linear model that describes the phenomena that occurs in the twenty-two analysed variables in an amount of 52.5%, corresponding to the explanation variables. The remaining 47.5% refers to the impact of unidentified or unconsidered factors on the profitability of South Africa's edible oil company.

Holding all other variables constant, each edible oil company is expected to have $\beta_0 = 9.99$ units of profitability (with respect to composite profitability index) with a probability value < 0.05 . The results further indicate that the firm size (P-value = 0.0331), Creditors management (P-value = 0.0001) and Outbound logistics (P-value = 0.0431) are very significant and affect profitability at 5% level of significance. Other predictor variables are not significant at 5% level of significance. This supports the findings from various other scholars' studies such as Appuhami (2008), Zhang et al. (2015), as well as Goodarzi et al. (2023), who used the profitability composite index to quantify profitability, as we did. This model explains 52.5 % of the variation in profitability when compared to individual ROI, ROE, and Tobin Q, showing that the composite financial index is the most appropriate indicator of profitability for our data. The following section then offers the model chosen for the research.

5.6.5. Model selected for the Research.

The research presented the outcomes of several models evaluated to pick the model and results for evaluating the hypothesis developed to test the objectives of the research.

Table 5.20 Model Summary

Models	Model Details	F-value	S.E Regression	R-square	Rho	P-value	Comment
1	Regression Results with ROE including moderating variable	5.3187744	4.179407	0.630622	0.512	0.000	Model 1 is significant
2	Regression Results with Tobin Q include moderating variable	0.915324	0.540397	0.112364	0.438	0.540	Model 2 is not significant
3	Regression Results with ROI including moderating variables	4.064597	4.679549	0.654793	0.493	0.000	Model 3 is significant
4	Regression Results with composite profitability index including moderating variable	5.4096953	4.279457	0.641631	0.525	0.000	Model 4 is significant

Source: Author's Estimation

Overall regression is significant for models 1,2,3 and 4 because the F-value is significant, indicating that the regression model is well built. The coefficient of determination also shows a good linear model that explains the phenomenon of the change in the twenty-two analyzed variables according to the predictor's variables in an amount of 51.2%, 43.8%, 49.3% and 52.5 % respectively for each model. The remaining 48.8%, 56.2%, 50.7% and 47.5 % is about the influence of unregistered or not considered factors affecting the profitability of edible oil industry in South Africa. The model corresponds to the following:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + U_{it}$$

The research used values from β_0 to β_5 using the chosen model in order to assess the objectives as well as test the hypotheses. The panel data regression model is an effective method for analysing data from multiple variables. While evaluating the outcome of a panel data regression model analysis, great care should be taken. The next section then provides the model testing of hypotheses.

5.7. Testing of Hypotheses

The research investigated all five hypotheses in the research utilizing the outcome of models in which all are independent of moderating variables that have been correlated with profitability variables. Outcomes of hypothesis testing are detailed in the next section.

5.7.1. Hypothesis One

H₀₁: Financing in raw materials has no substantial impact on the profitability of edible oil manufacturing companies in South Africa.

Tables 5.12, 5.14, 5.16 and 5.18 suggested that, at 5% level of significance, financing in the raw material has no substantial impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of purchase of material and raw material are > 0.05 . Hence, the null hypothesis is accepted. The most essential benefit of excellent raw material is that it optimizes material flow and continuously tracks raw material demand to other countries (Akinlo, 2012, Altaf, 2020). Mohamad and Saad (2010) and Nimoh et al. (2020) claimed that consumers could have different funding criteria. Companies provide and collect trade credit at the same time.

The purchase of material on Value Chain financing affected profitability, according to Baños-Caballero et al. (2012) and Muslim (2023), although the results did not include an in-depth investigation of the raw material board's impact on profitability. Research conducted by Al-Debi'e (2011), Zeitun (2009), and Shubita (2013) investigated the impact of small-holder accreditation on the profitability of coffee farming following distributors contracted with producers. Different studies by Zeitun et al. (2007) and Naser et al. (2002) found that contracted agriculture incorporates small and large producers while improving profitability by lowering raw material costs. The results of this research corroborate the outcomes of earlier research.

Return on Equity (ROE)

Table 5.12 suggested that at 5% level of significance, financing in the raw material (purchase of raw material, raw material) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

Tobin Q

Table 5.14 suggested that, at 5% level of significance, financing in the raw material (purchase of raw material, raw material) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

Return on investment (ROI)

Table 5.16 suggested that at 5% level of significance financing in the raw material (purchase of raw material, raw material) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 . Braimah et al. (2021) and Salehi et al. (2019) found that purchasing using contracted agriculture improves profitability.

Profitability Composite index (PCI)

Lastly, Table 5.18 suggested that, at 5% level of significance, financing in the raw material (purchase of raw material, raw material) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

5.7.2. Hypothesis Two

Ho2: Financing in working capital has no major impact on the profitability of South African edible oil manufacturing companies in South Africa.

Tables 5.12, 5.14, 5.16 and 5.18 suggested that, at 5% level of significance, financing in the working capital has no substantial impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inventory management, creditors management and prepayment are > 0.05 . In addition, the null hypothesis is accepted. This result supports the outcomes of Akbar et al. (2021), Singhanian and Mehta (2017), who discovered no significant connection between controlling working capital and profitability. Khalaf and Al-Tarawneh (2019) and Mehta (2014) discovered that optimising Value Chain financing processes enhances throughput, lowers the amount of inventory held, and boosts income, hence enhancing the company's profitability. The report states that Value Chain financing maximises income while minimising costs. Bulle (2017) and Bashir (2021) conducted additional research on ABC analysis as an inventory control strategy to boost profitability.

Return on Equity (ROE)

Table 5.12 suggested that, at 5% level of significance, financing in the working capital (inventory management, creditors management, prepayment (current assets)) has no major

impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

Tobin Q

Table 5.14 suggested that, at 5% level of significance, financing in the working capital (inventory management, creditors management, prepayment (current assets)) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

Return on investment (ROI)

Table 5.16 suggested that, at 5% level of significance, financing in the working capital (inventory management, creditors management, prepayment or current assets) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 . However, when considering the return on investment (ROI) as the proxy for profitability of South African edible oil manufacturing companies, only the variable creditors management shows a significant impact on the profitability of South African edible oil manufacturing companies in South Africa with a probability value (p-value = 0.037).

Profitability Composite index

Lastly, Table 5.18 suggested that, at 5% level of significance, financing in the working capital (inventory management, creditors management, prepayment (current assets)) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 . Therefore, only Creditors management have an impact on the profitability of edible oil companies in South Africa having a probability value of (P-value = 0.0001).

5.7.3. Hypothesis Three

Ho3: Financing in Primary activities has no major impact on the profitability of edible oil manufacturing companies in South Africa.

Tables 5.12, 5.14, 5.16 and 5.18 suggest that at 5% level of significance financing in the Primary activities has no substantial impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of outbound logistics is > 0.05 . In addition, the null hypothesis is accepted. Davies and Ellis (2000) and Yetton et al. (1992)

discovered that managing client relationships (outbound logistics) in cooperation with strategic suppliers (inbound logistics) all had an impact on the company's profitability. Further research conducted by Öz (2002), Rugman and D'cruz (1993) discovered that successful Supplier chain practices boost a company's management (outbound) with profitability.

Return on Equity (ROE)

Table 5.12 suggests that, at 5% level of significance, financing in the primary activities (outbound logistics) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of outbound logistics is > 0.05 . While inbound logistics shows a significant impact on the profitability of South African edible oil manufacturing companies in South Africa with a probability value ($p=0.0001$).

Tobin Q

Table 5.14 suggested that, at 5% level of significance, financing in the primary activities (inbound and outbound logistics) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

Return on investment (ROI)

Table 5.16 suggested that at 5% level of significance financing in the primary activities (inbound and outbound logistics) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

Profitability Composite index

Lastly, Table 5.18 suggested that, at 5% level of significance, financing in the primary activities (inbound and outbound logistics) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of outbound logistics is > 0.05 .

5.7.4. Hypothesis Four

Ho4: Financing in the Support activities has no major impact on the profitability of edible oil manufacturing companies in South Africa.

Tables 5.12, 5.14, 5.16 and 5.18 suggested that, at 5% level of significance, financing in the support activities has no substantial impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of firm operation, management cost development cost and marketing and sales are > 0.05 . Furthermore, the null hypothesis is accepted. Ray (2012) and Bagchi and Khamrui (2012) discovered that strengthening Supplier chain management practices (firm operations) including management costs, development costs, and marketing and sales has a substantial influence on customer organisational profitability in comparable research. Further research carried out by Iqbal and Zhuquan (2015) and Altaf and Shah (2018) confirmed the notion that supplier chain management practices that involve management of quality and managing supplier relations (firm operation) increase organisational profitability.

Return on Equity (ROE)

Tables 5.12, 5.14, 5.16 and 5.18 suggest that at 5% level of significance financing in the support activities (firm operation, management cost, development cost and marketing cost) has no major impact on the profitability (with respect to ROE) of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

Tobin Q

When considering Tobin Q as a proxy for financial performance, financing in the support activities (firm operation, management cost, development cost and marketing cost) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

Return on investment.

Considering ROI as a proxy for financial performance, financing in the support activities (firm operation, management cost, development cost and) has no major impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 . Therefore, only marketing and sales have an impact on the profitability of edible oil companies in South Africa having a probability value of ($p=0.0250$).

Profitability Composite index (PCI)

Lastly, Table 5.18 suggested that at 5% level of significance financing in the support activities (firm operation, management cost, development cost and marketing cost) has no major impact on the profitability (with respect to PCI) of edible oil manufacturing companies in South Africa, given that the probability value of inbound and outbound logistics is > 0.05 .

5.7.5. Hypothesis Five

Ho5: Firm characteristics do not considerably affect the link between financing in the value chain and the profitability of edible oil manufacturing companies in South Africa.

When considering ROE, Tobin Q, ROI and profitability index, Table 5.12, 5.14, 5.16 and 5.18 suggest that, at 5% level of significance, firm characteristics (company capital structure) affect the link between financing in the value chain and the profitability of edible oil manufacturing companies in South Africa, given that the probability value of firm capital structure is ($p < 0.05$). Therefore, firm size has no significant impact on the profitability of edible oil manufacturing companies in South Africa. Moreover, the null hypothesis is accepted. Research conducted by Singhanian et al. (2014), Usama (2012), and Panigrahi and Sharma (2013) on managing revenue in the manufacturing industry in Bangladesh showed comparable outcomes, demonstrating that firm size had a favourable relationship with managing earnings.

This supports the findings of the current investigation. Raza et al. (2015) and Asaduzzaman and Chowdhury (2014) investigated the connection between financial management and company sizes in different research. They discovered that company size had an important effect on managing revenue, which is comparable to our findings that firm size has a big impact on profitability. Niresh (2012) and Makori and Jagongo (2013) conducted other research that validates our findings on capital structure. It discovered that organisations do not employ debt, equity issuance or buying new operations to offset the mechanical impact of returns on stock on debt equity ratios. Most stocks have debt ratio characteristics that exceed 40%. This indicates that the balance of the 60% ratio may be utilised to control the capital structure, which has a direct influence on the cost of capital, therefore results in improved revenue management or an excellent impact on profitability. The following section then offers a diagnostic test.

5.8. Diagnostic Test (post-estimation test)

The research performed a diagnostic test on the acquired post-estimation results gained. The test involves a normality test to check that the model's conclusion is relevant to all of South Africa's edible oil industry.

5.8.1. Normality Test

The normality test was used in this research to check that the data appeared to be normal and that it met the conditions for applying the panel data regression model findings to predictions from the model. The research also included normality tests to guarantee that the findings could be generalised and utilised in the edible oil industry.

Table 5.21 Normality Test of the original data

Variable	Skewness	Kurtosis	Jarque Bera Test	Prob value
Profitability	0.008	0.5219	6.84	0.0327
Financing in Raw Material & Operation				
Purchase of raw material	0.0004	0.8739	10.5	0.0327
Raw material	0	0.0001	26.81	0
Financing in working capital				
Inventory management	0.2418	0.1104	4.06	0.1316
Creditors management	0.9816	0.0234	5.07	0.0794
Prepayments (current asset)	0	0.0000	60.65	0
Financing in primary activities				
Inbound logistics	0.1003	0.6327	3.03	0.2203
Outbound logistics	0.6595	0.8104	0.25	0.8813
Financing in support activities				
Firm operation	0.0001	0.0152	16.74	0.0002
Management cost	0	0.0073	20.3	0
Development cost	0	0.0004	26.3	0
Marketing and sales	0	0.0490	16.81	0.0002
Firm Characteristics				
Firm size	0.0199	0.3073	6.09	0.0475
Firm capital structure	0	0.0008	30.27	0

Source: Author's Estimation

The dependent variable "Profitability" meets the usual probability requirements. Skewness (0.008) and kurtosis (0.5219) were found similarly in the -1.0 to +1.0 range. There is no need for the process of transformation. Following the evaluation of the dependent variable, the researchers looked at the consistency of each independent variable in relation to the dependent variable. As shown in Table 5.21, the skewness and kurtosis for each of the

independent variables range between -1.0 and +1.0, suggesting that all independent variables also regularly have distribution.

5.9. Chapter summary

This chapter assessed the value chain financing and profitability of Edible oil manufacturing companies in South Africa. The study employed Descriptive Statistics to explain aspects of examined variables and Panel unit root test, Correlation and Panel least square (which include fixed and random effect regression model) are used in presenting and analysing the data generated. Furthermore, explanatory discussions are attached to tables for easy comprehension and clarity purposes. Moreover, the research compared the independent variables and moderate variables to the dependent variables' profitability. In addition, the study used several pre-estimation tests carried out to achieve the greatest quality findings. The tests involved the Unit root test to confirm that the data was stationary, the multi-collinearity test to guarantee that the independent variables had not been correlated along with the Hausman test to aid in choosing the best model for the data among the fixed effect model with the random effect model. Lastly, the researcher investigated all five hypotheses of the research utilizing the outcome of a model in which all independent with moderating variables are correlated with profitability variables. The following chapter then offers key findings and discussion.

CHAPTER SIX

KEY FINDINGS AND DISCUSSION

6.1. Introduction

The current chapter integrates the discovered findings using the present knowledge of Value chain financing and profitability. In order to achieve these objectives, the study produced data from empirical studies that considerably contributed to the overall body of knowledge on value chain financing, for instance. The following discussion provides an overview of the study's principal summary as they relate to the study's explicit objectives. The analysis of numerous literature relevant to value chain financing revealed several aspects that are significant for a company's value chain financing in South Africa. A few of the impacting components are as follows: Raw materials financing, working capital financing, primary activities financing, support activities financing, and firm characteristics financing.

6.2 Financing in Raw material

The first objective is to ascertain the impact of financing in the raw material on the profitability of edible oil manufacturing companies in South Africa. According to Bogetoft and Olesen (2002), and Ray (2021) contract farming consists of three factors: guarantee coordination of activities (the right produce is produced at the ideal time) and focus on motivation (the farm and company have argument to produce coherent conclusion, keeping both as low as possible. This study guarantees a commitment to running at a performance cost (by decreasing transaction charges). For example, coordination enables stakeholders to guarantee that their operations are compatible with those of their counterparts: the agricultural sector recognizes how much produce to provide and how much processing capacity is required (Toušek et al., 2023, Ambikapathi et al., 2022).

The specific terms of the contract, which specify the necessities for either the farm or the corporate as well as the pricing points enable coordination (Fernández-López et al., 2020). In order to attain contract efficiency, one must ensure that interactions between farms and businesses run more smoothly (attempting to avoid delays and perverse incentives), but that neither entity (particularly the business) receives extreme rental costs (Baena-Moreno et al., 2020, Ahn et al., 2022, Shubita, 2013). A supplier contract is a non-transferable contractual agreement between farmers and other businesses that outlines one or more conditions for

production and one or more requirements for marketing an agricultural product, according to Yanti and Hartono (2019) and Lee et al. (2012a). According to empirical research by Nariswari and Nugraha (2020), Shao et al. (2022) and Lin et al. (2018), a company's profitability dramatically rises when it purchases the right value chain tactics, including devoted monitoring of the company's main objectives, technical progress, and product and service growth. The findings aided the current investigation in considering the growth of the distribution chain as being one of the selected variables, and though they did not include further independent variables influencing profitability, that was lacking in the research (Ghassim and Bogers, 2019, Qureshi et al., 2015). In raw material financing, standard deviation is less in purchase of raw material, but mean for financing import of raw material is much less compared to financing purchase of raw material. An increase in financing for material purchases is associated with a reduction in profitability.

The connection among financing in raw material along with profitability in the edible oil industry has a negative correlation among the two variables, but it is not statistically significant ($r = -0.030$, $p = .424$). However, the connection among financing in the purchase of material via agreements with suppliers and profitability in the edible oil industry has a positive correlation between the two variables ($r = .30$, $p = .481$). There was a somewhat negative connection among raw material financing and the South African edible oil industry's profitability. An increase in financing for the purchase of material ($r = .30$, $p = .481$) is associated with a reduction in profitability. The financing of the raw material variable was also not significant at the 5% level of significance. The purchasing of material, however, is more substantial than the purchase of raw materials via suppliers' agreement at the 5% level of significance.

The study discovered that implementing proper and enhanced Value Chain techniques was a formula for a firm's high profitability. There was also a somewhat negative connection between raw material financing and the South African edible oil industry's profitability. The report could not completely explain how the overall profitability was affected. The current study examined how profitability in value chain financing in the South African edible oil industry has been impacted by the independent variable of assisting food producers as raw material suppliers across providers' agreements. The research conducted by Al-Debi'e (2011), Zeitun (2009) and Shubita (2013) investigated the impact of small-holder accreditation on the profitability of coffee farming following distributors contracted with producers. Different researchers, such as Zeitun et al. (2007) and Naser et al. (2002), found that contracted

agriculture incorporates small and large producers while improving profitability by lowering raw material costs. The results of this research corroborate the outcomes of earlier research.

6.3 Financing in Working Capital

The second objective is to assess the impact of financing in the working capital on the profitability of edible oil manufacturing companies in South Africa. The most essential benefit of excellent raw material and inventory management is that it optimizes material flow and continuously tracks raw material demand to other countries (Akinlo, 2012). Mohamad and Saad (2010) and Nimoh et al. (2020) claimed that consumers could have different funding criteria. Companies provide and collect trade credit at the same time. Inventory management Value Chain financing affected profitability, according to Baños-Caballero et al. (2012) and Muslim (2023), although the results did not include an in-depth investigation of the inventory board's impact on profitability. Previous research did not offer specific data on such impacts, as the latest research has. Enqvist et al. (2014) and Koskei et al. (2019) discovered that planning processes, sourcing, production, and delivery all have an impact on inventory turnover, which impacts profitability.

In South Africa, little research is being conducted on the link between managing working capital and profitability. Mahmood et al. (2019), Chauhan and Murray (2019) and Johl and Toha (2021), on the other hand, conducted research on the link between the handling of working capital and the profitability of firms registered on the Johannesburg Stock Exchange. Mahmood analysed the accounting records for every JSE-listed firm between 2011 and 2022. Those corporations registered for all ten years were taken into consideration, and all insurer and financial institution organisations were eliminated since their activities were seen to have little influence on the handling of working capital (Alvarez et al., 2021, Sunjoko and Arilyn, 2016, Mekonnen, 2011). The key independent factors were the financial converting process and its elements, while the dependent factor was the net profit (Anton and Afloarei Nucu, 2020). The outcomes revealed a highly probable unfavourable correlation between profitability and the cash transformation period (Ray, 2012).

Alvarez et al. (2021) and Chauhan and Murray (2019) conducted a comparable research project, but this time they concentrated on the variables impacting managing working capital in South African value chain financing in manufacturing companies. Alvarez employed net flexible flow and working capital demands as approximations for managing working capital, expanding on earlier studies (Thenuwara and Ekanayake, 2021). The effect of manufacturing,

turnover, ratio of debt to the flow of cash, and return on assets on the metrics was investigated using various approximations (Jahfer, 2015). The findings revealed no sector's influence on managing working capital. When exact data was employed, the research discovered that turnover had the biggest effect on managing working capital (Muhammad et al., 2015, Tuffour and Boateng, 2017).

Value Chain financing, based on the study, boosts market expansion, cash flow, gross margin, operating margin, net margin, return on assets, as well as return on investments. According to Anton and Afloarei Nucu (2020) and Kakati and Roy (2017), the physiological mobility of commodities, the product innovation procedure, inventory management, delivery schedules, innovation, and development all play a substantial impact on the success of South African nourishment industry sectors. This research explains the design process for food industries, inventory management, and take orders profitability through the elimination of unnecessary.

In addition, working capital financing deviation from the mean is highest in financing Creditors management compared to inventory management along with prepayment is the lowest deviation from the mean. In prepayment, further deviations are highest from mean but as high as inventory management. Furthermore, there seemed to be a weak positive connection between working capital financing and profitability in the South African edible oil company. The connection among inventory management along with profitability in the edible oil manufacturing has a positive correlation ($r = .201$, $p = .012$); whereas the connection among financing in creditors management and profitability in the edible oil company has a positive correlation ($r = .162$, $p = 0.09$), but is not significant.

Furthermore, the connection between financing in prepayment and profitability in the edible oil company has a negative correlation ($r = -0.18$, $p = (386)$), which is not significant. In summary, there seemed to be a weak positive connection among working capital financing and profitability in the South African edible oil company. Increased working capital financing ($r = .201$, $p = .012$) correlates with increased profitability. Furthermore, as indicated in Table 5.6, financing in working capital variables was not statistically significant at the 5% level of significance. In addition, inventory management is of greater significance than prepayments and creditor management at the 5% level of significance. A weak positive correlation indicates that there is no significant link between financing working capital and

profitability, but the direction is positive, implying that more financing aids in boosting profitability.

This research explained the design process for food industries, inventory management and profitability through the elimination of unnecessary costs such as delay, wasted time and the difficulty of meeting customers' expectations on time. This result supports the outcomes of Akbar et al. (2021) and Singhania and Mehta (2017), who discovered no significant connection between controlling working capital and profitability. Khalaf and Al-Tarawneh (2019) and Mehta (2014) discovered that optimising Value Chain financing processes enhances throughput, lowers the amount of inventory held, and boosts income, hence enhancing the company's profitability. The report states that Value Chain financing maximises income while minimising costs. Tanwari (2000) conducted additional research on ABC analysis as an inventory control strategy to boost profitability.

6.4 Primary activities financing

The third objective is to ascertain the impact of financing in the primary activities on the profitability of edible oil manufacturing companies in South Africa.

Value chain financing is a complete strategy that includes a methodical analysis of the entire value chain as well as the connections between their components (Asaduzzaman and Chowdhury, 2014). The Value Chain and business model define the real tools and applications which are chosen before the Value Chain evaluation (Baah et al., 2021). This will alter as circumstances do, and they ought to be flexible enough to accommodate the preferences and skills of the chosen partner as well as the program's implementation (Miller, 2011). Pattiruhu and Paais (2020) and Kumar et al. (2021) tested the link between value chain strategies and their financial effects in a firm that was still developing. The study investigated the relationship between Value Chain strategic consistency and product supply, demand volatility, chain architecture, and corporate profitability.

Rochmah and Ardianto (2020) and Mauris and Nora (2019) conceptualise whether revenue along with capital-related performance variables affect business worth and the way operationally primary activities impact all these value determinants. Profit-related aspects broadly include revenue growth and operating efficiency, both of which are being heavily researched in the setting of service-level optimisation or lowering expenses (Song et al., 2021, Nielsen et al., 2019, Barman et al., 2021). Fixed-capital productivity, which may be

attained through entire productive maintenance, and working-capital performance are two capital-related criteria (Sun et al., 2019). Work-capital management connects movements of goods, knowledge, and inbound and outbound logistics with insight on the financial consequences of primary activities (Hadi et al., 2020, Madani and Rasti-Barzoki, 2017).

In addition, many research investigations have been conducted to highlight the importance of primary activities along with their elements to achieving profitability. In addition, the intricate interaction between value chain-related value factors with profitability consequences is understudied (Long et al., 2022). There are two sorts of financial performance indicators: internal accounting-based indicators and external financial market-driven ones (Afum et al., 2020). Account-based measurements incorporate profitability ratios like return on investment (ROI), along with asset utilisation factors like return on assets (Guo et al., 2016, Jian et al., 2019). Other financial performance measures assess the return of equity (ROE) generated (Song and Gao, 2018).

These accounting-based measures deconstruct readily into operational effectiveness variables. Financial market-based measures, on the other hand, assess anomalous stock returns or market-to-book value, allowing for an external appraisal of a company's financial achievement (Li et al., 2021a, Dey and Saha, 2018). Hence, with the Value chain information available, financial market-based measures with their connection to practical value chain effectiveness are frequently explored (Giri et al., 2019). Considering the variability inherent in evaluation and the multiplicity of associated models and measurements presented, performance evaluation and value-driver assessment are crucial to both studies and organisational practice (Li et al., 2021b, Chen et al., 2022d). Mathematical ways to understand the link between value generation and operational value chain performance variables are gaining popularity (Wang et al., 2021).

Structures that conceptualise operations-finance interaction are supplemented by formal models that may be used for cash-flow planning or inventory control in the context of financial concerns (Li et al., 2021a, Dehghan-Bonari et al., 2021). Moreover, such models frequently lack evidence-based backing for the value consequences of operational value chain efficiency. Hu et al. (2022) and Zhao et al. (2018) conducted research to assess the effects of a company's operational primary activities and value chain financing practices on its company's performance and profitability. Huet al. (2022) and Zhao et al. (2018) used quantitative research which obtained primary data through secondary data from annual

publications or company databases (for a comprehensive overview, see Zhou et al. (2021) as well as Rehman et al. (2016)).

Large-scale questionnaires examined using modelling and structural equations show that various value chain financing capacities, including competitive advantage and profitability, have positive correlations (Tarekegn et al., 2020, Gebre et al., 2022). Such research may still have flaws that include inadequate response rates or overlooked variations in the industry (Tadesse and Temesgen, 2019). In primary activities, financing deviation is highest in inbound logistics compared to outbound logistics, but the mean is highest in financing in Outbound logistics compared to inbound logistics. The connection among inbound logistics and profitability in the edible oil company is positive but not significant ($r = .078$, $p = .132$), while the connection among financing in outbound logistics and profitability in edible oil manufacturing is positive but not significant ($r = .123$, $p = .261$).

South Africa's edible oil company has a moderately favourable connection between financing in primary activities and profitability for South Africa's edible oil company. An increase in financing in primary activities is moderately favourably connected with an increase in profitability. Furthermore, as indicated in Table 5.7, between the primary activities, outbound logistics ($r = .123$, $p = .261$) with inbound logistics ($r = .078$, $p = .132$) were not significant at the 5% level of significance. The research's positive and substantial connection between primary activities and profitability suggests that investing in primary activities greatly enhances the connection and increases with more financing.

Financing in primary activities has no substantial impact on the profitability of edible oil manufacturing companies in South Africa, given that the probability value of outbound logistics is > 0.05 . The present research used ROI as the dependent variable and item supply-demand as the independent variable to examine how supporting the production company value chain to measure of project market dynamics between many attendees affects profitability in value chain financing in South African edible oil companies.

Information flow, capacity and skills management, demand management, customer relationship management, supplier relationship management, service delivery management, and cash flow were all analysed independently. Pur et al. (2015) and Sofrankova et al. (2017) discovered that managing client relationships (outbound logistics) in cooperation with strategic suppliers (inbound logistics) all had an impact on the company's profitability. Further research conducted by Aidoo and Mensah (2017) and Aras et al. (2018) discovered

that successful Supplier chain practices boost a company's management (outbound) with profitability.

6.5 Financing in Support Activities

The fourth objective is to determine the impact of financing in the support activities on the profitability of edible oil manufacturing companies in South Africa. As per research, Value Chain financing strategies have a substantial impact on company profitability and increased business market performance (Sreih et al., 2019, Wibowo and Rohyati, 2018). To examine the effects of Value Chain financing approaches on profitability, Nguyen et al. (2021) and Soyemi and Olawale (2019) used the indicators of internal operating processes; data flows, information quality, delay management, customer service, and competitive supplier relationships. The research found that Value Chain financing techniques have a substantial impact on profitability.

The results were confirmed by Paltrinieri et al. (2021) and Solakoglu and Demir (2016). Saleh and Abu Afifa (2020) with Nkundabanyanga et al. (2020) discovered that the value chain financing approach's originality and efficiency had a significant influence on the company's effectiveness. This was also identified by Tahiri Jouti (2019) and Johnson et al. (2007). Fuertes-Callen and Cuellar-Fernandez (2019); Činčalová and Hedija (2020) and Nyarko et al. (2017) revealed that effective Value Chain analysis for numerous farm products improved company profitability on multiple dimensions, including social, economic, and environmental. Nariswari and Nugraha (2020) and Obeten and Ocheni (2014) discovered that Value Chain processes had a substantial impact on organizational profitability in their empirical investigation. Value Chain approaches have a significant influence on corporate performance and sales success, as per Ichsan et al. (2021); Kinyua et al. (2015) and Lwiki et al. (2013). Value chain financing strategies, according to Sari et al. (2022) and Kimaiyo and Ochiri (2014), have an influence on profitability but fail to incorporate other crucial aspects, including ABC analysis as well as efficient inventory management.

The present research examined the impact of support activities including company operations, sourcing of products and services, data flows, research and development, and contest monitoring on the profitability of South African edible oil manufacturing companies using independent variables from the previous study. Nariswari and Nugraha (2020) and NdiranguKung'u (2016) revealed that Value Chain financing techniques, which include governance, IT implementation, mentoring, and client focus, had a significant impact on the

company's success. By utilizing independent variables like data flow, temporary suspension methods, management of customer relationship supplier relationship partnerships, information quality, shared risk and reward, and agreed-upon vision and goals, Ichsan et al. (2021) and Ogbo and Ukpere (2014) discovered that Value Chain expansion had an impact on firm performance. Virtanen et al. (2022) and Abdurashed et al. (2011) provided empirical evidence that streamlining Value Chain financing processes enhances usable capacity, reduces levels of inventory, and raises income, all of which increase the organization's profitability. According to the report, Value Chain financing maximizes income while minimizing costs.

Furthermore, support activities financing the mean is highest for marketing and sales financing, followed by firm operation and development cost, while the deviation is highest for firm operation financing followed by development cost, management cost along with marketing and sales. There was a moderately favourable link between financing in support activities and the profitability of the South African edible oil company. Profitability growth and increased financing in support activities was somewhat positively connected.

The connection among financing in management cost with profitability in the edible oil company has a positive correlation among the two variables ($r = .078$, $p = .138$) with no significant relationship, as does the connection among firm operation cost and profitability in the edible oil company ($r = .075$, $p = .142$). While there is a positive correlation among the two variables ($r = .131$, $p = 0.043$) and a significant relationship along with financing for development costs and profitability in the edible oil company, there is also a positive correlation among the two variables ($r = .085$, $p = .382$), and a significant relationship with financing for marketing and sales and profitability. In summary, there was a moderately favourable link between financing in support activities and the profitability of the South African edible oil company. Profitability growth and increased financing in support activities are somewhat positively connected. In addition, as indicated in Table 5.8, mainly development cost ($r = .131$, $p = 0.043$) was significant at the 5% level of significance from the support activities. However, compared to firm operation and management costs, marketing and sales are more significant at the 5% level of significance.

The present research examined the impact of support activities including firm operations, sourcing of products and services, data flows, research and development, and contest

monitoring on the profitability of South African edible oil manufacturing companies using independent variables from the previous study. Research by RL and Mishra (2022) as well as Lee (2014) discovered that strengthening Supplier chain management practices (firm operations) including management costs, development costs, and marketing and sales have a substantial influence on customer organisational profitability in comparable research. Further research carried out by Mohamed and Hussain (2010) and Ors et al. (2015), confirmed the notion that supplier chain management practices that involve the management of quality and managing supplier relations (firm operations) increase organisational profitability.

6.6 Financing in Firm Characteristics

The fifth objective is to establish the impact of firm characteristics on the link between financing in value chain and profitability in edible oil manufacturing companies in South Africa. The empirical research investigates how financial indicators, including leverage and dimensions, affect business profitability and growth (Afum et al., 2020). These properties are easily assessed using data from edible oil manufacturing companies that are readily available (Fatikasari et al., 2021, WAJO, 2021). In organizational research, one of the most significant features is firm size, which has been linked to company costs, ability to focus, consolidation, and total industry profitability (Alabdullah and Ahmed, 2020). The extent to which a corporation employs fixed-income assets, including loans and preference shares, is regarded to as firm leverage (Baah et al., 2021). High-interest payments accompany a high level of financial leverage. In concentrated product markets, leverage increases the potential for competitive predation, as per Firțescu and Terinte (2019), Nyabwanga and Ojera (2012) who also link the performance impact of leverage to the level of industry rivalry.

Hence, capital structure represents other aspects that might impact the worth of a company. Companies must find successful options to achieve their financing requirements (Umar et al., 2022). Since a firm has a capital structure that is perfect, which can minimise the total cost of capital usage, a cost-effective financing option may be made (Mujino and Wijaya, 2021, Amahalu, 2018). The firm needs to have evolving circumstances; thus, the goal of the company will fluctuate depending on its circumstances (Al-ahdal and Hashim, 2022). Organisations must investigate the elements that impact capital structure identification (Abdillah et al., 2019, Purwanti, 2019). The firm size will be one of the criteria examined in evaluating the value of the companies. The scale of defining the size of a firm is viewed by the sum of its total assets, including the amount of revenue (Fernández-López et al., 2020).

Large organisations are thought to have greater accessibility to the financial market, allowing them to acquire finance from sources inside and outside the organisation (Dovgalyuk et al., 2020, Sunday and Joseph, 2017). Significant companies are typically established, and this is usually well received by shareholders, increasing the worth of the firm (A Ali and AlSondos, 2020). Furthermore, if confronted with economic issues, huge corporations have a comparatively low risk of insolvency. Liquidity reflects the ability of an organisation to meet its immediate cash needs with current assets protected (Alabdullah et al., 2021, Anwar, 2018). Organisations that can satisfy their commitments promptly are in a liquid condition since they have a source of repayment or current assets that exceed the amount they owe (Rehman et al., 2016).

In firm characteristics, deviation from the mean is highest in firm size while followed by capital structure. It found a positive link between profitability and moderating variable firm characteristics in the South African edible oil company. Profitability growth is positively connected alongside an increase in firm characteristics. The connection among firm capital structure with profitability in the edible oil company has a negative correlation among the two variables ($r = -.082$, $p = .146$), but it is not significant. Conversely, the connection among firm size with profitability in the edible oil manufacturing has a positive correlation among the two variables ($r = .146$, $p = .034$). In summary, it found a positive link between profitability and moderating variable firm characteristics in the South African edible oil company. Profitability growth is positively connected alongside an increase in firm characteristics. In addition, as indicated in Table 5.9, merely firm size ($r = .146$, $p = .034$), one of the moderating variables, proved to be significant at the 5% level of significance, whereas the remaining variable, firm capital structure, was not significant.

Although the firm's size has no effect on the significant impact on the profitability of edible oil manufacturing companies in South Africa, Wahyuningrum et al. (2020) discovered a positive but modest connection between capital structure and profitability in their research on the link between capital structure as well as profitability of insurance businesses in South Africa. It has been empirically demonstrated by Nguyen and Nguyen (2020) that the profitability of American life insurance businesses is favourably correlated with company size, which is similar to this study. In conclusion, the findings of the research, it is claimed that value chain financing gave firms a competitive advantage among our competitors in the field and increased profitability as in this current research. The following section will offer a summary of this chapter.

6.7 Chapter Summary

This chapter offers the Key findings and Discussion of the research. The following are the study's principal findings: In raw materials financing, the study discovered that implementing proper and enhanced Value Chain techniques was a formula for a firm's high profitability. The study discovered that implementing proper and enhanced Value Chain techniques was a formula for a firm's high profitability. There was also a somewhat negative connection between raw material financing and the South African edible oil industry's profitability. In working capital financing, this research explained the design process for the food industry.

This research explained the design process for food industries, inventory management, and take orders profitability through the elimination of unnecessary costs such as delay, wasted time, and the difficulty of meeting customers' expectations on time. Inventory management and take orders profitability through the elimination of unnecessary costs such as delay, wasted time, and the difficulty of meeting customers' expectations on time. In primary and support activities and firm characteristics, the research suggested the impact of support activities including company operations, sourcing of products and services, data flows, research and development, and contest monitoring on the profitability of South African edible oil manufacturing companies using independent variables from the previous study. Primary activities greatly enhance the connection and increase with more financing. In firm characteristics, large organisations are thought to have greater accessibility to the financial market, allowing them to acquire finance from sources inside and outside the organisation.

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATION

7.1 Introduction

The present chapter is the highest point of the present study. It returns to the aims and hypotheses stated in sections 1.3.2 and 1.3.4. In addition, the chapter draws conclusions based on the research's primary findings. This will come in handy for future professional and academic recommendations. This will be followed by a determination of existing research limits, which include components that appear to be connected to the research but were not within the present scope. Thereafter, the study makes essential suggestions to possible recipients of the created information. As a result, proposals for additional projects are provided. The following section then offers the Summary of the study.

7.2 Summary of the study

This study assessed the value chain financing and profitability of edible oil manufacturing companies in South Africa. This research covered seven chapters where chapter one commenced by providing context by discussing the conception of value chain financing and the profitability of edible oil manufacturing companies in South Africa. Chapter one revealed that value chain financing is defined as an incentive to think further than the immediate recipient of funding to comprehend the sector's ability to compete, dangers, and to build goods that best match the demands of their companies mostly in the Value Chain. Furthermore, it emphasised as well that value chains are a highly effective strategy for focusing on methods to raise the intensity and impact of finance. Following the establishment of the context, the research gap was identified. Overall, the research sought to evaluate the impact of Value Chain Financing on the profitability of edible oil manufacturing companies in South Africa.

In addition, the research established relevant objectives. The research assessed the impact of financing in the raw materials on the profitability of edible oil manufacturing companies in South Africa; the impact of financing in the working capital on the profitability of edible oil manufacturing companies in South Africa; the impact of financing in the primary activities on the profitability of edible oil manufacturing companies in South Africa; the impact of

financing in the support activities on the profitability of edible oil manufacturing companies in South Africa; and the impact of firm characteristics on the link between financing in value chain and profitability in edible oil manufacturing companies in South Africa. Furthermore, the chapter provided the research's scope and limitations which will extend to the years between 2012 and 2022 and includes all edible oil manufacturing companies in South Africa. This timeline was chosen in accordance with the South African Government's Vision 2030, which was announced in August 2012.

In Chapter Two, a relevant theoretical review of the Literature was presented. In addition, it began by providing value chain financing and profitability theories such as the Risk Theory in which investment rate has been influenced by two factors: expected return and perceived risk. Confidence has a huge impact on whether a financial decision based on an investment will be made. The Contract Farming Theory claimed that the major reason for resource underutilization in the edible oil industry is a lack of raw materials, which may be solved by embracing contract farming like an important element of value chain financing.

According to this investment theory, if edible oil companies vigorously fund and spend in the value chain, the profitability of the firms will keep improving. In addition, Porter's Theory of Comparative Advantage promotes industries to benefit the economy in general because businesses struggle in marketplaces. Other technical concepts covered include: The Capital Asset Price Method and Inventory Control Using Pareto's Law including Using. Several aspects have been found in theoretical literature for value chain financing: expected return and perceived risk, nature of finance and income, value and size, full contracts, and incomplete contracts.

Chapter Three addresses empirical and conceptual literature reviews on value chain financing as well as firm characteristics in the edible oil industry in South Africa. As part of the literature review, a conceptual model describing its link among variables to every target was created, which was then supplemented with study hypotheses. This research examined many previous studies in South Africa and other countries that were deemed to be valuable in value chain and relevant. In addition, the study discussed the historical value chain and the relationship between value chain and comparative advantage. Furthermore, the following section will be divided into four categories: the impact of Financing in the Value Chain strategies on profitability, the effect of Financing in the Value Chain practices on

profitability, the effect of Inventory Management Value Chain on profitability, and the effect of Value Chain and profitability.

Chapter Four gave a complete description of how the study was conducted. It outlined the methodologies as well as the research process that was utilized in the research. It commenced with the introduction of the research's research paradigm. It served as an overview of the research's philosophies along with designs. In addition, the chapter described the study's demographics, sampling frame, and research sample. Methods of sampling were also covered. Other parts of the chapter cover data collection methods and data analysis methods. The chapter included a research mapping that was utilised in this research.

Chapter Five assessed the value chain financing and profitability of Edible oil manufacturing in South Africa. The study employed Descriptive Statistics to explain aspects of examined variables and Panel unit root test, Correlation and Panel least square which include (fixed and random effect regression model) are used in presenting and analysing the data generated. Furthermore, explanatory discussions are attached to tables for easy comprehension and clarity purposes. Furthermore, the research compared the independent variables and moderate variables to the dependent variables' profitability.

In addition, the study used several pre-estimation tests carried out to achieve the greatest quality findings. The tests involved the Unit root test to confirm that the data was stationary, the multi-collinearity test to guarantee that the independent variables had not been correlated, along with the Hausman test to aid in choosing the best model for the data among the fixed effect model with the random effect model. At last, the research investigated all five hypotheses of the research utilizing the outcome of a model in which all are independent of moderating variables that have been correlated with profitability variables.

Chapter Six offered the Key findings and Discussion of the research. The following are the study's principal findings: In raw materials financing, the study discovered that implementing proper and enhanced Value Chain techniques was a formula for a firm's high profitability. The study discovered that implementing proper and enhanced Value Chain techniques was a formula for a firm's high profitability. There was also a somewhat negative connection between raw material financing and the South African edible oil industry's profitability. In working capital financing, this research explained the design process for the food industry.

This research explained design process for food industries, inventory management, and take orders profitability through the elimination of unnecessary costs such as delay, wasted time,

and the difficulty of meeting customers' expectations on time. In primary and support activities and firm characteristics, the research suggested that the impact of support activities including company operations, sourcing of products and services, data flows, research and development, and contest monitoring on the profitability of South African edible oil manufacturing companies using independent variables from the previous study. Primary activities greatly enhance the connection and increase with more financing. In firm characteristics, large organisations are thought to have greater accessibility to the financial market, allowing them to acquire finance from sources inside and outside the organisation. The next section will provide the conclusion of the study.

7.3 Conclusion of the study

Based on the research's findings, conclusions were produced after assessing the data and analysing every research question. On financing in raw material, the researcher concludes that there was a negative correlation among the two variables, but it is not statistically significant ($r = -0.030$, $p = .424$). However, the connection among financing in the purchase of material via agreements with suppliers and profitability in the edible oil industry has a positive correlation between the two variables ($r = .30$, $p = .481$). There was a somewhat negative connection among raw material financing and the South African edible oil industry's profitability. An increase in financing for the purchase of material ($r = .30$, $p = .481$) is associated with a reduction in profitability. The financing of the raw material variable was also not significant at the 5% level of significance.

On financing in working capital, the research concludes that there was a positive correlation ($r = .201$, $p = .012$), the connection among financing in creditors management and profitability in the edible oil company has a positive correlation ($r = .162$, $p = 0.09$) but is not statistically significant. Furthermore, the connection between financing in prepayment and profitability in the edible oil company has a negative correlation ($r = -0.18$, $p = .386$) but not significant. In summary, there seemed to be a weak positive connection among working capital financing and profitability in the South African edible oil company. Weak positive correlation indicates that there is no significant link between financing working capital and profitability, but the direction is positive, implying that more financing aids in boosting profitability.

On financing in primary activities, the research concludes that there was a positive but not significant relationship ($r = .078$, $p = .132$), while the connection among financing in outbound logistics and profitability in the edible oil manufacturing is positive but not

significant ($r = .123$, $p = .261$). South Africa's edible oil company has a moderately favourable connection between financing in primary activities and profitability for South Africa's edible oil company. An increase in financing in primary activities is moderately favourably connected with an increase in profitability. The research's positive and substantial connection between primary activities and profitability suggests that investing in primary activities greatly enhances the connection and increases with more financing.

On financing in support activities, the research concludes that there is a positive correlation among the two variables ($r = .078$, $p = .138$) with no statistically significant relationship, as does the connection among firm operation cost and profitability in the edible oil company ($r = .075$, $p = .142$). While there is a positive correlation among the two variables ($r = .131$, $p = 0.043$) and significant along with financing for development costs and profitability in the edible oil company, there is also a positive correlation among the two variables ($r = .085$, $p = .382$), and a significant relationship with financing for marketing and sales and profitability. In summary, there was a moderately favourable link between financing in support activities and the profitability of the South African edible oil company. Profitability growth and increased financing in support activities are somewhat positively connected.

On financing in firm characteristics, the research concludes that there is a negative correlation among the two variables ($r = -.082$, $p = .146$), but it is not significant. Conversely, the connection among firm size with profitability in the edible oil manufacturing has a positive correlation among the two variables ($r = .146$, $p = .034$). In summary, the study found a positive link between profitability and moderating variable firm characteristics in the South African edible oil company. Profitability growth is positively connected alongside an increase in firm characteristics. The profitability index model was used in the research since it provided the most effective fit regression model. The next section will provide the limitations of the research.

7.4 Limitations of the research

Regarding the research's innovative contributions, there were drawbacks. Hence, suitable procedures for research were followed to minimise their impact on the research's aims. Sample construction and data collection were the primary constraints of this study. As a result, while evaluating the research findings, the research's limitations should be kept in mind. The financial statements employed in this research were constructed on edible oil manufacturing companies in South Africa. Thus, only 22 manufacturing companies

participated in this research. Therefore, implementing the generality of the research to various other edible oil manufacturing companies in South Africa provides obstacles.

Regardless of these obstacles, the researcher maintains that the regression methods along with empirical models which were applied were suitable with the data that was available. Furthermore, the results were solid enough for broad applicability to edible oil manufacturing companies in South Africa. The compilation of the financial statements for edible oil manufacturing companies and acquiring preliminary information proved difficult. To solve this challenge, the researcher contacted some different edible oil companies by email and examined numerous sources to gather the necessary information for data collected from South African listed firms on the Bloomberg and MC Gregor database.

The researcher generated an excel file with simple methods for computing the relevant ratios, especially the composite index for the profitability after reviewing the financial statements from the firms. This excel spreadsheet was used to determine the different ratios for firms. This aided the study in keeping accurate data across all firms. In addition, the limitations mentioned previously need to be considered when interpreting the study's conclusions. However, as previously stated in this section, the study's limitations suggest prospective opportunities for further research. The next section will offer recommendations.

7.5 Recommendations

South African edible oil manufacturing companies engage in an extremely competitive commercial environment; thus they must analyse adequate finance demands throughout the value chain to enhance technology, decrease costs of production, and maximise capacity utilisation. The research analysed and compared the profitability of several firms, and the findings show that every organisation may learn standards from the industry and implement them to attain the industry average or higher in terms of profitability. It also turns out that extra financing in the value chain has an impact on profitability and should therefore come from a longer-term source of finance. Overall, the researcher advises that a proper balance of investment in fundamental operations and financing in supporting activities and working capital be decided in order to maximise potential utilisation. The following section will cover the contribution to the Body of Knowledge.

7.5.1 Contribution to the Body of Knowledge

The study offered a methodology for finding the right financing mix for South African edible oil firms to achieve the lowest possible cost of manufacturing while maximising profitability. This research combined empirical studies on developing value chains for manufacturing firms worldwide along with South Africa, which industries of manufacturing may utilise to create their value chain depending on their requirements.

7.5.2 Methodological contribution

The research's initial contribution to research techniques is connected to sample selection. The sample for the research was made up of public value chain financing for the profitability of the Edible oil industry in South Africa. There is an overall absence of research in the literature that investigates the value chain financing and profitability of edible oil firms in South Africa utilising a sample of listed edible oil industry in South Africa. The research contributes to methodology by providing empirical evidence of the impact of value chain financing on profitability firms in South Africa utilising a South African Edible oil firm's database, which was available. To the greatest extent of the researcher's understanding, this is the first study of its sort that employs a sample of this type to investigate the influence of value chain financing on profitability. In a similar way, most research employs samples from a single nation, whose findings can be extended to other nations.

However, the present research included data from the entire nation; hence its findings may be applicable to other countries with environments that are comparable. Due to the research's participant choice, empirical evidence contributes significantly to the body of information on value chain financing in South Africa in particular. In addition, due to the interdependence of the Edible oil industry, boost in market value chain in one area might have a significant impact on the competitive advantage. The research's second methodological contribution was its choice of empirical models that were practical and helpful in determining the impact of Value Chain Financing on profitability after thoroughly evaluating theoretical and empirical studies.

7.5.3 Contribution to Academy Literature

The results of this research contribute to the academic literature through offering information that clarifies the unclear and contradictory proof presented by previous research on the value

chain financing and profitability of edible oil companies. The "researcher" indicates, however, that the outcomes of value chain financing gave firms a competitive advantage among other competitors in the field and increased profitability. Moreover, firms that invest in contract farming, core working capital, primary activities, with support activities in value chain strategies offer themselves a competitive advantage as well as boost their profitability in the South African Edible oil manufacturing industry.

7.5.4 Theoretical contribution

The basis of this research was built on many theoretical perspectives. Many of the theories have a direct connection to value chain financing, while others are related to profitability. Given that the present research was similarly involved in the evaluation of hypotheses, it is critical to pinpoint areas where this research contributes to the discussion of theories. The "risk theory" was employed extensively in this research, although the Contract Farming Theory as well as Porter's Theory of Comparative Advantage were additionally discussed. The research's empirical findings improve the use of these theories in understanding value chain financing and profitability. While prior research has used similar theories, they have focused on the West and East regions of Africa and North American countries. As stated previously, West and East regions of Africa and North American nations' value chain financing are different from South Africa, whereas present research has extended comprehension of these ideas in relation to the circumstances of those nations.

7.5.5 Recommendations for Policy

The research suggests that regulatory authorities applied the study's outcomes to compliance and enforcement objectives. The study's findings revealed indications of value chain financing activities among South African edible oil manufacturing companies. Hence, since most South Africans intend to achieve sustainable (Agriculture generates the required yearly employment) growth under Vision 2030, they must enact a set of rules and regulations that support efficient and productive ways to construct and sustain a governance economy for this purpose. As a result, it is proposed that South African governments set laws and regulations (enforcement methods) for implementing edible oil guidelines, which could increase raw material production.

The negative connection between raw material financing and the South African edible oil industry's profitability found in this study recommends a commitment to running at a

performance cost (by decreasing transaction charges). For example, coordination enables stakeholders to guarantee that their operations are compatible with those of their counterparts: the agricultural sector recognises how much produce to provide and how much processing capacity is required. The specific terms of the contract, which specify the necessities for either the farm or the corporate as well as the pricing points, enable coordination.

7.5.6 Recommendations for Practice

The study results showed that there was a somewhat negative connection between raw material financing and the South African edible oil industry's profitability, which the management process in the value chain should implement methods to lower the cost of acquiring raw materials. Planning in the value chain should implement cost-cutting initiatives to improve inbound logistics operations. Furthermore, this study indicated that, due to the interdependence of the Edible oil industry, a boost in market value chain in one area might have a significant impact competitive advantage. The study also suggested that value chain financing gave firms a competitive advantage among other competitors in the field and increased profitability.

7.5.7 Recommendations for Further Research

- ❖ Established contractual partnerships with agricultural producers and financing for raw material supply.
- ❖ The possibility of creating a separate organisation to facilitate value chain financing in South Africa's many different industries.
- ❖ Determining why edible oil firms are financing raw material purchases from the public market in South Africa rather than entering large-scale supplier contracts with agricultural producers and stopping raw material imports to conserve their reserves of currency.
- ❖ The research project contributes to addressing the understanding gap by studying the impact of value chain financing and profitability of edible oil manufacturing companies in South Africa. Further research is required to discover whether there is a direct link between value chain financing and firms' profitability.
- ❖ More research might look into the relationship between value chain financing and profitability of other nationwide and worldwide industries.

7.6 Chapter summary

This chapter was designed to deliver a summary of the research, conclusion, recommendations, and to suggest fields for further research. Chapter One commenced by providing context by discussing the concept of value chain financing and the profitability of edible oil manufacturing companies in South Africa. Chapter Two presented the relevant theoretical literature review. Chapter Three addresses empirical and conceptual literature reviews on value chain financing as well as firm characteristics in the edible oil industry in South Africa. Chapter Four gave a complete description of how the study was conducted. It outlined the methodologies as well as the research process that was utilized in the research. Chapter Five assessed the value chain financing and profitability of Edible oil manufacturing in South Africa. Chapter Six offered the Key findings and Discussion of the research.

The researcher admits the limitations of the research involving the compilation of the financial statements of an edible oil firm and acquiring preliminary information proved difficult. To solve this challenge, the researcher contacted different edible oil companies by email and examined numerous sources to gather the necessary information. The researcher recommends more research in relation to the study's limitations. Finally, more research is suggested in the specific areas of approaches for increasing the accessibility of financing throughout the value chain, including benefits for financial companies; the management process in the value chain should implement methods to lower the cost of acquiring raw materials; and the management process in the value chain should implement methods to lower the cost of purchasing raw materials.

REFERENCES

- A ALI, B. J. & ALSONDOS, I. A. A. 2020. Operational efficiency and the adoption of accounting information system (AIS): a comprehensive review of the banking sectors. *International Journal of Management*, 11, 162-195
- ABAH, E. O. 2020. Profit Efficiency of Soybean Marketing Chain in North Central States of Nigeria. *International Journal of Innovative Science and Research Technology*, 5, 1360-1366.
- ABDEL-BASET, M., CHANG, V. & GAMAL, A. 2019. Evaluation of the green supply chain management practices: A novel neutrosophic approach. *Computers in Industry*, 108, 210-220.
- ABDEL-KADER, M. & LUTHER, R. 2008. The impact of firm characteristics on management accounting practices: A UK-based empirical analysis. *The British Accounting Review*, 40, 2-27.
- ABDELFATTAH, F., MALIK, M., AL ALAWI, A. M., SALLEM, R. & GANGULY, A. 2023. Towards measuring SMEs performance amid the COVID-19 outbreak: exploring the impact of integrated supply chain drivers. *Journal of Global Operations and Strategic Sourcing*, 16, 520-540.
- ABDILLAH, M. R., MARDIJUWONO, A. W. & HABIBURROCHMAN, H. 2019. The effect of company characteristics and auditor characteristics to audit report lag. *Asian Journal of Accounting Research*, 4, 129-144.
- ABDOLAZIMI, O., SHISHEBORI, D., GOODARZIAN, F., GHASEMI, P. & APPOLLONI, A. 2021. Designing a new mathematical model based on ABC analysis for inventory control problem: A real case study. *RAIRO-operations research*, 55, 2309-2335.
- ABDULAI, A.-R. 2022. Toward digitalization futures in smallholder farming systems in Sub-Sahara Africa: A social practice proposal. *Frontiers in Sustainable Food Systems*, 6, 866331.
- ABDULRASHEED, A., KHADIJAT, A., SULU, I. & OLANREWaju, A. 2011. Inventory management in small business finance: Empirical evidence from Kwara State, Nigeria. *British Journal of Economics, Finance and Management Sciences*, 2, 49-57.
- ABEL, O. B., GOR, C. O., OKURO, S. O., OMANGA, P. A. & BOKELMANN, W. 2019. The African indigenous vegetables value chain governance in Kenya, 5,56-67.

- ABUZAYED, B. 2012. Working capital management and firms' performance in emerging markets: the case of Jordan. *International Journal of Managerial Finance*, 8, 155-179.
- ACAR, M. F., ÖZER TORGALÖZ, A., ERYARSOY, E. & ZAIM, S. 2022. Did COVID-19 change the rules of the game for supply chain resilience? The effects of learning culture and supplier trust. *International Journal of Physical Distribution & Logistics Management*, 52, 491-511.
- ACHOJA, F. O. 2019. Analysis of profitability of shrimp value chain in Delta State, Nigeria. *Ege Journal of Fisheries and Aquatic Sciences*, 36, 125-133.
- ACQUAH, I. S. K., BAAH, C., AGYABENG-MENSAH, Y. & AFUM, E. 2023. Green procurement and green innovation for green organizational legitimacy and access to green finance: The mediating role of total quality management. *Global Business and Organizational Excellence*, 42, 24-41.
- ADEBAYO, I. T. 2012. Supply chain management (SCM) practices in Nigeria today: impact on SCM performance. *European Journal of Business and Social Sciences*, 1, 107-115.
- ADEDIRAN, S., ADEJOH, E. & OLUBUKOLA, S. 2019. Effect of Firms' Characteristics on Timeliness of Financial Reports of Quoted Insurance Companies in Nigeria. *Research Journal of Finance and Accounting*, 10, 47-58.
- ADEYONU, A. G., OKUNOLA, A., ALAO, M. E., OYAWOYE, E. O. & OKONKWO, C. E. 2021. An assessment of broiler value chain in Nigeria. *Open Agriculture*, 6, 296-307.
- ADHIKARI, R. P. 2018. *Developing agri-food industry in Nepal: a value chain management perspective*.
- ADU, G. B., BADU-APRAKU, B., AKROMAH, R., AMEGBOR, I. K., ADOGOBA, D. S., HARUNA, A., MANIGBEN, K. A., ABOYADANA, P. A. & WIREDU, A. N. 2021. Trait profile of maize varieties preferred by farmers and value chain actors in northern Ghana. *Agronomy for sustainable development*, 41, 1-15.
- AFRIYANTI, D., KROEZE, C. & SAAD, A. 2016. Indonesia palm oil production without deforestation and peat conversion by 2050. *Science of the Total Environment*, 557, 562-570.
- AFUM, E., AGYABENG-MENSAH, Y., SUN, Z., FRIMPONG, B., KUSI, L. Y. & ACQUAH, I. S. K. 2020. Exploring the link between green manufacturing, operational competitiveness, firm reputation and sustainable performance dimensions:

- a mediated approach. *Journal of Manufacturing Technology Management*, 31, 1417-1438.
- AFZAL, M., LAWREY, R. & GOPE, J. 2019. Understanding national innovation system (NIS) using porter's diamond model (PDM) of competitiveness in ASEAN-05. *Competitiveness Review: An International Business Journal*, 29, 336-355.
- AGOURAM, J., ANOUALIGH, J. & LAKHNATI, G. 2020. Capital asset pricing model (CAPM) study in mean-gini model. *International Journal of Applied Economics, Finance and Accounting*, 6, 57-63.
- AGUKO, S. O. 2014. *Value chain analysis and organizational performance of beer manufacturing companies in Kenya* 5,65-68.
- AGYABENG-MENSAH, Y. & TANG, L. 2021. The relationship among green human capital, green logistics practices, green competitiveness, social performance and financial performance. *Journal of Manufacturing Technology Management*, 32, 1377-1398.
- AGYEKUMHENE, C., DE VRIES, J. R., VAN PAASSEN, A., MACNAGHTEN, P., SCHUT, M. & BREGT, A. 2018. Digital platforms for smallholder credit access: The mediation of trust for cooperation in maize value chain financing. *NJAS-Wageningen Journal of Life Sciences*, 86, 77-88.
- AHMADPOUR, A. & ROSTAMI, K. H. 2012. An empirical study of association between working capital management and performance: Evidence from Tehran Stock Exchange. *Journal of Social and Development Sciences*, 3, 279-285.
- AHMAN, E., MACHMUD, A., SUMAWIDJADJA, R. N. & HERLINAWATI, E. 2020. Model of the competitive advantage of creative industries in Indonesia based on helix quadruple, creativity and innovation capability. *Int. J. Innov. Creat. Chang*, 11, 516-532.
- AHMED, W., AHMED, W. & NAJMI, A. 2018. Developing and analyzing framework for understanding the effects of GSCM on green and economic performance: Perspective of a developing country. *Management of Environmental Quality: An International Journal*, 29, 740-758.
- AHN, J., BRIERS, G., BAKER, M., PRICE, E., SOHOULANDE DJEBOU, D. C., STRONG, R., PIÑA, M. & KIBRIYA, S. 2022. Food security and agricultural challenges in West-African rural communities: A machine learning analysis. *International Journal of Food Properties*, 25, 827-844.

- AIDOO, M. & MENSAH, F. S. 2017. Development of financial performance assessment indices for bank performance rating in Ghana. *Global Journal of Management and Business Research (C)*, 17, 86-96.
- AIKMAN, D., BRIDGES, J., HACIOGLU HOKE, S., O'NEILL, C. & RAJA, A. 2019. Credit, capital and crises: a GDP-at-Risk approach, 2,25-26.
- AIVAZIAN, V., BOOTH, L. & CLEARY, S. 2003. Do emerging market firms follow different dividend policies from US firms? *Journal of Financial research*, 26, 371-387.
- AKANBI, S.-U. O., MUSTAPHA, Y. I. & AKINSANYA, D. O. 2016. Value Chain Analysis and the Performance of Small Scale Agri-business: Evidence from Cultured Fish Farmers Kwara State,23,15-19.
- AKBAR, M., AKBAR, A. & DRAZ, M. U. 2021. Global financial crisis, working capital management, and firm performance: evidence from an Islamic market index. *Sage Open*, 11, 251-259.
- AKGÜN, A. I. & MEMİŞ KARATAŞ, A. 2021. Investigating the relationship between working capital management and business performance: Evidence from the 2008 financial crisis of EU-28. *International Journal of Managerial Finance*, 17, 545-567.
- AKINDELE, J. A. & ODUSINA, O. 2015. Working capital management and firm profitability: Evidence from Nigerian quoted companies. *Research Journal of Finance and Accounting*, 6, 148-153.
- AKINLO, O. O. 2012. Effect of working capital on profitability of selected quoted firms in Nigeria. *Global Business Review*, 13, 367-381.
- AKINOLA, R., PEREIRA, L. M., MABHAUDHI, T., DE BRUIN, F.-M. & RUSCH, L. 2020. A review of indigenous food crops in Africa and the implications for more sustainable and healthy food systems. *Sustainability*, 12, 3493.
- AKOTO, R. K., AWUNYO-VITOR, D. & ANGMOR, P. L. 2013. Working capital management and profitability: Evidence from Ghanaian listed manufacturing firms. *Journal of economics and international finance*, 5, 373-379.
- AL-AHDAL, W. M. & HASHIM, H. A. 2022. Impact of audit committee characteristics and external audit quality on firm performance: evidence from India. *Corporate Governance: The International Journal of Business in Society*, 22, 424-445.
- AL-DEBIE, M. M. 2011. Working capital management and profitability: the case of industrial firms in Jordan. *European Journal of Economics, Finance and Administrative Sciences*, 36, 75-86.

- AL-HARBI, A. 2019. The determinants of conventional banks profitability in developing and underdeveloped OIC countries. *Journal of Economics, Finance and Administrative Science*, 24, 4-28.
- AL-MUDIMIGH, A. S., ZAIRI, M. & AHMED, A. M. M. 2004. Extending the concept of supply chain:: The effective management of value chains. *International Journal of Production Economics*, 87, 309-320.
- AL-SABRI, H. M. H., NORDIN, N. & SHAHAR, H. K. 2020. M&A likelihood: impact of firm characteristics. *Saudi Journal of Economics and Finance*, 4, 15-22.
- AL-SHUBIRI, F. N. 2010. Analysis of the relationship between working capital policy and operating risk: An empirical study on Jordanian industrial companies. *Investment Management and Financial Innovations*, 167-176.
- ALABDULLAH, T. T. Y. & AHMED, E. R. 2020. Audit committee impact on corporate profitability in Oman companies: an auditing and management accounting perspective. *Riset Akuntansi dan Keuangan Indonesia*, 5, 121-128.
- ALABDULLAH, T. T. Y., AHMED, E. R. & AHMED, R. R. 2021. Organization features and profitability: Implications for a sample of Emerging Countries. *Journal of Accounting and Business Education*, 5, 43-52.
- ALABI, O. O., OLADELE, A. O. & MAHARAZU, I. 2020. Profitability Analysis and Marketing Efficiency of Soyabean (Glycine max) Value Chain among Actors in Abuja, Nigeria. *Sarhad Journal of Agriculture*, 36, 56-59.
- ALAM, A. & ZULFIQAR ALI SHAH, S. 2013. Determinants of foreign direct investment in OECD member countries. *Journal of Economic Studies*, 40, 515-527.
- ALAVI, M. & CARLSON, P. 1992. A review of MIS research and disciplinary development. *Journal of management information systems*, 8, 45-62.
- ALAVINASAB, S. M. & DAVOUDI, E. 2013. Studying the relationship between working capital management and profitability of listed companies in Tehran stock exchange. *Business Management Dynamics*, 2, 58-59.
- ALBAB, R. G. M. & AZIS, A. M. 2021. Supply chain analysis for household waste treatment product from coconuts. *International Journal of Advances in Engineering and Management*, 3, 1779-1788.
- ALDUBHANI, M. A., WANG, J., GONG, T. & MAUDHAH, R. A. 2022. Impact of working capital management on profitability: evidence from listed companies in Qatar. *Journal of Money and Business*, 2, 70-81.

- ALEXANDROS, P. N. & METAXAS, T. 2016. "Porter vs Krugman": History, Analysis and Critique of Regional Competitiveness. *Journal of Economics and Political Economy*, 3, 65-80.
- ALFINA, I. T., NURLAELA, S. & WIJAYANTI, A. The Influence of Profitability, Leverage, Independent Commissioner, and Company Size to Tax Avoidance. PROCEEDING ICTESS (Internasional Conference on Technology, Education and Social Sciences), 2018, 23-29.
- ALGHABABSHEH, M., BUTT, A. S. & MOKTADIR, M. A. 2022. Business strategy, green supply chain management practices, and financial performance: A nuanced empirical examination. *Journal of Cleaner Production*, 380, 134865.
- ALIMOHAMMADLOU, M. & KHOSHSEPEHR, Z. 2022. Investigating organizational sustainable development through an integrated method of interval-valued intuitionistic fuzzy AHP and WASPAS. *Environment, Development and Sustainability*, 24, 2193-2224.
- ALIPOUR, M. 2011. Working capital management and corporate profitability: Evidence from Iran. *World applied sciences journal*, 12, 1093-1099.
- ALNAFRAH, I. & ZENO, B. 2019. A new comparative model for national innovation systems based on machine learning classification techniques. *Innovation and Development*, 65, 56-59
- ALNAWAISEH, M. A. L. I., AL-RAWASHDI, F. M. & ALNAWAISEH, M. 2014. The extent of applying value chain analysis to achieve and sustain competitive advantage in Jordanian manufacturing companies. *International Business Research*, 7, 179-188.
- ALQISIE, A. & ALQURRAN, T. 2016. Validity of capital assets pricing model (CAPM)(empirical evidences from Amman stock exchange). *Journal of Management Research*, 8, 207-223.
- ALRJOUN, A. M. S. & AHMAD, M. A. 2017. Inventory management, cost of capital and firm performance: evidence from manufacturing firms in Jordan. *Investment management and financial innovations*, 4-14.
- ALTAF, N. 2020. Working capital financing, firm performance and financial flexibility: Evidence from Indian hospitality firms. *Global Business Review*, 0972150920961371.
- ALTAF, N. & SHAH, F. 2017. Working capital management, firm performance and financial constraints: Empirical evidence from India. *Asia-Pacific Journal of Business Administration*, 9, 206-219.

- ALTAF, N. & SHAH, F. A. 2018. How does working capital management affect the profitability of Indian companies? *Journal of Advances in Management Research*, 15, 347-366.
- ALVAREZ, T., SENSINI, L. & VAZQUEZ, M. 2021. Working capital management and profitability: Evidence from an emergent economy. *International Journal of Advances in Management and Economics*, 11, 32-39.
- ALZGHOUL, A., ALSHEIKH, G. A. A. & YAMIN, I. 2023. The Relationship Between Savings and Investment: Evidence From Jordan. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, 8, 3.
- AMAHALU, N. 2018. Inventory management and financial performance: Evidence from brewery firms listed on Nigeria stock exchange. *International Journal of Research in Business, Economics and Management*, 2,56-59.
- AMAN, S. & SEURING, S. 2023. Analysing developing countries approaches of supply chain resilience to COVID-19. *The International Journal of Logistics Management*, 34, 909-934.
- AMANDA, R. I. 2019. The impact of cash turnover, receivable turnover, inventory turnover, current ratio and debt to equity ratio on profitability. *Journal of research in management*, 2, 14-22.
- AMBE, I. M. 2016. Insight into supply chain management in a municipal context. *Public and Municipal Finance*, 5, 20-29.
- AMBIKAPATHI, R., SCHNEIDER, K. R., DAVIS, B., HERRERO, M., WINTERS, P. & FANZO, J. C. 2022. Global food systems transitions have enabled affordable diets but had less favourable outcomes for nutrition, environmental health, inclusion and equity. *Nature Food*, 3, 764-779.
- AMEER, R. & OTHMAN, R. 2021. The impact of working capital management on financial performance of cost leadership and differentiation strategy firms in different business cycles: Evidence from New Zealand. *Journal of Asia-Pacific Business*, 22, 39-57.
- AMELIA, D., MURNI, I., PUTRI, A., BADRI, J. & JOHAN, H. 2019. A Study of Clothing Industry Competitiveness with Porter's Five Force Approach in Kabupaten Agam Central Industry (A Preliminary Study of Ampek Angkek, Banuhampu, Sungai Puar). *KnE Social Sciences*, 169–185-169–185.
- AMENTAE, T. K., GEBRESENBET, G. & LJUNGBERG, D. 2018. Examining the interface between supply chain governance structure choice and supply chain performances of

- dairy chains in Ethiopia. *International Food and Agribusiness Management Review*, 21, 1061-1081.
- AMICARELLI, V., BUX, C., SPINELLI, M. P. & LAGIOIA, G. 2022. Life cycle assessment to tackle the take-make-waste paradigm in the textiles production. *Waste Management*, 151, 10-27.
- AMJAD, A., ABBASS, K., HUSSAIN, Y., KHAN, F. & SADIQ, S. 2022. Effects of the green supply chain management practices on firm performance and sustainable development. *Environmental Science and Pollution Research*, 29, 66622-66639.
- AMPONSAH-KWATIAH, K. & ASIAMAH, M. 2021. Working capital management and profitability of listed manufacturing firms in Ghana. *International journal of productivity and performance management*, 70, 1751-1771.
- AMRAN, T. G. & YOSE, M. J. Design logistics performance measurement model of automotive component industry for strengthening competitiveness of dealing AEC 2015. IOP Conference Series: Materials Science and Engineering, 2018. IOP Publishing, 01, 20-24.
- ANANE-TAABEAH, G., QUAGRAINIE, K. & AMISAH, S. 2016. Assessment of farmed tilapia value chain in Ghana. *Aquaculture international*, 24, 903-919.
- ANANZEH, H., ALSHURAFAT, H. & HUSSAINEY, K. 2022. Do firm characteristics and ownership structure affect corporate philanthropic contributions in Jordan? *Journal of Financial Reporting and Accounting*, 20, 789-808.
- ANDREEVA, L. & KRASNIKOVA, T. Integral estimation of the activity of the maintenance department of the mining company. IOP Conference Series: Materials Science and Engineering, 2020. IOP Publishing, 044044.
- ANDREONI, A. & TORREGGIANI, S. 2020. Mining equipment industry in South Africa: global context, industrial ecosystem and pathways for feasible sectoral reforms. *CCRED Report for Masterplan*.15,25-29
- ANDRIYANTO, I., ARIFIN, J. & AYUNINGTYAS, A. A. 2019. Antecedent Factors of Competitive Advantage and its Impact on Performance. *20,15-25*.
- ANGGRAINI, D. & TANJUNG, P. R. S. 2020. Company value: Disclosure implications of sustainable supply chain, profitability and industrial profile. *International Journal of Supply Chain Management*, 9, 648-655.
- ANN, S. & MANURUNG, A. H. 2019. The influence of liquidity, profitability, intensity inventory, related party debt, and company size to aggressive tax rate. *Archives of Business Research*, 7, 105-115.

- ANTON, S. G. & AFLOAREI NUCU, A. E. 2020. The impact of working capital management on firm profitability: Empirical evidence from the Polish listed firms. *Journal of risk and financial management*, 14, 9-15.
- ANTRÀS, P. 2020. De-globalisation? Global value chains in the post-COVID-19 age. National Bureau of Economic Research 5,25-29.
- ANWAR, Y. 2018. The effect of working capital management on profitability in manufacturing company listed in Indonesia stock exchange. *The Accounting Journal of Binaniaga*, 3,25-29.
- APPUHAMI, B. 2008. The Impact of Firms' Capital Expenditure on Working Capital Management: An Empirical Study across Industries in Thailand. *International management review*, 4,23-28.
- ARANSIOLA, E. F., OJUMU, T. V., OYEKOLA, O. & IKHU-OMOREGBE, D. A study of biodiesel production from non-edible oil seeds: A comparative study. 2012. The Open Conference Proceedings Journal 15,26-33.
- ARAS, G., TEZCAN, N. & KUTLU FURTUNA, O. 2018. Comprehensive evaluation of the financial performance for intermediary institutions based on multi-criteria decision making method. *Journal of Capital Markets Studies*, 2, 37-49.
- ARIFIN, S. & YAQIN, A. 2020. The effect of Islamic social reporting (ISR), leverage and institutional ownership on firm value and profitability. *Jurnal Akuntansi Dan Audit Syariah (JAAiS)*, 1, 62-76.
- ARIWIBOWO, P. 2018. The Strategy Of Empowerment Small And Medium Enterprises In The Effort For Increasing Revenue And Market. *Jurnal Ilmiah Econosains*, 16, 35-47.
- ARSLAN, N. & TATHDIL, H. 2012. Defining and measuring competitiveness: a comparative analysis of Turkey with 11 potential rivals. *International Journal of Basic & Applied Sciences*, 12, 31-43.
- ARULINGAM, I., NIGUSSIE, L., SENARATNA SELLAMUTTU, S. & DEBEVEC, L. 2019. *Youth participation in small-scale fisheries, aquaculture and value chains in Africa and the Asia-Pacific*, CGIAR Research Program on Fish Agri-Food Systems 25,26-29.
- ASAD, M., MEHDI, M., ASHFAQ, M., HASSAN, S. & ABID, M. 2019. Effect of marketing channel choice on the profitability of citrus farmers: evidence form Punjab-Pakistan. *Pak. J. Agric. Sci*, 56, 1003-1011.

- ASADUZZAMAN, M. & CHOWDHURY, T. 2014. Effect of working capital management on firm profitability: Empirical evidence from textiles industry of Bangladesh. *Research Journal of Finance and Accounting*, 5, 175-184.
- ASATIANI, A., PENTTINEN, E. & KUMAR, A. 2019. Uncovering the nature of the relationship between outsourcing motivations and the degree of outsourcing: An empirical study on Finnish small and medium-sized enterprises. *Journal of Information Technology*, 34, 39-58.
- ASFAW, S. 2008. Global agrifood supply chain, EU food-safety standards and African small-scale producers: the case of high-value horticultural export from Kenya, 25, 56-59.
- ASLAM, J., SALEEM, A., KHAN, N. T. & KIM, Y. B. 2021. Factors influencing blockchain adoption in supply chain management practices: A study based on the oil industry. *Journal of Innovation & Knowledge*, 6, 124-134.
- ATTARD, D. 2021. *Study of the relationship between profitability ratios and stock prices: evidence from the technology sector from Nasdaq composite index*. University of Malta, 15, 25-29.
- AUNYAWONG, W., WAIYAWUTHTHANAPOOM, P., PINTUMA, S. & SITTHIPO, P. 2020. Supply chain business intelligence and the supply chain performance: The mediating role of supply chain agility. *International Journal of Supply Chain Management*, 9, 368-375.
- AUSTIN, K. G., KASIBHATLA, P. S., URBAN, D. L., STOLLE, F. & VINCENT, J. 2015. Reconciling oil palm expansion and climate change mitigation in Kalimantan, Indonesia. *PLoS One*, 10, e0127963.
- AYOMPE, L. M., SCHAAFSMA, M. & EGOH, B. N. 2021. Towards sustainable palm oil production: The positive and negative impacts on ecosystem services and human wellbeing. *Journal of cleaner production*, 278, 123914.
- AZADEGAN, A., MELLAT PARAST, M., LUCIANETTI, L., NISHANT, R. & BLACKHURST, J. 2020. Supply chain disruptions and business continuity: An empirical assessment. *Decision Sciences*, 51, 38-73.
- AZIZI, F. & MORADI, F. 2019. Investigating the relation between the university, industry and government in the innovation system of the knowledge-based economy in Iran. *International Journal of Information Science and Management (IJISM)*, 17, 25-29.

- BA, H. A., DE MEY, Y., THORON, S. & DEMONT, M. 2019. Inclusiveness of contract farming along the vertical coordination continuum: Evidence from the Vietnamese rice sector. *Land use policy*, 87, 104050.
- BAAH, C. & JIN, Z. 2019. Sustainable supply chain management and organizational performance: the intermediary role of competitive advantage. *J. Mgmt. & Sustainability*, 9, 119.
- BAAH, C., OPOKU-AGYEMAN, D., ACQUAH, I. S. K., AGYABENG-MENSAH, Y., AFUM, E., FAIBIL, D. & ABDOULAYE, F. A. M. 2021. Examining the correlations between stakeholder pressures, green production practices, firm reputation, environmental and financial performance: Evidence from manufacturing SMEs. *Sustainable Production and Consumption*, 27, 100-114.
- BADAR, H. 2015. Value chain performance improvement for sustainable mango industry development in Pakistan,56,25-29.
- BAENA-MORENO, F. M., PASTOR-PEREZ, L., WANG, Q. & REINA, T. 2020. Bio-methane and bio-methanol co-production from biogas: A profitability analysis to explore new sustainable chemical processes. *Journal of Cleaner Production*, 265, 121909.
- BAG, S., RAHMAN, M. S., SRIVASTAVA, G., CHAN, H.-L. & BRYDE, D. J. 2022. The role of big data and predictive analytics in developing a resilient supply chain network in the South African mining industry against extreme weather events. *International Journal of Production Economics*, 251, 108541.
- BAGCHI, B. & KHAMRUI, B. 2012. Relationship between working capital management and profitability: A study of selected FMCG companies in India. *Business and Economics Journal*56,28-33
- BAGHERSAD, M. & ZOBEL, C. W. 2021. Assessing the extended impacts of supply chain disruptions on firms: An empirical study. *International Journal of Production Economics*, 231, 107862.
- BAIMA, G., FORLIANO, C., SANTORO, G. & VRONTIS, D. 2021. Intellectual capital and business model: a systematic literature review to explore their linkages. *Journal of Intellectual Capital*, 22, 653-679.
- BAKAN, I. & DOĞAN, İ. F. 2012. Competitiveness of the industries based on the Porter's diamond model: An empirical study. *International Journal of Research and Reviews in Applied Sciences*, 11, 441-455.

- BAKOJI, I., HARUNA, U., DANWANKA, H. & SA, J. 2013. Marketing analysis of soyabeans (*Glycine max* l) in Toro local government area, Bauchi State, Nigeria. *Research Journal of Agriculture and Environmental Management*. Vol, 2, 358-364.
- BALAN, S., VRAT, P. & KUMAR, P. 2007. A strategic decision model for the justification of supply chain as a means to improve national development index. *International Journal of Technology Management*, 40, 69-86.
- BALARABE KURA, S. Y. 2012. Qualitative and Quantitative Approaches to the Study of Poverty: Taming the Tensions and Appreciating the Complementarities. *Qualitative Report*, 17, 34.
- BALASUBRAMANYAM, V. N. 2002. Foreign direct investment in developing countries: Determinants and impact. *New horizons for foreign direct investment*, 548, 187.
- BALTACIOGLU, T., ADA, E., KAPLAN, M. D., YURT AND, O. & CEM KAPLAN, Y. 2007. A new framework for service supply chains. *The Service Industries Journal*, 27, 105-124.
- BAÑOS-CABALLERO, S., GARCÍA-TERUEL, P. J. & MARTÍNEZ-SOLANO, P. 2012. How does working capital management affect the profitability of Spanish SMEs? *Small business economics*, 39, 517-529.
- BARAYANDEMA, J., MANZI, O. & UMUHOZA, G. 2017. Rice farming and income distribution along the value chain in Rwanda. *Developing Country studies*, 7, 1-14.
- BARGONI, A., GIACHINO, C., TROISE, C., ALAM, G. M. & QUAGLIA, R. 2023. A digital family affair: Do family firms' characteristics enhance consumers' willingness to pay? *Technological Forecasting and Social Change*, 188, 122289.
- BARMAN, A., DAS, R., DE, P. K. & SANA, S. S. 2021. Optimal pricing and greening strategy in a competitive green supply chain: Impact of government subsidy and tax policy. *Sustainability*, 13, 9178.
- BARNO, A., ONDANJE, B. & NGWIRI, J. Dynamics of horticultural export to European Union market: challenges and opportunities in Sub-Saharan Africa. I All Africa Horticultural Congress 911, 2009. 61-72.
- BARRICHELLO, A., DOS SANTOS, E. G. & MORANO, R. S. 2020. Determinant and priority factors of innovation for the development of nations. *Innovation & Management Review*, 17, 307-320.
- BARRIENTOS, S., BIANCHI, L. & BERMAN, C. 2019. Gender and governance of global value chains: Promoting the rights of women workers. *International Labour Review*, 158, 729-752.

- BARRIENTOS, S. & BOBIE, A. O. 2016. Promoting gender equality in the cocoa-chocolate value chain: Opportunities and challenges in Ghana. *Global Development Institute Working Paper Series*,33,35-34.
- BARTRAM, S. M. & DUFEY, G. 2001. International portfolio investment: theory, evidence, and institutional framework. *Financial Markets, Institutions & Instruments*, 10, 85-155.
- BASHIR, Z. 2021. Empirical Identification of Determinants of Firm's Financial Performance: a Comparative Study on Textile and Food Sector of Pakistan. *Tariq, W., Ali, I., Usman, HM, Abbas, J., & Bashir*, 487-497.
- BASSIOUNY, S. W. 2016. The impact of firm characteristics on earnings management: an empirical study on the listed firms in Egypt. *Journal of Business and Retail Management Research*, 10,25-26.
- BASYITH, A., DJAZULI, A. & FAUZI, F. 2021. Does working capital management affect profitability? empirical evidence from indonesia listed firms. *Asian Economic and Financial Review*, 11, 236.
- BAUMÜLLER, H. & KAH, M. M. 2019. Going digital: Harnessing the power of emerging technologies for the transformation of Southern African agriculture. *Transforming Agriculture in Southern Africa*, 179-187.
- BEAUDREAU, B. C. 2016. Competitive and comparative advantage: Towards a unified theory of international trade. *International Economic Journal*, 30, 1-18.
- BEKELE, W. G., JEBRIL, N. & MOLA, B. T. 2022. The Effects of Agile Supply Chain Management Practices on Operational Performance (The Case of the Bishoftu Automotive Industry). *Journal of Supply Chain Management Systems*, 11,15-19.
- BELHADI, A., KAMBLE, S., JABBOUR, C. J. C., GUNASEKARAN, A., NDUBISI, N. O. & VENKATESH, M. 2021. Manufacturing and service supply chain resilience to the COVID-19 outbreak: Lessons learned from the automobile and airline industries. *Technological forecasting and social change*, 163, 120447.
- BELLOUMA, M. 2011. The impact of working capital management on profitability: The case of small and medium-sized export companies in Tunisia. *Management international*, 15, 71-88.
- BELTON, B., ROSEN, L., MIDDLETON, L., GHAZALI, S., MAMUN, A.-A., SHIEH, J., NORONHA, H. S., DHAR, G., ILYAS, M. & PRICE, C. 2021. COVID-19 impacts and adaptations in Asia and Africa's aquatic food value chains. *Marine Policy*, 129, 104523.

- BEN-HORIM, M. & LEVY, H. 1980. Total risk, diversifiable risk and nondiversifiable risk: A pedagogic note. *Journal of Financial and Quantitative Analysis*, 15, 289-297.
- BEN-NASR, H. 2016. State and foreign ownership and the value of working capital management. *Journal of Corporate Finance*, 41, 217-240.
- BENITO, G. R., PETERSEN, B. & WELCH, L. S. 2019. The global value chain and internalization theory. *Journal of International Business Studies*, 50, 1414-1423.
- BENSEDDIK, H. The supply chain management, factor for the creation of customer value: large-sized business in Morocco as a case Study. 2019 International Colloquium on Logistics and Supply Chain Management (LOGISTIQUA), 2019. IEEE, 1-6.
- BERHE, K., PUSKUR, R., TEKA, W., HOEKSTRA, D. & TEGEGNE, A. Innovation in banana value chain development in Metema district, northwestern Ethiopia: Improving productivity and market success (IPMS) project experiences. IV International Symposium on Banana: International Conference on Banana and Plantain in Africa: Harnessing International 879, 2008. 129-139.
- BHARADWAJ, S. 2019. The engineering behind a successful supply chain management strategy: an insight into Amazon. com. *International Journal of Scientific and Technology Research*, 8, 281-286.
- BHAT, S. A., HUANG, N.-F., SOFI, I. B. & SULTAN, M. 2021. Agriculture-food supply chain management based on blockchain and IoT: a narrative on enterprise blockchain interoperability. *Agriculture*, 12, 40.
- BHATIA, S. & SRIVASTAVA, A. 2016. Working capital management and firm performance in emerging economies: Evidence from India. *Management and Labour Studies*, 41, 71-87.
- BHATTI, U. & HANIF, M. 2010. Validity of capital assets pricing model: Evidence from KSE-Pakistan. *European Journal of Economics, Finance and Administrative Sciences* 26,33-39.
- BHUTTO, S., RAJPER, Z. A., MANGI, R. A. & GHUMRO, I. A. 2018. Impact of working capital management on financial performance of firms: Evidence from Pakistani firms. *Sukkur IBA Journal of Management and Business*, 5, 24-44.
- BIJMAN, J., MUGWAGWA, I. & TRIENEKENS, J. 2020. Typology of contract farming arrangements: a transaction cost perspective. *Agrekon*, 59, 169-187.
- BITZENIS, A. 2003. Universal Model of theories determining FDI. Is there any dominant theory? Are the FDI inflows in the CEE countries and especially in Bulgaria a myth? *European Business Review*, 15, 94-104.

- BIYE, S. U., MU'AZU, L. Y. & DANLADI, B. B. 2018. ECONOMIC ANALYSIS OF SOYBEANS MARKETING IN BILLIRI LOCAL GOVERNMENT AREA OF GOMBE STATE, NIGERIA. *ECONOMIC ANALYSIS*, 18,35-38.
- BIZANA, N., NAUDE, M. & AMBE, I. 2015. Supply chain management as a contributing factor to local government service delivery in South Africa. *Journal of contemporary management*, 12, 664-683.
- BIZIKOVA, L., JUNGCURT, S., MCDUGAL, K. & TYLER, S. 2020. How can agricultural interventions enhance contribution to food security and SDG 2.1? *Global Food Security*, 26, 100450.
- BLANC, S., MASSAGLIA, S., BRUN, F., PEANO, C., MOSSO, A. & GIUGGIOLI, N. R. 2019. Use of bio-based plastics in the fruit supply chain: An integrated approach to assess environmental, economic, and social sustainability. *Sustainability*, 11, 2475.
- BLOOM, N., GENAKOS, C., SADUN, R. & VAN REENEN, J. 2012. Management practices across firms and countries. *Academy of management perspectives*, 26, 12-33.
- BLOOM, N., PROPPER, C., SEILER, S. & VAN REENEN, J. 2015. The impact of competition on management quality: evidence from public hospitals. *The Review of Economic Studies*, 82, 457-489.
- BOGETOFT, P. & OLESEN, H. B. 2002. Ten rules of thumb in contract design: lessons from Danish agriculture. *European Review of Agricultural Economics*, 29, 185-204.
- BOHOLM, Å. & CORVELLEC, H. 2011. A relational theory of risk. *Journal of risk research*, 14, 175-190.
- BOLO, A. Z., LORIKA, J. & OBONYO, P. 2011. Effectiveness of the value chain strategy in the selected producer-owned dairy groups in Kenya. *Prime Journal of Business Administration and Management (BAM)*, 1, 93-100.
- BOTES, J., BAM, W. & DE KOCK, I. 2018. Public-private supply chain integration as a possible means to improve public health supply chains,5,58-59.
- BOUGIE, R. & SEKARAN, U. 2019. *Research methods for business: A skill building approach*, John Wiley & Sons,32, 26-29.
- BRAIMAH, A., MU, Y., QUAYE, I. & IBRAHIM, A. A. 2021. Working capital management and SMEs profitability in emerging economies: The Ghanaian case. *SAGE Open*, 11, 2158244021989317.
- BRAU, J. C., FAWCETT, S. E. & MORGAN, L. 2007. An empirical analysis of the financial impact of supply chain management on small firms. *The Journal of Entrepreneurial Finance*, 12, 55-82.

- BREEN, R., VAN DE WERFHORST, H. G. & JÆGER, M. M. 2014. Deciding under doubt: A theory of risk aversion, time discounting preferences, and educational decision-making. *European Sociological Review*, 30, 258-270.
- BRENTON, P., FERRANTINO, M. J. & MALISZEWSKA, M. 2022. *Reshaping global value chains in light of covid-19: Implications for trade and poverty reduction in developing countries*, World Bank Publications, 5, 25-29.
- BREYER, C., TSUPARI, E., TIKKA, V. & VAINIKKA, P. 2015. Power-to-gas as an emerging profitable business through creating an integrated value chain. *Energy Procedia*, 73, 182-189.
- BRITTON, J. & PROPPER, C. 2016. Teacher pay and school productivity: Exploiting wage regulation. *Journal of Public Economics*, 133, 75-89.
- BRODNY, J., STECUŁA, K. & TUTAK, M. 2016. Application of the TPM strategy to analyze the effectiveness of using a set of mining machines. *International Multidisciplinary Scientific GeoConference: SGEM*, 2, 65-72.
- BROUWER, I. D., VAN LIERE, M. J., DE BRAUW, A., DOMINGUEZ-SALAS, P., HERFORTH, A., KENNEDY, G., LCHAT, C., OMOSA, E. B., TALSMA, E. F. & VANDEVIJVERE, S. 2021. Reverse thinking: taking a healthy diet perspective towards food systems transformations. *Food Security*, 13, 1497-1523.
- BROWN, S. L. & BROWN, R. M. 2006. Selective investment theory: Recasting the functional significance of close relationships. *Psychological inquiry*, 17, 1-29.
- BUI, T.-D., TSAI, F. M., TSENG, M.-L., TAN, R. R., YU, K. D. S. & LIM, M. K. 2021. Sustainable supply chain management towards disruption and organizational ambidexterity: A data driven analysis. *Sustainable production and consumption*, 26, 373-410.
- BUI, T. 2020. Supply chain finance, financial development and profitability of real estate firms in Vietnam. *Uncertain Supply Chain Management*, 8, 37-42.
- BUKHARI, M. A., CARRASCO-GALLEGO, R. & PONCE-CUETO, E. 2018. Developing a national programme for textiles and clothing recovery. *Waste Management & Research*, 36, 321-331.
- BULLE, H. I. 2017. Financial Management and Financial Performance of firms listed under manufacturing and allied sector at the Nairobi Securities Exchange, Kenya. *Kenyatta University*, 25, 25-29.
- BUSAYO OLUWATAYO, I., MACHETHE, T. A. & SENYOLO, M. P. 2016. Profitability and efficiency analysis of smallholder broiler production in Mopani District of

- Limpopo Province, South Africa. *Journal of Agribusiness and Rural Development*, 2016,23,26-29.
- BUSTINZA, O. F., ARIAS-ARANDA, D. & GUTIERREZ-GUTIERREZ, L. 2010. Outsourcing, competitive capabilities and performance: an empirical study in service firms. *International Journal of Production Economics*, 126, 276-288.
- BUVANENDRA, S., SRIDHARAN, P. & THIYAGARAJAN, S. 2017. Firm characteristics, corporate governance and capital structure adjustments: A comparative study of listed firms in Sri Lanka and India. *IIMB management review*, 29, 245-258.
- BÜYÜKÖZKAN, G. & GÖÇER, F. 2018. An extension of ARAS methodology under interval valued intuitionistic fuzzy environment for digital supply chain. *Applied Soft Computing*, 69, 634-654.
- ÇAKAR, K. & AYKOL, Ş. 2021. Case study as a research method in hospitality and tourism research: A systematic literature review (1974–2020). *Cornell Hospitality Quarterly*, 62, 21-31.
- CALABRESE, G. & ERBETTA, F. 2005. Outsourcing and firm performance: evidence from Italian automotive suppliers. *International Journal of Automotive Technology and Management*, 5, 461-479.
- CANTIKA, A. A. & ARIEF, S. The Effect of Liquidity, Profitability, Inventory Intensity and Corporate Social Responsibility (CSR) on Tax Aggressiveness. Unima International Conference on Social Sciences and Humanities (UNICSSH 2022), 2023. Atlantis Press, 1040-1048.
- CAO, E. & YU, M. 2018. Trade credit financing and coordination for an emission-dependent supply chain. *Computers & Industrial Engineering*, 119, 50-62.
- CARMODY, P. 2020. Economic-geographic theory from the South: African experience and future in the global economy. *Geoforum*, 115, 160-163.
- CARON, P., FERRERO Y DE LOMA-OSORIO, G., NABARRO, D., HAINZELIN, E., GUILLOU, M., ANDERSEN, I., ARNOLD, T., ASTRALAGA, M., BEUKEBOOM, M. & BICKERSTETH, S. 2018. Food systems for sustainable development: proposals for a profound four-part transformation. *Agronomy for sustainable development*, 38, 1-12.
- CASELLA, B., BOLWIJN, R., MORAN, D. & KANEMOTO, K. 2019. Improving the analysis of global value chains: the UNCTAD-Eora Database. *Transnational Corporations*, 26, 115-142.

- CATTANEO, O., GEREFFI, G. & STARITZ, C. 2010. Global Value Chains in a Postcrisis World: Resilience, Consolidation, and Shifting End Markets. *Global value chains in a postcrisis world: A development perspective*, 1,23-26.
- CAVITE, H. J. M. & ABAMO, A. P. 2017. Profitability Analysis of Banana (*Musa balbisiana*) Industry in Bato, Leyte, Philippines: A Value Chain Approach. *Journal of Agricultural Technology*, 13, 1889-1904.
- CEPAL, N. 2023. Lithium extraction and industrialization: opportunities and challenges for Latin America and the Caribbean. *Sustainability*, 15,25-29.
- CERCIELLO, M., BUSATO, F. & TADDEO, S. 2023. The effect of sustainable business practices on profitability. Accounting for strategic disclosure. *Corporate Social Responsibility and Environmental Management*, 30, 802-819.
- CETINDAMAR, D., SHDIFAT, B. & ERFANI, E. 2022. Understanding big data analytics capability and sustainable supply chains. *Information Systems Management*, 39, 19-33.
- CHAI, N., ZHOU, W. & JIANG, Z. 2023. Sustainable supplier selection using an intuitionistic and interval-valued fuzzy MCDM approach based on cumulative prospect theory. *Information Sciences*, 626, 710-737.
- CHALMETA, R. & BARQUEROS-MUÑOZ, J.-E. 2021. Using big data for sustainability in supply chain management. *Sustainability*, 13, 7004.
- CHAMSUDI, D. H. M. & MELAN, M. 2015. Factors that lead to the efficient management of the material supply chains of oil and gas industries in Indonesia. *Journal of Technology and Operations Management*, 10, 90-104.
- CHAMSUK, W., FONGSUWAN, W. & TAKALA, J. 2017. The effects of R&D and innovation capabilities on the Thai automotive industry part's competitive advantage: a SEM approach. *Sustainability*, 9,15-19.
- CHAMSUK, W., PHIMONSATHIEN, T. & FONGSUWAN, W. 2015. Research and development (R&D) capabilities and innovation capability that affect the enterprise competitive advantage in the Thai automotive parts industry: SEM approach. *International Journal of Arts & Sciences*, 8, 441.
- CHANG, L., LI, J., CHEONG, K.-C. & GOH, L.-T. 2021. Can existing theories explain China's outward foreign direct investment in belt and road countries. *Sustainability*, 13, 1389.
- CHARITOU, M., LOIS, P. & SANTOSO, H. B. 2012. The relationship between working capital management and firms profitability: An empirical investigation for an

- emerging Asian country. *International Business & Economics Research Journal (IBER)*, 11, 839-848.
- CHARITOU, M. S., ELFANI, M. & LOIS, P. 2010. The effect of working capital management on firms profitability: Empirical evidence from an emerging market. *Journal of Business & Economics Research (JBER)*, 8,59-69.
- CHARITOU, M. S., ELFANI, M. & LOIS, P. 2016. The effect of working capital management on firm's profitability: Empirical evidence from an emerging market. *Journal of Business & Economics Research (JBER)*, 14, 111-117.
- CHATTERJEE, S. 2010. The impact of working capital management on the profitability of the listed companies in the London stock exchange. *Available at SSRN 1587249*.
- CHATTERJEE, S. 2012. The impact of working capital on the profitability: Evidence from the Indian firms. *Available at SSRN 2125228*.
- CHATTERJEE, S., LUBATKIN, M. H., LYON, E. & SCHULZE, W. S. 1999. Toward a strategic theory of risk premium: Moving beyond CAPM. *Academy of Management Review*, 24, 556-567.
- CHAUHAN, S. & MURRAY, E. V. 2019. Financial performance and evaluation of some Farmer Producer Companies in South India. *Farmer Producer Companies in India: Issues and Challenges*, 37-52.
- CHAVAS, J.-P. 2004. *Risk analysis in theory and practice*, Elsevier, 12,23-25.
- CHAVES, C. D. C. & PIMENTEL, C. 2023. Improvement of the warehouse reception process by planning and controlling raw material deliveries. *International Journal of Logistics Systems and Management*, 44, 252-271.
- CHEN, C.-J. 2019. Developing a model for supply chain agility and innovativeness to enhance firms' competitive advantage. *Management Decision*, 57, 1511-1534.
- CHEN, M., LIU, Q., HUANG, S. & DANG, C. 2022a. Environmental cost control system of manufacturing enterprises using artificial intelligence based on value chain of circular economy. *Enterprise Information Systems*, 16, 1856422.
- CHEN, M., ZHICHUAN, W., ZHU, H., XIA, J. & YUE, X. Research on System Dynamics of Agricultural Products Supply Chain Based on Data Simulation. *Proceedings of the 2022 5th International Conference on E-Business, Information Management and Computer Science*, 2022b. 54-66.
- CHEN, Q., LU, Y., WANG, C., HAN, B. & FU, H. 2022c. Effect of raw material composition on the working performance of waterborne epoxy resin for road. *International Journal of Pavement Engineering*, 23, 2380-2391.

- CHEN, S., SU, J., WU, Y. & ZHOU, F. 2022d. Optimal production and subsidy rate considering dynamic consumer green perception under different government subsidy orientations. *Computers & Industrial Engineering*, 168, 108073.
- CHERRAFI, A., CHIARINI, A., BELHADI, A., EL BAZ, J. & BENABDELLAH, A. C. 2022. Digital technologies and circular economy practices: vital enablers to support sustainable and resilient supply chain management in the post-COVID-19 era. *The TQM Journal*, 34, 179-202.
- CHING, H. Y., NOVAZZI, A. & GERAB, F. 2011. Relationship between working capital management and profitability in Brazilian listed companies. *Journal of global business and economics*, 3, 74-86.
- CHIRIBOGA, G., DE LA ROSA, A., MOLINA, C. & VELARDE, S. 2020. Energy return on investment (EROI) and life cycle analysis (LCA) of biofuels in Ecuador. *Heliyon*, 6.
- CHOFREH, A. G., GONI, F. A., ZEINALNEZHAD, M., NAVIDAR, S., SHAYESTEZHAADEH, H. & KLEMEŠ, J. J. 2019. Value chain mapping of the water and sewage treatment to contribute to sustainability. *Journal of environmental management*, 239, 38-47.
- CHOI, T.-M. 2020. Supply chain financing using blockchain: Impacts on supply chains selling fashionable products. *Annals of Operations Research*, 1-23.
- CHONG, D. & ALI, H. 2022. Literature Review: Competitive Strategy, Competitive Advantages, and Marketing Performance on E-Commerce Shopee Indonesia. *Dinasti International Journal of Digital Business Management*, 3, 299-309.
- CHOUHDARY, K. & CHOUHDARY, S. 2010. Testing capital asset pricing model: Empirical evidences from Indian equity market. *Eurasian Journal of Business and Economics*, 3, 127-138.
- CHRISTAKIS, N., FOWLER, J., IMBENS, G. W. & KALYANARAMAN, K. 2020. An empirical model for strategic network formation. *The Econometric Analysis of Network Data*. Elsevier.
- CHUA, Y. P. 2012. *Mastering research methods*, McGraw-Hill Education.
- CHUMAIDIYAH, E. 2017. Value Chain Map of Small Agricultural Product-Processing Enterprises in Bandung, Indonesia. *Int. J Sup. Chain. Mgt*, 1.
- CHUNSHENG, L., WONG, C. W., YANG, C.-C., SHANG, K.-C. & LIRN, T.-C. 2020. Value of supply chain resilience: roles of culture, flexibility, and integration. *International Journal of Physical Distribution & Logistics Management*, 50, 80-100.

- ČINČALOVÁ, S. & HEDIJA, V. 2020. Firm characteristics and corporate social responsibility: The case of Czech transportation and storage industry. *Sustainability*, 12, 1992.
- CINICIOGLU, E. N., ULUSOY, G., ÖNSEL EKICI, Ş., ÜLENGİN, F. & ÜLENGİN, B. 2017. Exploring the interaction between competitiveness of a country and innovation using Bayesian networks. *Innovation and Development*, 7, 175-209.
- CIPRIANI, S., RICCI, E., CHIAFFARINO, F., ESPOSITO, G., DALMARTELLO, M., LA VECCHIA, C., NEGRI, E. & PARAZZINI, F. 2023. Trend of change of sperm count and concentration over the last two decades: a systematic review and meta-regression analysis. *Andrology*.
- COHEN, A. J., VICOL, M. & POL, G. 2022. Living under value chains: The new distributive contract and arguments about unequal bargaining power. *Journal of Agrarian Change*, 22, 179-196.
- CONCEIÇÃO, P., LEVINE, S., LIPTON, M. & WARREN-RODRÍGUEZ, A. 2016. Toward a food secure future: Ensuring food security for sustainable human development in Sub-Saharan Africa. *Food Policy*, 60, 1-9.
- CONSTANTINESCU, C. D., RAMIREZ, J. M. & ZHU, W. R. 2019. An application of fractional differential equations to risk theory. *Finance and Stochastics*, 23, 1001-1024.
- COONEY, P. 2021. *Paths of Development in the Southern Cone: Deindustrialization and Reprimarization and Their Social and Environmental Consequences*, Springer Nature.
- CRICK, J. M. & CRICK, D. 2023. With a little help from my friends: the interaction between coopetition, an entrepreneurial orientation and firm performance. *International Journal of Entrepreneurial Behavior & Research*, 29, 965-985.
- CROSSAN, F. 2003. Research philosophy: towards an understanding. *Nurse Researcher (through 2013)*, 11, 46.
- DAHLQUIST, M. & ROBERTSSON, G. 2001. Direct foreign ownership, institutional investors, and firm characteristics. *Journal of financial economics*, 59, 413-440.
- DALCI, I., TANOVA, C., OZYAPICI, H. & BEIN, M. A. 2019. The moderating impact of firm size on the relationship between working capital management and profitability. *Prague Economic Papers*, 28, 296-312.
- DALEMANS, F., MUYS, B. & MAERTENS, M. 2019. A framework for profitability evaluation of agroforestry-based biofuel value chains: An application to pongamia in India. *GCB Bioenergy*, 11, 852-870.

- DANSO, A., ADOMAKO, S., LARTEY, T., AMANKWAH-AMOA, J. & OWUSU-YIRENKYI, D. 2020. Stakeholder integration, environmental sustainability orientation and financial performance. *Journal of business research*, 119, 652-662.
- DARSANI, P. A. & SUKARTHA, I. M. 2021. The effect of institutional ownership, profitability, leverage and capital intensity ratio on tax avoidance. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, 5, 13-22.
- DARY, S. K. & JAMES JR, H. S. 2020. Trade Credit Contracts, Theories and their Applications: A Synthesis of the Literature. *Ghana Journal of Development Studies*, 17, 86-91.
- DASMAN, S., FEBRIAN, E., NIDAR, S. & HERWANY, A. 2021. Microeconomics and raw material price on capital structure adjustment through dynamic target in Indonesian textile industries. *Accounting*, 7, 231-238.
- DATTA, P. 2017. Supply network resilience: a systematic literature review and future research. *The International Journal of Logistics Management*, 28, 1387-1424.
- DAVIES, H. & ELLIS, P. 2000. Porter's competitive advantage of nations: time for the final judgement? *Journal of management studies*, 37, 1189-1214.
- DAVIS, J. S., VALENTE, G. & VAN WINCOOP, E. 2021. Global drivers of gross and net capital flows. *Journal of International Economics*, 128, 103397.
- DAVÓ, N. B., MAYOR, M. G.-O. & DE LA HERA, M. L. B. 2011. Empirical analysis of technological innovation capacity and competitiveness in EU-15 countries. *African journal of business management*, 5, 5753.
- DE MARCHI, V., DI MARIA, E., GOLINI, R. & PERRI, A. 2020. Nurturing international business research through global value chains literature: A review and discussion of future research opportunities. *International Business Review*, 29, 101708.
- DE MIRANDA, R. L., DOS SANTOS, L. F. I., GOMES, G. & DOS SANTOS PARISOTTO, I. R. 2021. Competitiveness influence on global innovation of nations: a cross-sectional analysis. *Independent journal of management & production*, 12, 964-978.
- DE SOUZA RODRIGUES, C., GHAVAMI, K. & STROEVEN, P. 2010. Rice husk ash as a supplementary raw material for the production of cellulose–cement composites with improved performance. *Waste and Biomass Valorization*, 1, 241-249.
- DE VILLIERS, C., NAIKER, V. & VAN STADEN, C. J. 2011. The effect of board characteristics on firm environmental performance. *Journal of Management*, 37, 1636-1663.

- DEAN, D. L., MENGÜÇ, B. & MYERS, C. P. 2000. Revisiting firm characteristics, strategy, and export performance relationship:: A survey of the literature and an investigation of new zealand small manufacturing firms. *Industrial Marketing Management*, 29, 461-477.
- DEHGHAN-BONARI, M., BAKHSHI, A., AGHSAMI, A. & JOLAI, F. 2021. Green supply chain management through call option contract and revenue-sharing contract to cope with demand uncertainty. *Cleaner Logistics and Supply Chain*, 2, 100010.
- DELOOF, M. 2003. Does working capital management affect profitability of Belgian firms? *Journal of business finance & Accounting*, 30, 573-588.
- DEMIGUEL, V., MARTIN-UTRERA, A., NOGALES, F. J. & UPPAL, R. 2020. A transaction-cost perspective on the multitude of firm characteristics. *The Review of Financial Studies*, 33, 2180-2222.
- DER MERWE, V., ROUX, M., BADENHORST, J. & BRITZ, T. 2005. Fungal treatment of an edible-oil-containing industrial effluent. *World Journal of Microbiology and Biotechnology*, 21, 947-953.
- DEVITAMALA, N. & APOLLO, A. 2022. The Effect of Leverage, Profitability and Cash Flow On Going Concern Audit Opinion and Its Implications On Market Reaction. *Eduvest-Journal of Universal Studies*, 2, 2776-2791.
- DEWI, K. S. & YASA, G. W. 2020. The effects of executive and company characteristics on tax aggressiveness. *Jurnal Ilmiah Akuntansi Dan Bisnis*, 15, 280.
- DEY, K. & SAHA, S. 2018. Influence of procurement decisions in two-period green supply chain. *Journal of cleaner production*, 190, 388-402.
- DEYGANTO, K. O. & ALEMU, A. A. 2019. Factors affecting financial performance of insurance companies operating in Hawassa city administration, Ethiopia. *Universal Journal of Accounting and Finance*, 7, 1-10.
- DIEBOLD, F. X., SCHUERMANN, T. & STROUGHAIR, J. D. 2000. Pitfalls and opportunities in the use of extreme value theory in risk management. *The Journal of Risk Finance*, 1, 30-35.
- DILYARD, J., ZHAO, S. & YOU, J. J. 2021. Digital innovation and Industry 4.0 for global value chain resilience: Lessons learned and ways forward. *Thunderbird International Business Review*, 63, 577-584.
- DING, S., GUARIGLIA, A. & KNIGHT, J. 2013. Investment and financing constraints in China: does working capital management make a difference? *Journal of Banking & Finance*, 37, 1490-1507.

- DING, W. & WAN, G. 2020. Financing and coordinating the supply chain with a capital-constrained supplier under yield uncertainty. *International journal of production economics*, 230, 107813.
- DIRMAN, A. 2020. Financial distress: the impacts of profitability, liquidity, leverage, firm size, and free cash flow. *International Journal of Business, Economics and Law*, 22, 17-25.
- DIXIT, A. K., SIROHI, S., RAVISHANKAR, K., CARIAPPA, A. A., KUMAR, S., BHANDARI, G., SHARMA, A. K., THAKUR, A., BHULLAR, G. K. & THAKUR, A. 2022. Understating emerging value chains and business performance: evidence from dairy industry in India. *Journal of Agribusiness in Developing and Emerging Economies*, 7, 3-9
- DJATNA, T., ASROL, M., PAPILO, P., TAUFIK, B. & DARMAWAN, M. Supply chain performance measurement and improvement of palm oil agroindustry: A case study at Riau and Jambi Province. IOP Conference Series: Earth and Environmental Science, 2020. IOP Publishing, 012056.
- DOBROSZEK, J. 2020. Supply chain and logistics controller—two promising professions for supporting transparency in supply chain management. *Supply Chain Management: An International Journal*, 25, 505-519.
- DOKTORALINA, C. & APOLLO, A. 2019. The contribution of strategic management accounting in supply chain outcomes and logistic firm profitability. *Uncertain Supply Chain Management*, 7, 145-156.
- DONG, D. D., MORITAKA, M., LIU, R. & FUKUDA, S. 2020. Restructuring toward a modernized agro-food value chain through vertical integration and contract farming: the swine-to-pork industry in Vietnam. *Journal of Agribusiness in Developing and Emerging Economies*, 10, 493-510.
- DOS SANTOS, M. A., SVENSSON, G. & PADIN, C. 2013. Indicators of sustainable business practices: Woolworths in South Africa. *Supply Chain Management: An International Journal*, 18, 104-108.
- DOSSOU, S. A., ADANGUIDI, J., AOUDJI, A. K. & GBEDOMON, R. C. Promotion of beekeeping: Insights from an empirical analysis of three honey value chains in Benin. Natural Resources Forum, 2022. Wiley Online Library, 39-59.
- DOVGALYUK, I., SAVELEVA, I., BALAKHONOVA, L. & TROFIMENKO, E. Y. 2020. The risk of a decline in profitability of a physical education and sports company during pandemic. *Human Sport Medicine*, 132-138.

- DUAN, J., ZHANG, C., GONG, Y., BROWN, S. & LI, Z. 2020. A content-analysis based literature review in blockchain adoption within food supply chain. *International journal of environmental research and public health*, 17, 1784.
- DUNG, T. Q., BONNEY, L. B., ADHIKARI, R. P. & MILES, M. P. 2020. Entrepreneurial orientation, knowledge acquisition and collaborative performance in agri-food value-chains in emerging markets. *Supply Chain Management: An International Journal*, 25, 521-533.
- ECHENIQUE, F. 2020. New developments in revealed preference theory: decisions under risk, uncertainty, and intertemporal choice. *Annual Review of Economics*, 12, 299-316.
- EDVARDSSON, I. R. & TEITSDÓTTIR, U. D. 2015. Outsourcing and financial crisis: Evidence from Icelandic service SMEs. *Employee Relations*, 37, 30-47.
- EISENREICH, A., FÜLLER, J., STUCHTEY, M. & GIMENEZ-JIMENEZ, D. 2022. Toward a circular value chain: Impact of the circular economy on a company's value chain processes. *Journal of Cleaner Production*, 134375.
- EKPA, O., PALACIOS-ROJAS, N., KRUSEMAN, G., FOGLIANO, V. & LINNEMANN, A. R. 2018. Sub-Saharan African maize-based foods: technological perspectives to increase the food and nutrition security impacts of maize breeding programmes. *Global food security*, 17, 48-56.
- EL BAZ, J. & RUEL, S. 2021. Can supply chain risk management practices mitigate the disruption impacts on supply chains' resilience and robustness? Evidence from an empirical survey in a COVID-19 outbreak era. *International Journal of Production Economics*, 233, 107972.
- ELANGO, B. 2008. Using outsourcing for strategic competitiveness in small and medium-sized firms. *Competitiveness Review: An International Business Journal*, 18, 322-332.
- ELTAYEB, T. & ZAILANI, S. 2014. Going green through green supply chain initiatives toward environmental sustainability. *Operations and Supply Chain Management: An International Journal*, 2, 93-110.
- ENQVIST, J., GRAHAM, M. & NIKKINEN, J. 2014. The impact of working capital management on firm profitability in different business cycles: Evidence from Finland. *Research in International Business and finance*, 32, 36-49.

- ERAVIA, D. & HANDAYANI, T. 2015. The opportunities and threats of small and medium enterprises in Pekanbaru: Comparison between SMEs in food and restaurant industries. *Procedia-Social and Behavioral Sciences*, 169, 88-97.
- ERIoTIS, N., VASILIOU, D. & VENTOURA-NEOKOSMIDI, Z. 2007. How firm characteristics affect capital structure: an empirical study. *Managerial Finance*, 33, 321-331.
- ERNAWATI, S., CHANDRARIN, G. & RESPATI, H. 2019. Analysis Of The Effect Of Profitability, Company Size And Leverage On Tax Avoidance (Study On Go Public Companies In Indonesia). *International Journal Of Advances In Scientific Research And Engineering*, 5, 74-80.
- ESLAMLOUEYAN, K. & JAFARI, M. 2019. Do better institutions offset the adverse effect of a financial crisis on investment? Evidence from East Asia. *Economic Modelling*, 79, 154-172.
- ESPLIN, A., HEWITT, M., PLUMLEE, M. & YOHN, T. L. 2014. Disaggregating operating and financial activities: Implications for forecasts of profitability. *Review of Accounting Studies*, 19, 328-362.
- ESTIASIH, S. P. & PUTRA, A. C. 2021. Factors affecting financial performance of pharmaceutical companies listed of Indonesia. *Cuadernos de Economía*, 44, 106-115.
- ETI, M. C., OGAJI, S. & PROBERT, S. 2004. Implementing total productive maintenance in Nigerian manufacturing industries. *Applied energy*, 79, 385-401.
- ETUAH, S. 2014. *Cost efficiency and economies of scale in broiler production in Ghana. A case study of the Ashanti Region*.
- EVERS, B., OPONDO, M., BARRIENTOS, S., KRISHNAN, A., AMODING, F. & NDLOVU, L. 2014. Global and regional supermarkets: Implications for producers and workers in Kenyan and Ugandan horticulture, 25, 29-30.
- EZER, F. & AKSÜT, S. 2021. Opinions of Graduate Students of Social Studies Education about Qualitative Research Method. *International Education Studies*, 14, 15-32.
- FADEYI, O. A., ARIYAWARDANA, A. & AZIZ, A. A. 2022. Factors influencing technology adoption among smallholder farmers: a systematic review in Africa, 13, 21-25.
- FAN, C. Research on the Application of Computer Big Data Technology in Supply Chain Innovation. 2022 International Conference on Data Analytics, Computing and Artificial Intelligence (ICDACAI), 2022. IEEE, 169-172.

- FARINHA, L., NUNES, S., FERREIRA, J. J. & FERNANDES, A. 2018. Understanding the foundations of global competitive advantage of nations. *Competitiveness Review: An International Business Journal*, 28, 503-517.
- FARMERY, A., BREWER, T., FARRELL, P., KOTTAGE, H., REEVE, E., THOW, A. & ANDREW, N. 2021. Conceptualising value chain research to integrate multiple food system elements. *Global Food Security*, 28, 100500.
- FAROOQ, U. 2019. Impact of inventory turnover on the profitability of non-financial sector firms in Pakistan. *Journal of Finance and Accounting Research*, 1, 34-51.
- FATIKASARI, I., ERSYAFDI, I. R. & ULFAH, F. 2021. The Influence of Asset Turnover and Company Characteristics on Economic Profitability in Restaurant, Hotel and Tourism Sub-Sector Companies Listed on The BEI. *MIZANIA: Jurnal Ekonomi Dan Akuntansi*, 1, 51-66.
- FEBRANSYAH, A. & CAMELIA GONI, J. I. 2022. Measuring the supply chain competitiveness of e-commerce industry in Indonesia. *Competitiveness Review: An International Business Journal*, 32, 250-275.
- FEI, F., QU, L., WEN, Z., XUE, Y. & ZHANG, H. 2016. How to integrate the informal recycling system into municipal solid waste management in developing countries: Based on a China's case in Suzhou urban area. *Resources, conservation and recycling*, 110, 74-86.
- FELIX, I., MARTIN, A., MEHTA, V. & MUELLER, C. 2020. US food supply chain: Disruptions and implications from COVID-19. *McKinsey & Company*, July.3,26-29
- FENG, H., WANG, X., DUAN, Y., ZHANG, J. & ZHANG, X. 2020. Applying blockchain technology to improve agri-food traceability: A review of development methods, benefits and challenges. *Journal of cleaner production*, 260, 121031.
- FERNÁNDEZ-LÓPEZ, S., RODEIRO-PAZOS, D. & REY-ARES, L. 2020. Effects of working capital management on firms' profitability: evidence from cheese-producing companies. *Agribusiness*, 36, 770-791.
- FERNANDO, I. 2021. Tourism Amid Covid-19 Pandemic in Sri Lanka Way-Forwarding Strategies Through the Porters' Diamond Model. *Imali Fernando,(2021), Tourism Amid Covid-19 Pandemic in Sri Lanka Way-Forwarding Strategies Through the Porters' Diamond Model, Sri Lanka Journal of Marketing*, 7,56-61.
- FINDLAY, C. & HOEKMAN, B. 2021. Value chain approaches to reducing policy spillovers on international business. *Journal of International Business Policy*, 4, 390-409.

- FIRȚESCU, B. & TERINTE, P. 2019. Effects of Board Independence on Firm Profitability. Evidence from Central and Eastern Europe. *European Union Financial Regulation and Administrative Area*, 99-113.
- FITRI, R. A. & MUNANDAR, A. 2018. The effect of corporate social responsibility, profitability, and leverage toward tax aggressiveness with size of company as moderating variable. *Binus Business Review*, 9, 63-69.
- FLINT, D. J. & GOLICIC, S. L. 2009. Searching for competitive advantage through sustainability: A qualitative study in the New Zealand wine industry. *International Journal of Physical Distribution & Logistics Management*, 39, 841-860.
- FLORÉN, H., FRISHAMMAR, J., LEE, C., ERICSSON, M. & GUSTAFSSON, S. A framework for raw materials management in process industries. R&D Management Conference, Manchester, UK, June, 2013. 26-28.
- FONCHAMNYO, D. C., DINGA, G. D. & NGUM, V. C. 2021. Revisiting the nexus between domestic investment, foreign direct investment and external debt in SSA countries: PMG-ARDL approach. *African Development Review*, 33, 479-491.
- FONSAH, E. G. & AMIN, B. 2017. Evaluating overall performances of the banana industry in West Bengal State, India. *Journal of Food Distribution Research*, 48, 16-21.
- FONSAH, E. G., TERTULIANO, M., MANOWER, T., CHATTAPADHYA, S., HUSSAIN, A., ISLAM, S., ISLAM, M., UDDIN, M., AMIN, A. & AMIN, B. 2018. A survey of Agricultural Value chain: A case study of Bangladesh banana industry. *Journal of Agriculture and Environmental Sciences*, 7, 141-148.
- FORAN, T., BUTLER, J. R., WILLIAMS, L. J., WANJURA, W. J., HALL, A., CARTER, L. & CARBERRY, P. S. 2014. Taking complexity in food systems seriously: An interdisciplinary analysis. *World development*, 61, 85-101.
- FU, S., ZHAN, Y., OUYANG, J., DING, Y., TAN, K. H. & FU, L. 2021. Power, supply chain integration and quality performance of agricultural products: evidence from contract farming in China. *Production Planning & Control*, 32, 1119-1135.
- FU, X. 2020. Digital transformation of global value chains and sustainable post-pandemic recovery. *Transnational Corporations Journal*, 27,30-33.
- FUERTE-CALLEN, Y. & CUELLAR-FERNANDEZ, B. 2019. Inter-relationship between firm growth and profitability in a context of economic crisis,5,32-36
- FUJIANI, L. & SATRIA, I. 2020. Firm size, profitability, leverage as determinants of audit report lag: Evidence from Indonesia. *International Journal of Financial Research*, 11, 61-67.

- GADELIUS, A. & LARSSON, E. 2019. The impact of the global financial crisis on working capital management in Swedish listed firms, 25, 27-29.
- GALLINO, S., MORENO, A. & STAMATOPOULOS, I. 2017. Channel integration, sales dispersion, and inventory management. *Management Science*, 63, 2813-2831.
- GAN, P. Y. & LI, Z. D. 2014. Econometric study on Malaysia' s palm oil position in the world market to 2035. *Renewable and Sustainable Energy Reviews*, 39, 740-747.
- GAO, T., JI, Z., NIU, D. & XI, Y. Research on product sales forecasting based on multi-value chain collaborative data management system in manufacturing industry. 2022 IEEE International Conference on e-Business Engineering (ICEBE), 2022. IEEE, 86-93.
- GARCIA-OCHOA MAYOR, M., BLÁZQUEZ DE LA HERA, M. L. & DE DIEGO RUIZ, E. 2012. Empirical study of national technological innovation capability in Africa. *South African Journal of Economic and Management Sciences*, 15, 440-463.
- GARCIA, J., MARTINS, F. V. & BRANDÃO, E. 2011. The impact of working capital management upon companies' profitability: evidence from European companies. Available at SSRN 2165210.
- GAYTAN, J. C. T., ATEEQ, K., RAFIUDDIN, A., ALZOUBI, H. M., GHAZAL, T. M., AHANGER, T. A., CHAUDHARY, S. & VIJU, G. 2022. Ai-based prediction of capital structure: Performance comparison of ann svm and lr models. *Computational Intelligence and Neuroscience: CIN*, 2022.
- GEBRE, G. G., FIKADU, A. A. & GEBEYEHU, T. K. 2022. Is banana value chain in East Africa sustainable? Evidence from Ethiopia. *Resources, Environment and Sustainability*, 8, 100060.
- GEBRE, G. G. & RIK, E. 2016. Sustainability assessment of a banana value chain: The case of Arba Minch, Ethiopia. *Journal of Agribusiness*, 34, 2016.
- GENG, S., LIU, Y., NIU, D. & GUO, X. Research on Data Acquisition and Processing Under the Coordination of Multiple Value Chains in the Manufacturing Industry— Taking the Electric Vehicle Manufacturing Industry as an Example. 2021 IEEE 7th International Conference on Cloud Computing and Intelligent Systems (CCIS), 2021. IEEE, 9-14.
- GENTRY, R. J. & SHEN, W. 2010. The relationship between accounting and market measures of firm financial performance: How strong is it? *Journal of managerial issues*, 514-530.

- GERASSIMIDOU, S., LANSKA, P., HAHLADAKIS, J. N., LOVAT, E., VANZETTO, S., GEUEKE, B., GROH, K. J., MUNCKE, J., MAFFINI, M. & MARTIN, O. V. 2022a. Unpacking the complexity of the PET drink bottles value chain: A chemicals perspective. *Journal of Hazardous Materials*, 430, 128410.
- GERASSIMIDOU, S., LOVAT, E., EBNER, N., YOU, W., GIAKOUMIS, T., MARTIN, O. V. & IACOVIDOU, E. 2022b. Unpacking the complexity of the UK plastic packaging value chain: A stakeholder perspective. *Sustainable Production and Consumption*, 30, 657-673.
- GERASSIMIDOU, S., MARTIN, O. V., CHAPMAN, S. P., HAHLADAKIS, J. N. & IACOVIDOU, E. 2021. Development of an integrated sustainability matrix to depict challenges and trade-offs of introducing bio-based plastics in the food packaging value chain. *Journal of Cleaner Production*, 286, 125378.
- GEREFFI, G. 2019. Global value chains and international development policy: Bringing firms, networks and policy-engaged scholarship back in. *Journal of International Business Policy*, 2, 195-210.
- GERMAN, L. A., BONANNO, A. M., FOSTER, L. C. & COTULA, L. 2020. "Inclusive business" in agriculture: Evidence from the evolution of agricultural value chains. *World Development*, 134, 105018.
- GHASSIM, B. & BOGERS, M. 2019. Linking stakeholder engagement to profitability through sustainability-oriented innovation: A quantitative study of the minerals industry. *Journal of Cleaner Production*, 224, 905-919.
- GHAZINOORY, S. S. & GHAZINOORY, S. S. 2008. Extracting strategies for modification of the national innovation system of Iran based on a comparative study. *Journal of Science and Technology Policy*, 1, 53-64.
- GHIMIRE, S., KOIRALA, B., DEVKOTA, S. & BASNET, G. 2019. Economic analysis of commercial banana cultivation and supply chain analysis in Chitwan, Nepal. *Journal of Pharmacognosy and Phytochemistry*, 8, 190-195.
- GILL, A., BIGER, N. & MATHUR, N. 2010. The relationship between working capital management and profitability: Evidence from the United States. *Business and economics journal*, 10, 1-9.
- GILL, T., NISENGWE, R., GOERTZ, H., ADER, D., MCGEHEE, K., NSHUTI, R., GUMISIRIZA, A., SMITH, M. & URBAN, E. 2021. Strengthening smallholder engagement and integration in the Rwandan commercial broiler value chain. *World's Poultry Science Journal*, 77, 1059-1078.

- GILLEY, K. M., GREER, C. R. & RASHEED, A. A. 2004. Human resource outsourcing and organizational performance in manufacturing firms. *Journal of business research*, 57, 232-240.
- GILLEY, K. M. & RASHEED, A. 2000. Making more by doing less: an analysis of outsourcing and its effects on firm performance. *Journal of management*, 26, 763-790.
- GILLS, R., SHARMA, J., BURMAN, R., SHARMA, R. & KAR, A. 2016. Comparative analysis of vegetable production, value-addition and marketing in National Capital Region. *Indian Journal of Horticulture*, 73, 87-93.
- GIRI, R. N., MONDAL, S. K. & MAITI, M. 2019. Government intervention on a competing supply chain with two green manufacturers and a retailer. *Computers & Industrial Engineering*, 128, 104-121.
- GIRMA, D. & MARCO, V. 2014. Assessment of factors and factors affecting milk value chain in smallholder dairy farmers: A case study of Adaâ€™™ a District, East Shawa Zone of Oromia regional State, Ethiopia. *African Journal of Agricultural Research*, 9, 345-352.
- GITURO, W. & AWINO, Z. B. 2007. An empirical investigation of supply chain management best practices in large private manufacturing firms in Kenya.
- GLATZEL, K., TANKARI, M., DEMMLER, K. & SHAH, M. 2019. Byte by byte: policy innovation for transforming Africa's food system with digital technologies. *Byte by byte: policy innovation for transforming Africa's food system with digital technologies*.
- GLENDAY, S., JAGAU, Y. & SUHARNO, S. A. 2015. Central Kalimantan's Oil Palm Value Chain—Opportunities for Productivity, Profitability and Sustainability Gains. *A CPI, PILAR & GreenWorks Asia Working Paper (CPI, PILAR & GreenWorks Asia, 2015)*.
- GOGODZE, J. 2016. Mechanisms and functions within a national innovation system. *Journal of technology management & innovation*, 11, 12-21.
- GOH, H. C. 2021. Strategies for post-Covid-19 prospects of Sabah's tourist market—Reactions to shocks caused by pandemic or reflection for sustainable tourism? *Research in Globalization*, 3, 100056.
- GÖLGEÇI, I., GLIGOR, D. M., BAYRAKTAR, E. & DELEN, D. 2023. Reimagining global value chains in the face of extreme events and contexts: Recent insights and future research opportunities. Elsevier.

- GOLLIER, C. & POUGET, S. 2022. Investment strategies and corporate behaviour with socially responsible investors: A theory of active ownership. *Economica*, 89, 997-1023.
- GOMEZ-CONDE, J. 2015. Examining the link between outsourcing and performance: the leverage effect of the interactive use of management accounting and control systems. *Spanish Journal of Finance and Accounting/Revista Española de Financiación y Contabilidad*, 44, 298-325.
- GONÇALVES, T., GAIO, C. & ROBLES, F. 2018. The impact of Working Capital Management on firm profitability in different economic cycles: Evidence from the United Kingdom. *Economics and Business Letters*, 7, 70-75.
- GOODARZI, M., GHADBEIKLOU, J., GHADIRY, A. & KHODSHENAS, M. 2023. Determining the Optimal Cropping Pattern Based on the Multiple Objectives of Water, Energy, Food and Economic Profit Indices (Case Study: Markazi Province-Farahan Plain). *Water and Soil*, 37, 187-202.
- GORDON, A., PULIS, A. & OWUSU-ADJEI, E. 2011. Smoked marine fish from Western Region, Ghana: a value chain assessment.
- GOSWAMI, S., RAVICHANDRAN, T., TEO, H.-H. & KRCCMAR, H. 2011. Achieving high performing supply networks through value network transparency.
- GRABS, J. & PONTE, S. 2019. The evolution of power in the global coffee value chain and production network. *Journal of Economic Geography*, 19, 803-828.
- GRANT, M. 2015. A food systems approach for food and nutrition security. *Sight and Life*, 29, 87-90.
- GRIGORESCU, I. L. Value chain analysis—basic element of an organization's competitive advantage. International Conference Knowledge-Based Organization, 2015. 318-324.
- GRILLINI, S., OZKAN, A., SHARMA, A. & AL JANABI, M. A. 2019. Pricing of time-varying illiquidity within the Eurozone: Evidence using a Markov switching liquidity-adjusted capital asset pricing model. *International Review of Financial Analysis*, 64, 145-158.
- GROTE, U. 2014. Can we improve global food security? A socio-economic and political perspective. *Food Security*, 6, 187-200.
- GROTE, U., FASSE, A., NGUYEN, T. T. & ERENSTEIN, O. 2021. Food security and the dynamics of wheat and maize value chains in Africa and Asia. *Frontiers in Sustainable Food Systems*, 4, 617009.

- GUALANDRIS, J., LONGONI, A., LUZZINI, D. & PAGELL, M. 2021. The association between supply chain structure and transparency: A large-scale empirical study. *Journal of Operations Management*, 67, 803-827.
- GULATI, A., GANGULY, K. & WARDHAN, H. 2022. *Agricultural Value Chains in India: Ensuring Competitiveness, Inclusiveness, Sustainability, Scalability, and Improved Finance*, Springer Nature.
- GUNARSIH, T. & ISMAWATI, Y. 2018. Sustainability report and firm performance: Study in mining and metal and food processing industry Indonesia Stock Exchange 2014-2017. *Journal of Governance and Integrity*, 2, 4-11.
- GUNAWAN, B. & RESITARINI, F. K. The Influence of Corporate Governance Mechanisms, Profitability, Leverage, and Earnings Management on Tax Aggressiveness (An Empirical Study on Mining Sector Companies Listed on the Indonesia Stock Exchange in 2014-2017). 5th International Conference on Accounting and Finance (ICAF 2019), 2019. Atlantis Press, 13-19.
- GUO, D., HE, Y., WU, Y. & XU, Q. 2016. Analysis of supply chain under different subsidy policies of the government. *Sustainability*, 8, 1290.
- GURITNO, A. D., FUJIANI, R. & KUSUMASARI, D. 2015. Assessment of the supply chain factors and classification of inventory management in suppliers' level of fresh vegetables. *Agriculture and Agricultural Science Procedia*, 3, 51-55.
- GUSMEROTTI, N. M., TESTA, F., CORSINI, F., PRETNER, G. & IRALDO, F. 2019. Drivers and approaches to the circular economy in manufacturing firms. *Journal of Cleaner Production*, 230, 314-327.
- HABARADAS, R. B. 2008. Strengthening the national innovation system (NIS) of the Philippines: Lessons from Malaysia and Thailand. *Asian Journal of Technology Innovation*, 16, 1-22.
- HABIB, M. A., BAO, Y. & ILMUDEEN, A. 2020. The impact of green entrepreneurial orientation, market orientation and green supply chain management practices on sustainable firm performance. *Cogent Business & Management*, 7, 1743616.
- HABTE, Z., LEGESSE, B., HAJI, J. & JALETA, M. 2020. Determinants of supply in the wheat value chain of Ethiopia. *Eastern Africa Social Science Research Review*, 36, 37-61.
- HADDAD, V., HUEBNER, P. & LOUALICHE, E. 2021. How competitive is the stock market? theory, evidence from portfolios, and implications for the rise of passive

- investing. *Theory, Evidence from Portfolios, and Implications for the Rise of Passive Investing* (April 7, 2021).
- HADI, T., CHAHARSOOGHI, S. K., SHEIKHMOHAMMADY, M. & HAFEZALKOTOB, A. 2020. Pricing strategy for a green supply chain with hybrid production modes under government intervention. *Journal of Cleaner Production*, 268, 121945.
- HAGGBLADE, S., THERIAULT, V., STAATZ, J., DEMBELE, N. & DIALLO, B. 2012. A conceptual framework for promoting inclusive agricultural value chains. *International Fund for Agricultural Development (IFAD), mimeo (online document)*.
- HAJIESMAEILI, A., RAHIMI, M., JABERI, E. & HOSSEINI, A. A. 2016. Studying the Influence of Logistics on Organizational Performance through a Supply Chain Strategy: Case Study in Goldiran Electronics Co. *International Journal of Economics and Management Engineering*, 10, 1065-1073.
- HAMDANI, R., SIREGAR, D. I., ASTUTI, A. T., HARDILAWATI, W. L. & SIREGAR, Z. M. E. 2023. Linking Dynamic Capability, Supply Chain and Raw Material Uncertainty to Indonesian SMEs Manufacturing Operational Performance. *Calitatea*, 24, 39-45.
- HAMELIN, N. & BONELLI, M. I. 2022. Traders' anticipatory feelings and traders' profitability: An exploratory study. *Journal of Behavioral and Experimental Finance*, 36, 100743.
- HANEBERG, D. H. 2021. How combinations of network participation, firm age and firm size explain SMEs' responses to COVID-19. *Small Enterprise Research*, 28, 229-246.
- HANSEN, U. E., NYGAARD, I. & DAL MASO, M. 2022. The dark side of the sun: solar e-waste and environmental upgrading in the off-grid solar PV value chain. *The Dark Side of Innovation*. Routledge.
- HARAHAP, F., LEDUC, S., MESFUN, S., KHATIWADA, D., KRAXNER, F. & SILVEIRA, S. 2019. Opportunities to optimize the palm oil supply chain in Sumatra, Indonesia. *Energies*, 12, 420.
- HARALAYYA, B. 2021. Financial Statement Analysis of Shri Ram City Union Finance. *Iconic Research And Engineering Journals*, 4, 183-196.
- HARTOG, M., LÓPEZ-CÓRDOVA, J. E. & NEFFKE, F. 2020. Assessing Ukraine's Role in European Value Chains: A Gravity Equation-cum-Economic Complexity Analysis Approach. *CID Research Fellow and Graduate Student Working Paper Series*.

- HARYANTO, J. O. & CHANG, F. I. 2018. Analysis Of E-Commerce Providers' Role In Solving The Issues Of Retail E-Commerce Logistics In Jakarta (Study Case Of PT Acommerce Solusi Lestari). *Jurnal Manajemen*, 22, 14-30.
- HASAN, M. Z., KAMIL, A. A., MUSTAFA, A. & BATEN, M. A. 2011. A validity test of capital asset pricing model for Dhaka stock exchange. *Journal of Applied Sciences*, 11, 3490-3496.
- HASAN, M. Z., KAMIL, A. A., MUSTAFA, A. & BATEN, M. A. 2012. Relationship between risk and expected returns: Evidence from the dhaka stock exchange. *Procedia Economics and Finance*, 2, 1-8.
- HAYDAROV, U. 2020. Financial management system, tools, sources of investment activities and factors. *Архив научных исследований*, 35.
- HAYEK, F. A. 1939. The economic conditions of interstate federalism. *New Commonwealth Quarterly*, 5, 131-149.
- HEIKAL, M., ILHAM, R. N. & KHADDAFI, M. 2022. Accelerate Economic Growth of Lhokseumawe City with Application of Supply Chain and Main Strategic Commodity Model Based on Sharia During the Covid-19 Pandemic. *Quality-Access to Success*, 23.
- HELGESEN, Ø. 2021. Do customer profitability accounting and analyses provide managers with new decision support? Evidence from Norwegian fish exporters.
- HENDREN, K., NEWCOMER, K., PANDEY, S. K., SMITH, M. & SUMNER, N. 2023. How qualitative research methods can be leveraged to strengthen mixed methods research in public policy and public administration? *Public Administration Review*, 83, 468-485.
- HENDRICKS, K. B. & SINGHAL, V. R. 2001. Firm characteristics, total quality management, and financial performance. *Journal of operations management*, 19, 269-285.
- HENSON, S. & HUMPHREY, J. 2010. Understanding the complexities of private standards in global agri-food chains as they impact developing countries. *The journal of development studies*, 46, 1628-1646.
- HERMAN, E. Innovation and entrepreneurship for competitiveness in the EU: an empirical analysis. Proceedings of the International Conference on Business Excellence, 2018. 425-435.

- HERRMANN, F. F., BARBOSA-POVOA, A. P., BUTTURI, M. A., MARINELLI, S. & SELLITTO, M. A. 2021. Green supply chain management: conceptual framework and models for analysis. *Sustainability*, 13, 8127.
- HIBISTU, T. 2020. Korarima (*Aframomum corrorima*) value chain development in Ethiopia: a review to exploit the investment potential. *International Journal of African and Asian Studies*, 66, 23-26.
- HIDAYATI, D. R., GARNEVSKA, E. & CHILDERHOUSE, P. Agrifood value chain assessment in developing countries: a case of Indonesia's cashew sector. E3S Web of Conferences, 2021. EDP Sciences, 02045.
- HILL, M. D., KELLY, G. W. & HIGHFIELD, M. J. 2010. Net operating working capital behavior: a first look. *Financial management*, 39, 783-805.
- HILORME, T., PEREVOZOVA, I., SHPAK, L., MOKHNENKO, A. & KOROVCHUK, Y. 2019. Human capital cost accounting in the company management system. *Academy of Accounting and Financial Studies Journal*, 23, 1-6.
- HLATSHWAYO, S. I., MODI, A., HLAHLA, S., NGIDI, M. & MABHAUDHI, T. 2021. Usefulness of seed systems for reviving smallholder agriculture: A South African perspective. *African Journal of Food, Agriculture, Nutrition and Development*, 21, 17581-17603.
- HO, K. L. P., NGUYEN, C. N., ADHIKARI, R., MILES, M. P. & BONNEY, L. 2018. Exploring market orientation, innovation, and financial performance in agricultural value chains in emerging economies. *Journal of Innovation & Knowledge*, 3, 154-163.
- HO, T. M. H. & BURNY, P. 2016. Impact of value chain governance on the development of small scale shrimp farmers in Vietnam. *International Journal of Business and Economic Sciences Applied Research*, 9.
- HOANG, V. 2021. Impact of contract farming on farmers' income in the food value chain: A theoretical analysis and empirical study in Vietnam. *Agriculture*, 11, 797.
- HOANG, V., NGUYEN, A., HUBBARD, C. & NGUYEN, K.-D. 2021. Exploring the governance and fairness in the milk value chain: a case study in Vietnam. *Agriculture*, 11, 884.
- HOFBAUER, G. & SANGL, A. 2019. A proposition for an updated configuration of the value chain. *International Journal of Advanced Engineering and Management Research*, 4, 115-134.

- HÖGERLE, B., CHARIFZADEH, M., FERENCZ, M. & KOSTIN, K. B. 2020. The development of working capital management and its impact on profitability and shareholder value: evidence from Germany. *Strategic management*, 25, 27-39.
- HOHENSTEIN, N.-O., FEISEL, E., HARTMANN, E. & GIUNIPERO, L. 2015. Research on the phenomenon of supply chain resilience: a systematic review and paths for further investigation. *International journal of physical distribution & logistics management*, 45, 90-117.
- HORSFALL, H. & MAC-KINGSLEY, I. 2018. Brand equity and market performance: An empirical study of food and beverage firms in Rivers State. *International Journal of Economics and Business Management*, 4, 1-14.
- HOSEIN REZAZADEH MEHRIZI, M. & PAKNEIAT, M. 2008. Comparative analysis of sectoral innovation system and diamond model (the case of telecom sector of IRAN). *Journal of technology management & innovation*, 3, 78-90.
- HOU, J. & HOU, B. 2019. Farmers' adoption of low-carbon agriculture in China: An extended theory of the planned behavior model. *Sustainability*, 11, 1399.
- HU, H., LI, Y., LI, Y., LI, M., YUE, X. & DING, Y. 2022. Decisions and Coordination of the Green Supply Chain with Retailers' Fairness Concerns. *Systems*, 11, 5.
- HUANG, C., LUO, L. & NIE, Y. Research on the Application of Data Mining Technology in Enterprise Supply Chain Management System. 2022 International Conference on Cloud Computing, Big Data Applications and Software Engineering (CBASE), 2022. IEEE, 151-154.
- HUH, W. T., LEVI, R., RUSMEVICHIENTONG, P. & ORLIN, J. B. 2011. Adaptive data-driven inventory control with censored demand based on Kaplan-Meier estimator. *Operations Research*, 59, 929-941.
- HUNT, S. D. & MORGAN, R. M. 1995. The comparative advantage theory of competition. *Journal of marketing*, 59, 1-15.
- HUSAIN, S. & ALNEFAEE, S. 2016. The Effects of Working Capital Management on Profitability of Firms: Evidence from Agriculture and Food Industry of Kingdom of Saudi Arabia. *Journal of Emerging Issues in Economics, Finance & Banking*, 5.
- HUTOROV, A. O., LUPENKO, Y. O., YERMOLENKO, O. A. & DOROKHOV, O. V. 2018. Strategic management of the agrarian sector of economy based on the analysis of value chains. *Bulletin of the Transilvania University of Brasov. Series II: Forestry• Wood Industry• Agricultural Food Engineering*, 101-114.

- ICHSAN, R., SUPARMIN, S., YUSUF, M., ISMAL, R. & SITOMPUL, S. 2021. Determinant of Sharia Bank's Financial Performance during the Covid-19 Pandemic. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 4, 298-309.
- ILESANMI, F. F., ILESANMI, O. S. & AFOLABI, A. A. 2021. The effects of the COVID-19 pandemic on food losses in the agricultural value chains in Africa: The Nigerian case study. *Public Health in Practice*, 2, 100087.
- INDAH, P. N., SETIAWAN, R. F., HENDRARINI, H., YEKTINGSIH, E. & SUNARSONO, R. J. 2021. Agriculture supply chain performance and added value of cocoa a study in Kare Village, Indonesia. *Bulgarian Journal of Agricultural Science*, 27, 487-497.
- INGRAM, V., BEHAGEL, J., MAMMADOVA, A. & VERSCHUUR, X. 2020. The outcomes of deforestation-free commodity value chain approaches: Background report. Wageningen University & Research.
- INNOCENT, E. C., MARY, O. I. & MATTHEW, O. M. 2013. Financial ratio analysis as a determinant of profitability in Nigerian pharmaceutical industry. *International journal of business and management*, 8, 107.
- IQBAL, A. & ZHUQUAN, W. 2015. Working capital management and profitability evidence from firms listed on Karachi Stock Exchange. *international Journal of Business and Management*, 10, 231.
- IQBAL, A. M., KHAN, A. S., BASHIR, F. & SENIN, A. A. 2015. Evaluating national innovation system of malaysia based on university-industry research collaboration: A system thinking approach. *Asian Social Science*, 11, 45.
- IRFAN, M. & WANG, M. 2019. Data-driven capabilities, supply chain integration and competitive performance: Evidence from the food and beverages industry in Pakistan. *British Food Journal*, 121, 2708-2729.
- ISHAK, A. A. A. 2019. Pengukuran Capaian Kinerja Supply Chain. *Journal of Applied Accounting and Taxation*, 4, 184-202.
- ISIAKA, Z., OLADIMEJI, Y., AMMANI, A., MANI, J. & SANI, A. 2023. ASSESSMENT OF THE CONTRIBUTIONS OF SMALL-SCALE BROILER PRODUCTION TO FARMERS' FOOD SECURITY IN KADUNA STATE, NIGERIA. *Nigerian Journal of Agriculture and Agricultural Technology*, 3, 199-209.

- ISLAM, M. M., BHUIYAN, M. N. K. & HARUN, M. Y. 2012. Development of value chain: an effective way of profitable duck farming in haor areas of Bangladesh. *INFPD Good Practices of Family Poultry Production Note No, 4*.
- ISLAMIATI, W. & SURYANDARI, D. 2021. The Impact of Firm Size, Leverage and Liquidity on Sustainability Report Disclosure with Profitability as Moderating Variable. *Jurnal Akuntansi Bisnis*, 18, 197-215.
- ISNURHADI, H., TAUFIK, H. & HERWANTO, D. 2018. The Effect Of Macroeconomic Fundamental Factors On Corporate Value Through Financial Performance As Intervening Variables In Manufacturing Companies In Indonesia Stock Exchange. *Journal of Management*, 6, 1-26.
- IVANOV, D. 2021. *Introduction to supply chain resilience: management, modelling, technology*, Springer Nature.
- IVANOVÁ, E. & ČEPEL, M. 2018. The impact of innovation performance on the competitiveness of the Visegrad 4 countries. *Journal of Competitiveness*, 10, 54.
- IWARA, I. O. & KILONZO, B. M. 2022. Towards a Conceptual Understanding of an Effective Rural-Based Entrepreneurial University in South Africa. *Social Sciences*, 11, 388.
- JABBOUR, C. J. C., FIORINI, P. D. C., NDUBISI, N. O., QUEIROZ, M. M. & PIATO, É. L. 2020. Digitally-enabled sustainable supply chains in the 21st century: A review and a research agenda. *Science of the total environment*, 725, 138177.
- JAGRI BINPORI, R., AWUNYO-VITOR, D. & WONGNAA, C. A. 2021. Does contract farming improve rice farmers' food security? Empirical evidence from Ghana. *World Journal of Science, Technology and Sustainable Development*, 18, 130-149.
- JAHARI, C., KILAMA, B., DUBE, S. & PAREMOER, T. Regional industrialisation and the development of agro-processing value chains in Tanzania and South Africa: Oilseeds-to-edible oils. ACER III Conference, 2017.
- JAHARI, C., KILAMA, B., DUBE, S. & PAREMOER, T. 2018. Growth and development of the oilseeds-edible-oils value chain in Tanzania and South Africa.
- JAHFER, A. 2015. Effects of working capital management on firm profitability: empirical evidence from Sri Lanka. *International Journal of Managerial and Financial Accounting*, 7, 26-37.
- JANG, S. C., MORRISON, A. M. & T O'LEARY, J. 2002. Benefit segmentation of Japanese pleasure travelers to the USA and Canada: selecting target markets based on the

- profitability and risk of individual market segments. *Tourism management*, 23, 367-378.
- JANSEN, J. 2016. Is supply chain finance ready to be applied in small and medium-sized enterprizes? *Вестник Челябинского государственного университета*, 135-154.
- JAWADE, A. 2021. Do firm characteristics of concentrated ownership firms affect dividend payout beyond traditional motivations? *Journal of Indian Business Research*, 13, 289-307.
- JEBLE, S., DUBEY, R., CHILDE, S. J., PAPADOPOULOS, T., ROUBAUD, D. & PRAKASH, A. 2018. Impact of big data and predictive analytics capability on supply chain sustainability. *The International Journal of Logistics Management*, 29, 513-538.
- JELSMA, I., SCHONEVELD, G. C., ZOOMERS, A. & VAN WESTEN, A. 2017. Unpacking Indonesia's independent oil palm smallholders: an actor-disaggregated approach to identifying environmental and social performance challenges. *Land use policy*, 69, 281-297.
- JIAN, J., GUO, Y., JIANG, L., AN, Y. & SU, J. 2019. A multi-objective optimization model for green supply chain considering environmental benefits. *Sustainability*, 11, 5911.
- JIMOH, L., AKINTUNDE, O., KEHINDE, A., AGBOOLA, T. & ALABI, A. 2021. Structure, Conduct and Performance of Maize Marketing in Irewole Local Government Area, Osun State. *Nigerian Journal of Basic and Applied Sciences*, 29, 59-66.
- JOHL, S. K. & TOHA, M. A. 2021. The nexus between proactive eco-innovation and firm financial performance: a circular economy perspective. *Sustainability*, 13, 6253.
- JOHN, D. A. & OWOEYE, R. 2022. Comparative Profitability Analysis of Broiler Production Systems in Ekiti State, Nigeria.
- JOHNSON, P. F., KLASSEN, R. D., LEENDERS, M. R. & AWAYSHEH, A. 2007. Utilizing e-business technologies in supply chains: the impact of firm characteristics and teams. *Journal of Operations Management*, 25, 1255-1274.
- JONES, B., ELLIOTT, R. J. & NGUYEN-TIEN, V. 2020. The EV revolution: The road ahead for critical raw materials demand. *Applied Energy*, 280, 115072.
- JOSHI, D., RATHORE, A. P. S., SHARMA, D. & NEPAL, B. 2011. Determinants of competitiveness and their relative importance: a study of Indian auto-component industry. *International Journal of Services and Operations Management*, 10, 426-448.
- JRAISAT, L. 2016. A network perspective and value added tasks: the case of agri-food value chain. *Asia Pacific Journal of Marketing and Logistics*, 28.

- JU, Y. & SOHN, S. Y. 2014. Development of a national competitiveness index based on a structural equation model. *Technology Analysis & Strategic Management*, 26, 565-579.
- JUAN, S.-J., LI, E. Y. & HUNG, W.-H. 2022. An integrated model of supply chain resilience and its impact on supply chain performance under disruption. *The International Journal of Logistics Management*, 33, 339-364.
- JUMA'H, A. H. & WOOD, D. 2000. Outsourcing implications on companies' profitability and liquidity: a sample of UK companies. *Work Study*, 49, 265-275.
- JYOTI, J. & ARORA, H. 2013. Impact of client–vendor relationship on firm's financial performance: a study of outsourcing firms. *Global business review*, 14, 691-709.
- KABU, E. & TIRA, D. S. 2015. Value chain analysis towards sustainability: a case study of fishery business in Kota Kupang, Indonesia. *International Journal of Economics and Financial Issues*, 5, 150-156.
- KADDUMI, T. A. & RAMADAN, I. Z. 2012. Profitability and working capital management: The Jordanian case. *International Journal of Economics and Finance*, 4, 217-226.
- KAFUKU, G., LAM, M. K., KANSEDO, J., LEE, K. T. & MBARAWA, M. 2010. Croton megalocarpus oil: a feasible non-edible oil source for biodiesel production. *Bioresource technology*, 101, 7000-7004.
- KAFUKU, G. & MBARAWA, M. 2010. Effects of biodiesel blending with fossil fuel on flow properties of biodiesel produced from non-edible oils. *International Journal of Green Energy*, 7, 434-444.
- KAKADELLIS, S. & HARRIS, Z. M. 2020. Don't scrap the waste: The need for broader system boundaries in bioplastic food packaging life-cycle assessment—A critical review. *Journal of Cleaner Production*, 274, 122831.
- KAKATI, S. & ROY, A. 2017. A study on the financial performance of farmer producer companies with special reference to Northeast India. *Amity Journal of Agribusiness*, 2, 37-56.
- KAMALRULZAMAN, N. I., AHMAD, A., ARIFF, A. M. & MUDA, M. S. 2021. Innovation capabilities and performance of Malaysian agricultural smes: The moderating role of strategic alliance. *International Journal of Business and Society*, 22, 675-695.
- KAMILARIS, A., FONTS, A. & PRENAFETA-BOLDY, F. X. 2019. The rise of blockchain technology in agriculture and food supply chains. *Trends in food science & technology*, 91, 640-652.

- KANBURI BIDZAKIN, J., FIALOR, S. C., AWUNYO-VITOR, D. & YAHAYA, I. 2019. Impact of contract farming on rice farm performance: Endogenous switching regression. *Cogent economics & finance*, 7, 1618229.
- KANO, L. & HOON OH, C. 2020. Global value chains in the post-COVID world: Governance for reliability. *Journal of Management Studies*.
- KANO, L., TSANG, E. W. & YEUNG, H. W.-C. 2020. Global value chains: A review of the multi-disciplinary literature. *Journal of international business studies*, 51, 577-622.
- KAPLINSKY, R. 2000. Globalisation and unequalisation: what can be learned from value chain analysis? *Journal of development studies*, 37, 117-146.
- KAPLINSKY, R. 2004. Spreading the gains from globalization: What can be learned from value-chain analysis? *Problems of economic transition*, 47, 74-115.
- KAPLINSKY, R. & FAROOKI, M. 2010. Global value chains, the crisis, and the shift of markets from North to South. *Global value chains in a postcrisis world: A development perspective*, 125-154.
- KARAALP, H. S. & YILMAZ, N. D. 2012. Assessment of trends in the comparative advantage and competitiveness of the Turkish textile and clothing industry in the enlarged EU market. *Fibres & Textiles in Eastern Europe*.
- KARADUMAN, H. A., AKBAS, H. E., OZSOZGUN, A. & DURER, S. 2010. Effects of working capital management on profitability: the case for selected companies in the Istanbul stock exchange (2005-2008). *International Journal of Economics and Finance Studies*, 2, 47-54.
- KARUIRU, M. 2018. Value chain management and the performance of avocado fruit small scale farmers in Kandara subcounty, murang'a County, Kenya. *International Journal of Physical and Social Sciences*, 8, 24-40.
- KARUNARATHNE, A., RANASINGHE, J., SAMMANI, U. & PERERA, K. 2021. Impact of the COVID-19 pandemic on tourism operations and resilience: stakeholders' perspective in Sri Lanka. *Worldwide Hospitality and Tourism Themes*, 13, 369-382.
- KATIYAR, R., BARUA, M. K. & MEENA, P. L. 2015. Modelling the measures of supply chain performance in the Indian automotive industry. *Benchmarking: An international journal*, 22, 665-696.
- KEMITARE, G., KABUYE, F., OLYANGA, A. M. & RUDAHERANWA, N. 2021. Value chain, productivity and trade performance in the dairy industry. *Modern Supply Chain Research and Applications*, 3, 24-40.

- KETELS, C. H. 2006. Michael Porter's competitiveness framework—recent learnings and new research priorities. *Journal of Industry, Competition and Trade*, 6, 115-136.
- KEYNES, J. M. 1936. The supply of gold. *The Economic Journal*, 46, 412-418.
- KHALAF, B. A. & AL-TARAWNEH, A. 2019. Impact of Corporate Governance on the Efficiency of Managing Working Capital in the Manufacturing Sector in Jordan. *Jordan Journal of Business Administration*, 15.
- KHAN, S., KAUSHIK, M. K., KUMAR, R. & KHAN, W. 2023. Investigating the barriers of blockchain technology integrated food supply chain: A BWM approach. *Benchmarking: An International Journal*, 30, 713-735.
- KHAN, S. A. R., GODIL, D. I., JABBOUR, C. J. C., SHUJAAT, S., RAZZAQ, A. & YU, Z. 2021. Green data analytics, blockchain technology for sustainable development, and sustainable supply chain practices: evidence from small and medium enterprises. *Annals of Operations Research*, 1-25.
- KHANLARZADE, N., YOUSEFI YEGANE, B. & FARUGHI, H. 2022. Impact of the Government Policies and Green-packaging on the Profitability of the Members of a Dual-Channel Supply-chain. *Scientia Iranica*.
- KHARUB, M. & SHARMA, R. 2017. Comparative analyses of competitive advantage using Porter diamond model (the case of MSMEs in Himachal Pradesh). *Competitiveness Review: An International Business Journal*, 27, 132-160.
- KHASANAH, N., VAN NOORDWIJK, M., SLINGERLAND, M., SOFIYUDIN, M., STOMPH, D., MIGEON, A. F. & HAIRIAH, K. 2020. Oil palm agroforestry can achieve economic and environmental gains as indicated by multifunctional land equivalent ratios. *Frontiers in Sustainable Food Systems*, 3, 122.
- KHATIB, S. F. & NOUR, A. 2021. The impact of corporate governance on firm performance during the COVID-19 pandemic: Evidence from Malaysia. *Journal of Asian Finance, Economics and Business*, 8, 0943-0952.
- KHATIWADA, D., PALMÉN, C. & SILVEIRA, S. 2021. Evaluating the palm oil demand in Indonesia: production trends, yields, and emerging issues. *Biofuels*, 12, 135-147.
- KIMAIYO, K. K. & OCHIRI, G. 2014. Role of inventory management on performance of manufacturing firms in Kenya—a case of new Kenya cooperative creameries. *European Journal of Business Management*, 2, 336-341.
- KINYUA, J. K., GAKURE, R., GEKARA, M. & ORWA, G. 2015. Effect of internal control environment on the financial performance of companies quoted in the Nairobi

- Securities Exchange. *International Journal of Innovative Finance and Economics Research*, 3, 29-48.
- KLYUEV, R., BOSIKOV, I., GAVRINA, O., MADAEVA, M. & SOKOLOV, A. 2019. Improving the energy efficiency of technological equipment at mining enterprises. *Energy Management of Municipal Transportation Facilities and Transport*. Springer.
- KOGAN, L. & PAPANIKOLAOU, D. 2013. Firm characteristics and stock returns: The role of investment-specific shocks. *The Review of Financial Studies*, 26, 2718-2759.
- KONAK, F. & GÜNER, E. N. 2016. The impact of working capital management on firm performance: An empirical evidence from the BIST SME industrial index. *International Journal of Trade, Economics and Finance*, 7, 38-43.
- KONCHITCHKI, Y. & PATATOUKAS, P. N. 2014. Taking the pulse of the real economy using financial statement analysis: Implications for macro forecasting and stock valuation. *The Accounting Review*, 89, 669-694.
- KONSOLAS, I. 2017. *The competitive advantage of Greece: an application of Porter's diamond*, Routledge.
- KONUR, D., CAMPBELL, J. F. & MONFARED, S. A. 2017. Economic and environmental considerations in a stochastic inventory control model with order splitting under different delivery schedules among suppliers. *Omega*, 71, 46-65.
- KORANKYE, T. & ADARQUAH, R. S. 2013. Empirical analysis of working capital management and its impact on the profitability of listed manufacturing firms in Ghana. *Research Journal of Finance and Accounting*, 4, 124-131.
- KORENT, D. & ORSAG, S. 2018. The impact of working capital management on profitability of Croatian software companies. *Zagreb International Review of Economics & Business*, 21, 47-65.
- KORSAH, E., AMANAMAH, R. B. & GYIMAH, P. 2022. Drivers of foreign direct investment: new evidence from West African regions. *Journal of Business and Socio-economic Development*.
- KOSKEI, J. K., NGENO, V. & SANG, C. 2019. Headteachers technical competencies and financial performance: A critical analysis of public primary schools in Narok County, Kenya.
- KOSTOSKA, O. & HRISTOSKI, I. 2017. ICTs and innovation for competitiveness: Evidence for Western Balkans vis-à-vis the European Union. *Zbornik radova Ekonomskog fakulteta u Rijeci, časopis za ekonomsku teoriju i praksu-Proceedings of Rijeka Faculty of Economics, Journal of Economics and Business*, 35, 487-518.

- KOUWENHOVEN, G., REDDY NALLA, V. & LOSSONCZY VON LOSONCZ, T. 2012. Creating sustainable businesses by reducing food waste: a value chain framework for eliminating inefficiencies. *International Food and Agribusiness Management Review*, 15, 119-138.
- KOYI, N. P. & SIAMBA, D. 2017. Effect of marketing strategies on the dairy value chain returns and food and nutrition security in bungoma county, Kenya. *IOSR Journal of Agriculture and Veterinary Science*, 10, 45-56.
- KOZHAYA, R. 2020. A systematic review of contract farming, and its impact on broiler producers in Lebanon.
- KRSTIĆ, B., STANIŠIĆ, T. & RADIVOJEVIĆ, V. 2016a. The impact of innovativeness factors on the EU countries' competitiveness. *Industrija*, 44.
- KRSTIĆ, B., STANOJEVIĆ, J. & STANIŠIĆ, T. 2016b. Innovations as a determinant of competitiveness of Serbia: a comparative analysis with Western Balkan countries and the European Union. *Teme*, 1035-1050.
- KUDAMA, G., DANGIA, M., WANA, H. & TADESE, B. 2021. Will digital solution transform Sub-Sahara African agriculture? *Artificial Intelligence in Agriculture*, 5, 292-300.
- KUMAR, A. & SINGH, R. K. 2023. Supply chain management practices, retail outlets attributes and organisational performance: a case of organised food retailers in India. *Journal of Global Operations and Strategic Sourcing*, 16, 568-589.
- KUMAR, D. & RAJEEV, P. 2016. Value chain: a conceptual framework. *International journal of engineering and management sciences*, 7, 74-77.
- KUMAR, S., SANKHALA, G., KAR, P. & SHARMA, P. R. 2021. An appraisal of financial sustainability of dairy-based farmer producer companies in India. *Indian Journal of Extension Education*, 57, 115-119.
- KUMARI, P. & MISHRA, C. S. 2020. Value relevance of aggregated and disaggregated earnings in India: significance of intangible intensity. *Journal of International Accounting, Auditing and Taxation*, 39, 100321.
- KUMARI, P. & MISHRA, C. S. 2023. Value relevance of earnings and book value of equity in profit versus loss reporting firms: significance of intangible intensity. *Accounting Research Journal*, 36, 166-182.
- KUMATONGO, B. & MUZATA, K. K. 2021. Research paradigms and designs with their application in education. *Journal of Lexicography and Terminology (Online ISSN 2664-0899. Print ISSN 2517-9306)*. 5, 16-32.

- KUNADU, A. P.-H., HOLMES, M., MILLER, E. L. & GRANT, A. J. 2018. Microbiological quality and antimicrobial resistance characterization of Salmonella spp. in fresh milk value chains in Ghana. *International journal of food microbiology*, 277, 41-49.
- KUNG, F. H., HUANG, C. L. & CHENG, C. L. 2012. Assessing the green value chain to improve environmental performance: Evidence from Taiwan's manufacturing industry. *International Journal of Development Issues*, 11, 111-128.
- KURNIAWAN, M. E. H., YUDOKO, G. & BASRI, M. H. 2018. Competitive Advantages of Small Medium Industry on The Islands in Indonesian Context. *International Research Journal of Business Studies*, 11.
- KURTISHI-KASTRATI, S. 2013a. The Effects of Foreign Direct Investments for Host Country's Economy. *European Journal of Interdisciplinary Studies*, 5.
- KURTISHI-KASTRATI, S. 2013b. Impact of FDI on economic growth: An overview of the main theories of FDI and empirical research. *European Scientific Journal*, 9, 56-77.
- KUSHAIRI, A., LOH, S. K., AZMAN, I., HISHAMUDDIN, E., ONG-ABDULLAH, M., IZUDDIN, Z., RAZMAH, G., SUNDRAM, S. & PARVEEZ, G. K. A. 2018. Oil palm economic performance in Malaysia and R&D progress in 2017. *J. Oil Palm Res*, 30, 163-195.
- KUSHAIRI, A., ONG-ABDULLAH, M., NAMBIAPPAN, B., HISHAMUDDIN, E., BIDIN, M., GHAZALI, R., SUBRAMANIAM, V., SUNDRAM, S. & PARVEEZ, G. K. A. 2019. Oil palm economic performance in Malaysia and R&D progress in 2018. *Journal of Oil Palm Research*, 31, 165-194.
- KUSUMA, H. & DHIYAULLATIEF BACHTIAR, A. 2018. Working capital management and corporate performance: Evidence from Indonesia. *Central European Management Journal*, 26, 76-88.
- KWIZERA, A. 2016. *Impact of agricultural value chain financing smallholder farmers' livelihoods; case study: Rwanda rice value chain financing illustrated by Coopriki-Cyunuzi cooperative based in Gatore sector, Kirehe district, Rwanda eastern province.*
- KWIZERA, A. 2018. Agricultural value chain finance for smallholder farmers [Rwanda]. *CTA Experience Capitalization Series*.
- KYEREMEH, E. & DZA, M. 2018. Supply chain management and organization performance: A value creation perspective. *Archives of business research*, 6.

- L. WILSON, T., LINDBERGH, L. & GRAFF, J. 2014. The competitive advantage of nations 20 years later: the cases of Sweden, South Korea and the USA. *Competitiveness Review*, 24, 306-331.
- LAGHARI, F. & CHENGANG, Y. 2019. Investment in working capital and financial constraints: Empirical evidence on corporate performance. *International Journal of Managerial Finance*, 15, 164-190.
- LAHIRI, S. 2016. Does outsourcing really improve firm performance? Empirical evidence and research agenda. *International Journal of Management Reviews*, 18, 464-497.
- LALLANA, F., BRAVO, G., LE TREUT, G., LEFEVRE, J., NADAL, G. & DI SBROIACCA, N. 2021. Exploring deep decarbonization pathways for Argentina. *Energy Strategy Reviews*, 36, 100670.
- LANARI, N., BEK, D., TIMMS, J. & SIMKIN, L. 2021. In whose interests? Water risk mitigation strategies practiced by the fruit industry in South Africa's Western Cape. *Geoforum*, 126, 105-114.
- LANDE, A., PRASETIANINGRUM, S., PONTO, S. & PASOLO, M. R. 2022. Implementation of Accounting Information System For Raw Material Control. *Jurnal Mantik*, 6, 3471-3477.
- LARSSON, S. 2018. The sunflower value chain: a case study in Babati, Tanzania.
- LASALEWO, T., MASRUROH, N. A., HARTONO, B. & YUNIARTO, H. A. 2016. THE EFFECT OF COMPETITIVE ADVANTAGE AND HUMAN ADVANTAGE ON INDUSTRIAL COMPETITIVE STRATEGY (Case Study: SMIs in Gorontalo Province). *Journal of Indonesian Economy & Business*, 31.
- LAZARIDIS, I. & TRYFONIDIS, D. 2006. Relationship between working capital management and profitability of listed companies in the Athens stock exchange. *Journal of financial management and analysis*, 19.
- LE, B. 2019. Working capital management and firm's valuation, profitability and risk: Evidence from a developing market. *International Journal of Managerial Finance*, 15, 191-204.
- LE, H.-L., VU, K.-T., DU, N.-K. & TRAN, M. D. 2018. Impact of working capital management on financial performance: The case of Vietnam. *International Journal of Applied Economics, Finance and Accounting*, 3, 15-20.
- LEE, C. & CHAN-OLMSTED, S. M. 2004. Competitive advantage of broadband Internet: a comparative study between South Korea and the United States. *Telecommunications Policy*, 28, 649-677.

- LEE, H. W., CHRISTIE, A., LIU, J. J. & YOON, S. 2012a. Estimation of raw material performance in mammalian cell culture using near infrared spectra combined with chemometrics approaches. *Biotechnology progress*, 28, 824-832.
- LEE, J., GEREFFI, G. & BEAUVAIS, J. 2012b. Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *Proceedings of the National Academy of Sciences*, 109, 12326-12331.
- LEE, K.-T. & KWON, Y.-K. 2022. A mean-absolute-deviation based method for optimizing skid sequence in shipyard subassembly. *한국컴퓨터정보학회/논문지*, 27, 277-284.
- LEE, K., AZMI, N., HANAYSHA, J., ALZOUBI, H. & ALSHURIDEH, M. 2022. The effect of digital supply chain on organizational performance: An empirical study in Malaysia manufacturing industry. *Uncertain Supply Chain Management*, 10, 495-510.
- LEE, Y.-J. 2014. Evaluated weights affecting financial performances' key factors: as exemplified with listed IC design corporations in Taiwan. *Asian Journal of Empirical Research*, 4, 18-40.
- LEVIN, M. 1991. The reification-realism-positivism controversy in macromarketing: A philosopher's view. *Journal of Macromarketing*, 11, 57-65.
- LI, B., ZHU, M., JIANG, Y. & LI, Z. 2016. Pricing policies of a competitive dual-channel green supply chain. *Journal of Cleaner Production*, 112, 2029-2042.
- LI, F., FREDERICK, S. & GEREFFI, G. 2019. E-commerce and industrial upgrading in the Chinese apparel value chain. *Journal of Contemporary Asia*, 49, 24-53.
- LI, K., LEE, J.-Y. & GHAREHGOZLI, A. 2023. Blockchain in food supply chains: A literature review and synthesis analysis of platforms, benefits and challenges. *International Journal of Production Research*, 61, 3527-3546.
- LI, P., RAO, C., GOH, M. & YANG, Z. 2021a. Pricing strategies and profit coordination under a double echelon green supply chain. *Journal of cleaner production*, 278, 123694.
- LI, Q., ZHANG, Y. & HUANG, Y. 2020. The impacts of fairness concern and different business objectives on the complexity of dual-channel value chains. *Complexity*, 2020, 1-15.
- LI, Y., WANG, J. & LU, K. Study on Application of Big Data Technology to Operation of Fresh E-commerce. *Proceedings of the 2022 3rd International Conference on Internet and E-Business*, 2022a. 38-43.

- LI, Y., ZAMBRANO, F., WANG, Y. & MARQUEZ, R. 2022b. How China's foreign waste ban will reshape the US recycling supply chain: economic and environmental considerations towards a circular economy oriented paper recycling industry. *BioResources*, 17, 3178.
- LI, Z., PAN, Y., YANG, W., MA, J. & ZHOU, M. 2021b. Effects of government subsidies on green technology investment and green marketing coordination of supply chain under the cap-and-trade mechanism. *Energy Economics*, 101, 105426.
- LIANG, C. C., LIU, Y., TROY, C. & CHEN, W. W. 2020. Firm characteristics and capital structure: Evidence from ASEAN-4 economies. *Advances in pacific basin business, economics and finance*. Emerald Publishing Limited.
- LIANG, H., ZOU, J., LI, Z., KHAN, M. J. & LU, Y. 2019. Dynamic evaluation of drilling leakage risk based on fuzzy theory and PSO-SVR algorithm. *Future Generation Computer Systems*, 95, 454-466.
- LIANTO, B., DACHYAR, M. & SOEMARDI, T. P. 2022. Modelling the continuous innovation capability enablers in Indonesia's manufacturing industry. *Journal of Modelling in Management*, 17, 66-99.
- LIN, X.-Q., LÜ, Q.-F., LI, Q., WU, M. & LIU, R. 2018. Fabrication of low-cost and ecofriendly porous biocarbon using konjaku flour as the raw material for high-performance supercapacitor application. *ACS omega*, 3, 13283-13289.
- LIND, L., PIRTTILÄ, M., VISKARI, S., SCHUPP, F. & KÄRRI, T. 2012. Working capital management in the automotive industry: Financial value chain analysis. *Journal of purchasing and supply management*, 18, 92-100.
- LIU, A., XIAO, Y., LU, H., TSAI, S.-B. & SONG, W. 2019. A fuzzy three-stage multi-attribute decision-making approach based on customer needs for sustainable supplier selection. *Journal of Cleaner Production*, 239, 118043.
- LIU, J. Research on Supply Chain Optimization Strategy of Clothing Retail Industry under the Background of Big Data. 2018 8th International Conference on Management, Education and Information (MEICI 2018), 2018. Atlantis Press, 56-60.
- LIU, M., TAN, S., ZHANG, M., HE, G., CHEN, Z., FU, Z. & LUAN, C. 2020. Waste paper recycling decision system based on material flow analysis and life cycle assessment: A case study of waste paper recycling from China. *Journal of environmental management*, 255, 109859.

- LIU, Z., LI, K. W., TANG, J., GONG, B. & HUANG, J. 2021. Optimal operations of a closed-loop supply chain under a dual regulation. *International Journal of Production Economics*, 233, 107991.
- LIVERPOOL-TASIE, L. S. O., WINEMAN, A., YOUNG, S., TAMBO, J., VARGAS, C., REARDON, T., ADJOGNON, G. S., PORCIELLO, J., GATHONI, N. & BIZIKOVA, L. 2020. A scoping review of market links between value chain actors and small-scale producers in developing regions. *Nature Sustainability*, 3, 799-808.
- LONG, Q., TAO, X., CHEN, Y., CHEN, Y., XU, L., ZHANG, S. & ZHANG, J. 2022. Exploring combined effects of dominance structure, green sensitivity, and green preference on manufacturing closed-loop supply chains. *International Journal of Production Economics*, 251, 108537.
- LOURY-OKOUMBA, W. V. & MAFINI, C. 2021. Supply chain management antecedents of performance in small to medium scale enterprises. *South African Journal of Economic and Management Sciences*, 24, 1-13.
- LUND-THOMSEN, P. & LINDGREEN, A. 2014. Corporate social responsibility in global value chains: Where are we now and where are we going? *Journal of Business Ethics*, 123, 11-22.
- LUND, S., MANYIKA, J., WOETZEL, J., BARRIBALL, E. & KRISHNAN, M. 2020. Risk, resilience, and rebalancing in global value chains.
- LUND, S., MANYIKA, J., WOETZEL, J., BUGHIN, J. & KRISHNAN, M. 2019. Globalization in transition: The future of trade and value chains.
- LUVHENGO, U., SENYOLO, M., BELETE, A. & LEKUNZE, J. 2015. Resource Use Efficiency: A Stochastic Frontier Production Analysis of Smallholder Broiler Farmers in Capricorn District, Limpopo Province. *Journal of Human Ecology*, 52, 97-103.
- LUVHENGO, U., SENYOLO, M. & LEKUNZE, J. 2018. Productivity and value chain analysis in small-scale poultry farming: Stochastic frontier application. *Asia Life Sciences*, 27, 329-341.
- LWIKI, T., OJERA, P. B., MUGENDA, N. G. & WACHIRA, V. K. 2013. The impact of inventory management practices on financial performance of sugar manufacturing firms in Kenya. *International Journal of Business, Humanities and Technology*, 3, 75-85.
- MA, W., ABDUL-RAHAMAN, A. & ISSAHAKU, G. 2022. Welfare implications of participating in agri-value chains among vegetable farmers in Northern Ghana. *Agribusiness*.

- MABANDLA, N. Z. & MAKONI, P. L. 2019. Working capital management and financial performance: Evidence from listed food and beverage companies in South Africa. *Academy of Accounting and Financial Studies Journal*, 23, 1-10.
- MABUSELA, B. P., BELAY, Z. A., GODONGWANA, B., PATHAK, N., MAHAJAN, P. V., MATHABE, P. M. & CALEB, O. J. 2021. Trends in ethylene management strategies: towards mitigating postharvest losses along the South African value chain of fresh produce—a review. *South African Journal of Plant and Soil*, 38, 347-360.
- MACHETHE, T. A. 2016. *Economic and marketing analysis of smallholder broiler production in Mopani District of Limpopo Province, South Africa*. University of Limpopo.
- MADANI, S. R. & RASTI-BARZOKI, M. 2017. Sustainable supply chain management with pricing, greening and governmental tariffs determining strategies: A game-theoretic approach. *Computers & Industrial Engineering*, 105, 287-298.
- MADHANI, P. M. 2022. Big Data Analytics in Supply Chain Management: Dynamic Capabilities View. *IUP Journal of Supply Chain Management*, 19.
- MAESTRE, M., POOLE, N. & HENSON, S. 2017. Assessing food value chain pathways, linkages and impacts for better nutrition of vulnerable groups. *Food Policy*, 68, 31-39.
- MAHARDHIKA, A. S. & ZAKIYAH, T. 2020. Millennials' intention in stock investment: extended theory of planned behavior. *Riset Akuntansi dan Keuangan Indonesia*, 5, 83-91.
- MAHMOOD, F., HAN, D., ALI, N., MUBEEN, R. & SHAHZAD, U. 2019. Moderating effects of firm size and leverage on the working capital finance–profitability relationship: evidence from China. *Sustainability*, 11, 2029.
- MAHUTGA, M. C. 2012. When do value chains go global? A theory of the spatialization of global value chains. *Global Networks*, 12, 1-21.
- MAJUMDAR, A. & PAVONE, M. How should a robot assess risk? towards an axiomatic theory of risk in robotics. *Robotics Research: The 18th International Symposium ISRR*, 2020. Springer, 75-84.
- MAKARANI, K. & BINESHIAN, Z. 2013. An empirical study on the relationship between working capital management and profitability: A case study of Mehregan Sangesar Company. *Management Science Letters*, 3, 771-776.
- MAKONI, P. L. 2015. An extensive exploration of theories of foreign direct investment. *RISK GOVERNANCE & CONTROL: Financial markets and institutions*, 5, 77-83.

- MAKORI, D. M. & JAGONGO, A. 2013. Working capital management and firm profitability: Empirical evidence from manufacturing and construction firms listed on Nairobi securities exchange, Kenya. *International journal of accounting and taxation*, 1, 1-14.
- MAKULE, E., DIMOSO, N. & TASSOU, S. A. 2022. Precooling and cold storage methods for fruits and vegetables in Sub-Saharan Africa—A review. *Horticulturae*, 8, 776.
- MANDALA, J., SOEHADITAMA, J. P., HERNAWAN, M. A., YULIHAPSARI, I. U. & SOVA, M. 2023. Implementing the Capital Asset Pricing Model in Forecasting Stock Returns: A Literature Review. *Indonesian Journal of Business Analytics*, 3, 171-182.
- MANI, V., DELGADO, C., HAZEN, B. T. & PATEL, P. 2017. Mitigating supply chain risk via sustainability using big data analytics: Evidence from the manufacturing supply chain. *Sustainability*, 9, 608.
- MANOVA, K. Firms and credit constraints along the global value chain: Processing trade in China. CESifo Forum, 2014. München: ifo Institut-Leibniz-Institut für Wirtschaftsforschung an der ..., 8-11.
- MANOVA, K., YU, Z. & RESEARCH, N. B. O. E. 2012. *Firms and credit constraints along the global value chain: processing trade in China*, Citeseer.
- MANSOORI, D. E. & MUHAMMAD, D. 2012. The effect of working capital management on firm's profitability: Evidence from Singapore. *Interdisciplinary Journal of Contemporary Research in Business*, 4.
- MAPANGA, A., MIRUKA, C. O. & MAVETERA, N. 2018. Barriers to effective value chain management in developing countries: New insights from the cotton industrial value chain. *Problems and Perspectives in Management*, 16, 22-35.
- MARAI, M. & BAM, W. Developmental potential of the aerospace industry: the case of South Africa. 2019 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), 2019. IEEE, 1-9.
- MARKOVIC, M. R. 2019. Impact of globalization on competitiveness in Western Balkans. *Journal of Entrepreneurship and Business Resilience*, 2, 7-11.
- MARSDEN, T. & MORLEY, A. 2014. *Sustainable food systems: building a new paradigm*, Routledge.
- MARSHALL, D., MCCARTHY, L., MCGRATH, P. & CLAUDY, M. 2015. Going above and beyond: how sustainability culture and entrepreneurial orientation drive social sustainability supply chain practice adoption. *Supply chain management: an international journal*, 20, 434-454.

- MARTINIELLO, G. 2021. Bitter sugarification: sugar frontier and contract farming in Uganda. *Globalizations*, 18, 355-371.
- MASI, D., KUMAR, V., GARZA-REYES, J. A. & GODSELL, J. 2018. Towards a more circular economy: exploring the awareness, practices, and barriers from a focal firm perspective. *Production Planning & Control*, 29, 539-550.
- MASOLE, C., MPHOTHWE, G. K. & MOREKI, J. C. 2015. Value chain analysis of Botswana poultry industry: the case of Gaborone, Kgatleng, Kweneng and South East districts. *Journal of World's Poultry Resources*, 5, 64-72.
- MATAR, A., AL-RDAYDEH, M., AL-SHANNAG, F. & ODEH, M. 2018. Factors affecting the corporate performance: Panel data analysis for listed firms in Jordan. *Academy of Accounting and Financial Studies Journal*, 22, 1-10.
- MAURIS, F. I. & NORA, A. 2019. The effect of collateralizable assets, growth in net assets, liquidity, leverage and profitability on dividend policy. *Budapest International Research and Critics Institute (BIRCI-Journal)*, 4, 937-950.
- MAUSCH, K., HALL, A. & HAMBLOCH, C. 2020. Colliding paradigms and trade-offs: Agri-food systems and value chain interventions. *Global Food Security*, 26, 100439.
- MAZENDA, A., OBI, A. & MASIYA, T. 2022. The Contribution of the Small-Scale Agricultural Sector into South Africa's Food Value Addition Agenda. *The Palgrave Handbook of Africa's Economic Sectors*. Springer.
- MAZHAR, R., XUEHAO, B., VIIRA, A.-H., STAMENKOVSKA, I. J., NACKA, M., AZADI, H. & WEI, Z. 2022. Farmers' Participation in Modern Supply Chains: The Case of Mandarin Profitability in Punjab-Pakistan. *Horticulturae*, 8, 1041.
- MAZZAWI, R. & ALAWAMLEH, M. 2013. The impact of supply chain performance drivers and value chain on companies: a case study from the food industry in Jordan. *International journal of networking and virtual organisations*, 12, 122-132.
- MCGRATH, S., ZHAO, X., STEELE, R., THOMBS, B. D., BENEDETTI, A. & COLLABORATION, D. S. D. 2020. Estimating the sample mean and standard deviation from commonly reported quantiles in meta-analysis. *Statistical methods in medical research*, 29, 2520-2537.
- MCHOPA, A. D., JECKONIAH, J. N. & MGEMA, J. M. 2021. Smallholder Agriculture and Livelihood Sustainability Potentials among Rural Households: A Case of Sunflower Value Chain in Tanzania. *Journal of Social Sciences, Business and Technology (JSSBT)*, 2, 1-10.

- MCKAY, B. M. 2020. Control grabbing and value-chain agriculture: BRICS, MICs and Bolivia's soy complex. *BRICS and MICs: Implications for Global Agrarian Transformation*. Routledge.
- MCNABB, D. E. 2020. *Research methods for political science: quantitative, qualitative and mixed method approaches*, Routledge.
- MEHTA, A. 2014. Working capital management and profitability relationship-evidences from emerging markets of UAE. *International Journal of Management Excellence (ISSN: 2292-1648)*, 2, 195-202.
- MEKIĆ, E. & MEKIĆ, E. 2014. Supports and critiques on porter's competitive strategy and competitive advantage. *Regional Economic Development*, 24, 651.
- MEKONNEN, M. 2011. The impact of working capital management on firms' profitability. *Unpublished Master Thesis, Addis Ababa University: Ethiopia*.
- MENG, Q., LI, M., LIU, W., LI, Z. & ZHANG, J. 2021. Pricing policies of dual-channel green supply chain: Considering government subsidies and consumers' dual preferences. *Sustainable Production and Consumption*, 26, 1021-1030.
- MENICUCCI, E. 2018. The influence of firm characteristics on profitability: Evidence from Italian hospitality industry. *International Journal of Contemporary Hospitality Management*, 30, 2845-2868.
- MENON, S. & JAIN, K. 2021. Blockchain technology for transparency in agri-food supply chain: Use cases, limitations, and future directions. *IEEE Transactions on Engineering Management*.
- MERTON, R. C. & PEROLD, A. F. 2008. 7. Theory of Risk Capital in Financial Firms. *Corporate Risk Management*. Columbia University Press.
- MERTOVA, P. & WEBSTER, L. 2019. *Using narrative inquiry as a research method: An introduction to critical event narrative analysis in research, teaching and professional practice*, Routledge.
- MICHLER, J. D. & WU, S. Y. 2020. Relational contracts in agriculture: Theory and evidence. *Annual Review of Resource Economics*, 12, 111-127.
- MIGIRO, S. & AMBE, I. 2008. Evaluation of the implementation of public sector supply chain management and challenges: A case study of the central district municipality, North west province, South Africa. *African Journal of Business Management*, 2, 230.
- MIKLYAEV, M., JENKINS, G. & SHOBOWALE, D. 2020. Sustainability of agricultural crop policies in rwanda: an integrated cost-benefit analysis. *Sustainability*, 13, 48.

- MILLER, D. 2011. Miller (1983) revisited: A reflection on EO research and some suggestions for the future. *Entrepreneurship theory and practice*, 35, 873-894.
- MILNER, H. V. 2014. Introduction: The global economy, FDI, and the regime for investment. *World Politics*, 66, 1-11.
- MIYARE, S. 2014. *Supply chain management practices and profitability of Kenolkobil Limited*. University of Nairobi.
- MKHIZE, S., ATKINSON, BW & BUX, F. 2000. Evaluation of a laboratory-scale biological process for the treatment of edible oil effluent. *Water SA*, 26, 555-558.
- MODAK, N. M., MODAK, N., PANDA, S. & SANA, S. S. 2018. Analyzing structure of two-echelon closed-loop supply chain for pricing, quality and recycling management. *Journal of Cleaner Production*, 171, 512-528.
- MOFFATT, S. 2015. Contextualizing scientific research methodologies. *IOSR Journal of Research & Method in Education*, 5, 52-57.
- MOFOLO, L. 2018. *Financing agriculture for a more profitable rural economy*, CTA.
- MOHAMAD, N. E. A. B. & SAAD, N. B. M. 2010. Working capital management: The effect of market valuation and profitability in Malaysia. *International journal of Business and Management*, 5, 140.
- MOHAMED, E. & HUSSAIN, M. M. 2010. Impact of the nature & characteristics of organizations on non-financial performance measurement: the case of financial services industry. *Journal of Case Research in Business and Economics*, 2, 1.
- MOHAMMADI-IVATLOO, B., ZAREIPOUR, H., AMJADY, N. & EHSAN, M. 2012. Application of information-gap decision theory to risk-constrained self-scheduling of GenCos. *IEEE Transactions on Power Systems*, 28, 1093-1102.
- MOHAN, B. & SEQUEIRA, A. H. 2012. Linking Customer-Based Brand Equity with Business Performance—A Conceptual Framework. *AMET International Journal of Management*.
- MOLENDOWSKI, E. & ŻMUDA, M. 2013. Changes in competitiveness among the Visegrad countries after accession to the European Union: A comparative analysis based on a generalized double diamond model. *Comparative Economic Research. Central and Eastern Europe*, 16, 121-153.
- MONGRUT, S., FUENZALIDA O'SHEE, D., CUBILLAS ZAVALETA, C. & CUBILLAS ZAVALETA, J. 2014. Determinants of working capital management in Latin American companies. *Innovar*, 24, 5-18.

- MONIKA, C. M. & NOVIARI, N. 2021. The effects of financial distress, capital intensity, and audit quality on tax avoidance. *American Journal of Humanities and Social Sciences Research*, 6, 282-287.
- MOOSAVI, J. & HOSSEINI, S. 2021. Simulation-based assessment of supply chain resilience with consideration of recovery strategies in the COVID-19 pandemic context. *Computers & Industrial Engineering*, 160, 107593.
- MORAN, T. 2011. *Foreign direct investment and development: Launching a second generation of policy research: Avoiding the mistakes of the first, reevaluating policies for developed and developing countries*, Columbia University Press.
- MOREIRA, V. E., VERONEZE, R., SARAIVA, A., DUARTE, M. D. S., GUIMARAES, S. E., LOPES, M. S., BASTIAANSEN, J. W., SANTOS, G. A., CAMPOS, L. D. & CAMPOS, P. H. 2022. Growth performance, carcass and pork quality traits of growing-finishing pigs with high and low breeding values for residual feed intake fed diets with Macauba (*Acrocomia aculeata*) Pulp as alternative raw material. *Agriculture*, 12, 1860.
- MORENO-PENARANDA, R., GASPARATOS, A., STROMBERG, P., SUWA, A., PANDYASWARGO, A. H. & DE OLIVEIRA, J. A. P. 2015. Sustainable production and consumption of palm oil in Indonesia: What can stakeholder perceptions offer to the debate? *Sustainable Production and Consumption*, 4, 16-35.
- MOSS, A., CHRYSTAL, P., CROWLEY, T. & PESTI, G. 2021. Raw material nutrient variability has substantial impact on the potential profitability of chicken meat production. *Journal of Applied Poultry Research*, 30, 100129.
- MOUSSA, A. A. 2018. The impact of working capital management on firms' performance and value: Evidence from Egypt. *Journal of Asset Management*, 19, 259-273.
- MOUSSA, A. A. 2019. Determinants of working capital behavior: evidence from Egypt. *International journal of managerial finance*, 15, 39-61.
- MUCKSTADT, J. A. & SAPRA, A. 2010. *Principles of inventory management: When you are down to four, order more*, Springer Science & Business Media.
- MUFLIKH, Y. N., SMITH, C. & AZIZ, A. A. 2021. A systematic review of the contribution of system dynamics to value chain analysis in agricultural development. *Agricultural Systems*, 189, 103044.
- MUGENZI, P., OWOUR, G. & BETT, H. K. 2020. What Constrains Smallholder Farmers Decisions to Participate and use Agricultural Value Chain Financing in Rwanda? The Case of Smallholder Potato Farmers in Musanze and Nyabihu Districts.

- MUGWAGWA, I., BIJMAN, J. & TRIENEKENS, J. 2019. Why do agribusiness firms simultaneously source from different contract farming arrangements? Evidence from the soybean industry in Malawi. *International Food and Agribusiness Management Review*, 22, 79-96.
- MUHAMMAD, M., JAN, W. U. & ULLAH, K. 2012. Working Capital Management and Profitability An Analysis of Firms of Textile Industry of Pakistan. *Journal of Managerial Sciences*, 6.
- MUHAMMAD, S., JIBRIL, R., WAMBAL, U. S. K., IBRAHIM, F. B. & AHMAD, T. H. 2015. The effect of working capital management on corporate profitability: Evidence from Nigerian Food Product Firms. *Applied Finance and Accounting*, 1, 55-63.
- MUHORO, S. W. 2014. *Value chain practices and management at the Kenya Meat Commission*. University of Nairobi.
- MUJINO, M. & WIJAYA, A. 2021. THE INFLUENCE OF DIVIDEND POLICIES, DEBT POLICIES, PROFITABILITY, ASSET STRUCTURE, AND COMPANY SIZE ON THE VALUE OF MANUFACTURING COMPANIES IN BEI 2013-2019. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 5.
- MUKHERJEE, A. A., SINGH, R. K., MISHRA, R. & BAG, S. 2021. Application of blockchain technology for sustainability development in agricultural supply chain: Justification framework. *Operations Management Research*, 1-16.
- MUKHERJEE, S. P. 2019. A guide to research methodology: An overview of research problems, tasks and methods.
- MULCHANDANI, K., JASROTIA, S. S. & MULCHANDANI, K. 2023. Determining supply chain effectiveness for Indian MSMEs: A structural equation modelling approach. *Asia Pacific Management Review*, 28, 90-98.
- MULLER, C.-L. 2022. The effect of the Russia-Ukraine conflict on world edible oil prices. *Oilseeds Focus*, 8, 43-47.
- MÜLLER, C., VERMEULEN, W. J. & GLASBERGEN, P. 2009. Perceptions on the demand side and realities on the supply side: A study of the South African table grape export industry. *Sustainable Development*, 17, 295-310.
- MÜLLER, F., JAEGER, D. & HANEWINKEL, M. 2019. Digitization in wood supply—A review on how Industry 4.0 will change the forest value chain. *Computers and Electronics in Agriculture*, 162, 206-218.
- MULLER, M. 2019. *Essentials of inventory management*, HarperCollins Leadership.

- MUNGAI, Z. N. 2010. *The link between value chain and competitive advantage at Deloitte & Touche, Kenya.*
- MUNIZU, M. & RIYADI, S. 2021. An application of analytical hierarchy process (AHP) in formulating priority strategy for enhancing creative industry competitiveness. *Decision Science Letters*, 10, 443-450.
- MUSABA, E. C. & MSETEKA, M. 2014. Cost efficiency of small-scale commercial broiler production in Zambia: A stochastic cost frontier approach. *Developing Country Studies*, 4, 98-105.
- MUSARA, J., MUSEMWA, L., MUSHUNJE, A., MUTENJE, M. & PFUKWA, C. 2019. Sorghum value chain analysis in semi-arid Zimbabwe. *South African Journal of Agricultural Extension*, 47, 164-178.
- MUSHI, G. E., DI MARZO SERUGENDO, G. & BURGI, P.-Y. 2022. Digital technology and services for sustainable agriculture in Tanzania: A literature review. *Sustainability*, 14, 2415.
- MUSLIM, M. 2023. Analysis of Corporate Financial Performance Before and After Acquisition. *Advances in Management & Financial Reporting*, 1.
- MWAKAJILA, H. M. & NYELLO, R. M. 2021. Leadership Styles, Firm Characteristics and Business Financial Performance of Small and Medium Enterprises (SMEs) in Tanzania. *Open Journal of Business and Management*, 9, 1696-1713.
- MWALE, H. 2014. *Supply chain management practices and organizational performance of large manufacturing firms in Nairobi, Kenya.* University of Nairobi.
- MWANGI, L. 2016. *The effect of inventory management on firm profitability and operating cash flows of Kenya Breweries Limited, beer distribution firms in Nairobi County.*
- NABABAN, T. S. 2019. Development analysis of global competitiveness index of ASEAN-7 countries and its relationship on gross domestic product. *IJBE (Integrated Journal of Business and Economics)*, DOI, 10.
- NABI, M. N. U., LIZA, A. A., ISLAM, M. N. & AKTHER, F. 2023. A VALUE CHAIN ANALYSIS OF AGROFORESTRY PRODUCTS IN THE SOUTH-WESTERN REGION OF BANGLADESH. *Khulna University Studies*, 95-110.
- NABIPOUR, H., WANG, X., SONG, L. & HU, Y. 2023. A furan-derived epoxy thermoset with inherent anti-flammability, degradability, and raw material recycling. *Materials Today Chemistry*, 27, 101315.

- NAGALINGAM, N., KUMARAPPERUMA, C., MALINGA, J., AMANDA, H., PERERA, Y. & GAYANTHIKA, S. 2021. Firm integration performance: accounting and finance, marketing, logistics, and supply chain performance.
- NAHAEI, V. S., NOVIN, M. H. & KHALIGH, M. A. 2021. Review and prioritization of investment projects in the Waste Management organization of Tabriz Municipality with a Rough Sets Theory approach. *International Journal of Innovation in Management, Economics and Social Sciences*, 1, 46-57.
- NAHAR, A., MILA, F. A., CULAS, R. J. & AMIN, M. R. 2022. Assessing the factors and constraints for value chain development of dairy food products in Bangladesh. *Heliyon*, 8.
- NAIR, R. D. 2021. The spread and internationalisation of South African retail chains and the implications of market power. *Ownership and Governance of Companies*. Routledge.
- NAJIB, M. 2013. Internal sources of competitiveness in small and medium Indonesian food processing companies. *ASEAN Journal of Economics, Management and Accounting*, 1, 101-117.
- NANDA, S. & PANDA, A. K. 2018. The determinants of corporate profitability: an investigation of Indian manufacturing firms. *International Journal of Emerging Markets*, 13, 66-86.
- NAPOMPECH, K. 2012. Effects of working capital management on the profitability of Thai listed firms. *International Journal of Trade, Economics and Finance*, 3, 227-232.
- NARISWARI, T. N. & NUGRAHA, N. M. 2020. Profit growth: impact of net profit margin, gross profit margin and total assets turnover. *International Journal of Finance & Banking Studies (2147-4486)*, 9, 87-96.
- NASER, K., AL-KHATIB, K. & KARBHARI, Y. 2002. Empirical evidence on the depth of corporate information disclosure in developing countries: The case of Jordan. *International journal of commerce and management*, 12, 122-155.
- NASTITI, P. K. Y., ATAHAU, A. D. R. & SUPRAMONO, S. 2019. Working capital management and its influence on profitability and sustainable growth. *Business: Theory and Practice*, 20, 61-68.
- NAVEEN, B., JAYARAM, M., SWAMY, P. D., RAMESH, G. & RAGHAVENDRA, D. 2015. Marketing channels and price spread of banana in Chikkaballapur district of Karnataka. *International Research Journal of Agricultural Economics and Statistics*, 6, 18-22.

- NCHANJI, E. B., LUTOMIA, C. K., CHIRWA, R., TEMPLER, N., RUBYOGO, J. C. & ONYANGO, P. 2021. Immediate impacts of COVID-19 pandemic on bean value chain in selected countries in sub-Saharan Africa. *Agricultural systems*, 188, 103034.
- NCUBE, D. 2020. The importance of contract farming to small-scale farmers in Africa and the implications for policy: A review scenario. *The Open Agriculture Journal*, 14.
- NDIRANGU, P. 2021. *Effect of working capital management and firm characteristics on financial performance of listed agriculture firms in Kenya*. Strathmore University.
- NDIRANGUKUNG'U, J. 2016. Effects of inventory control on profitability of industrial and allied firms in Kenya. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 7, 9-15.
- NDUMBE, L. N., INGRAM, V., TCHAMBA, M. & NYA, S. 2019. From trees to money: The contribution of Njansang (*Riciodendron heudelotii*) products to value chain stakeholders' financial assets in the South West Region of Cameroon. *Forests, Trees and Livelihoods*, 28, 52-67.
- NECADOVA, M. & SCHOLLEOVA, H. 2012. Competitiveness and innovation performance of the Czech Republic in international rankings. *Research Journal of Economics, Business and ICT*, 4.
- NEGRI, M., CAGNO, E., COLICCHIA, C. & SARKIS, J. 2021. Integrating sustainability and resilience in the supply chain: A systematic literature review and a research agenda. *Business Strategy and the environment*, 30, 2858-2886.
- NENGSIH, M. K., GAYATRI, I., WAGINI, K. C. S. & INDRIASARI, N. Strategy of Developing: Five Competitive Force Model Case Study: SMEs Fajarwonk. BISIC 2020: Proceedings of the 3rd Beehive International Social Innovation Conference, BISIC 2020, 3-4 October 2020, Bengkulu, Indonesia, 2021. European Alliance for Innovation, 180.
- NEWTON, A. C., FLAVELL, A. J., GEORGE, T. S., LEAT, P., MULLHOLLAND, B., RAMSAY, L., REVOREDO-GIHA, C., RUSSELL, J., STEFFENSON, B. J. & SWANSTON, J. S. 2011. Crops that feed the world 4. Barley: a resilient crop? Strengths and weaknesses in the context of food security. *Food security*, 3, 141-178.
- NGUYEN, A. H., PHAM, H. T. & NGUYEN, H. T. 2020. Impact of working capital management on firm's profitability: Empirical evidence from Vietnam. *Journal of Asian Finance, Economics and Business*, 7, 115-125.
- NGUYEN, H.-C., TRAN, M.-D. & NGUYEN, D.-T. 2016. Working capital management and firms' profitability: Evidence from Vietnam's stock exchange. *International Journal of Economics and Finance*, 8, 55-62.

- NGUYEN, J., PARSONS, R. & ARGYLE, B. 2021. An examination of diversification on bank profitability and insolvency risk in 28 financially liberalized markets. *Journal of Behavioral and Experimental Finance*, 29, 100416.
- NGUYEN, T. N. L. & NGUYEN, V. C. 2020. The determinants of profitability in listed enterprises: a study from Vietnamese stock exchange. *Journal of Asian Finance, Economics and Business*, 7, 47-58.
- NIELSEN, I. E., MAJUMDER, S., SANA, S. S. & SAHA, S. 2019. Comparative analysis of government incentives and game structures on single and two-period green supply chain. *Journal of Cleaner Production*, 235, 1371-1398.
- NIGUSSIE, B. & BEKELE, M. 2021. Understanding Major Research Paradigms and its Essential Elements By: Chala Ayele Submitted for the requirement of the course Advanced Quantitative Research Methods and Applied Statistics (EPSM 811) Course Facilitator.
- NIKAKHTAR, N. & JIANZHENG, Y. 2012. Role of e-commerce in supply chain management to minimize costs. *African Journal of Business Management*, 6, 5671.
- NIKOLINA, S. 2019. Environmental impact of the textile and clothing industry: What consumers need to know.
- NIMOH, F., RICHMOND, A. R., ASIAMAHA, M., YEBOAH, B., AGYEKUM, I., KPE, P. & KOUAO, D. 2020. Financial performance and constraints in gari production in Kumasi, Ghana. *African Journal of Food, Agriculture, Nutrition and Development*, 20, 16085-16098.
- NIRESH, J. A. 2012. Working capital management & financial performance of manufacturing sector in Sri Lanka. *European journal of business and management*, 4, 23-30.
- NIU, Y., DENG, F. & HAO, A. W. 2020. Effect of entrepreneurial orientation, collectivistic orientation and swift Guanxi with suppliers on market performance: A study of e-commerce enterprises. *Industrial Marketing Management*, 88, 35-46.
- NJUGUNA, M. M. 2013. *Value Chain Management practices and Supply chain performance of large manufacturing firms in Nairobi*. University of Nairobi.
- NKUNDABANYANGA, S. K., MUGUMYA, E., NALUKENGE, I., MUHWEZI, M. & NAJJEMBA, G. M. 2020. Firm characteristics, innovation, financial resilience and survival of financial institutions. *Journal of Accounting in Emerging Economies*, 10, 48-73.

- NKWABI, J. M. 2019. Supply chain management constraints in Tanzanian small and medium enterprises. *African Journal of Business Management*, 13, 564-570.
- NNAMA-OKECHUKWU, C., AGWU, P. & OKOYE, U. 2020. Informal foster care practice in Anambra State, Nigeria and safety concerns. *Children and Youth Services Review*, 112, 104889.
- NNAMA-OKECHUKWU, C. U. & OKOYE, U. O. 2019. Rethinking institutional care using family-based alternative child care system for orphans and vulnerable children in Nigeria. *Journal of Social Work in Developing Societies*, 1.
- NOBANE, H. & HADDAD, A. E. 2014. Working capital management and corporate profitability of Japanese firms. *The Empirical Economics Letters*, 13.
- NOORT, M. W., RENZETTI, S., LINDERHOF, V., DU RAND, G. E., MARX-PIENAAR, N. J., DE KOCK, H. L., MAGANO, N. & TAYLOR, J. R. 2022. Towards sustainable shifts to healthy diets and food security in sub-saharan Africa with climate-resilient crops in bread-type products: a food system analysis. *Foods*, 11, 135.
- NOVAK, D. C., WU, Z. & DOOLEY, K. J. 2021. Whose resilience matters? Addressing issues of scale in supply chain resilience. *Journal of Business Logistics*, 42, 323-335.
- NUGRAHA, A., SUKARDI, S. & RIFIN, A. 2016. Efficiency of raw material inventories in improving supply chain performance of CV. Fiva Food. *Indonesian Journal of Business and Entrepreneurship (IJBE)*, 2, 23-23.
- NUGRAHA, N. M. & RIYADHI, M. R. 2019. The effect of cash flows, company size, and profit on stock prices in SOE companies listed on Bei for the 2013-2017 period. *International Journal of Innovation Creativity and Change*, 6, 130-141.
- NUGRAHENI, G. A. & MURTIN, A. 2019. Pengaruh Kepemilikan Saham dan Leverage Terhadap Agresivitas Pajak Perusahaan. *Reviu Akuntansi dan Bisnis Indonesia*, 3, 1-13.
- NUNNENKAMP, P. 2001. *Foreign direct investment in developing countries: What policymakers should not do and what economists don't know*, Kieler Diskussionsbeiträge.
- NURHAYATI, B. D., KUSMANTINI, T. & WAHYUNINGSIH, T. 2021. ANTECEDENTS AND IMPLICATIONS OF INNOVATION CAPABILITY: EMPIRICAL STUDY OF BAKPIA MSMES IN YOGYAKARTA. *Journal of Indonesian Economy & Business*, 36.

- NYABWANGA, R. N. & OJERA, P. 2012. Inventory management practices and business performance for small-scale enterprises in Kenya. *KCA Journal of Business Management*, 4, 11-28.
- NYAMAH, E. Y., ATTATSI, P. B., NYAMAH, E. Y. & OPOKU, R. K. 2022. Agri-food value chain transparency and firm performance: The role of institutional quality. *Production & Manufacturing Research*, 10, 62-88.
- NYARKO, F., YUSHENG, K. & ZHU, N. 2017. Corporate governance and performance of firms: An empirical evidence from the banking sector of Ghana. *Journal of Economics and International Business Management*, 5, 14-29.
- NYGAARD, I. & BOLWIG, S. 2018. The rise and fall of foreign private investment in the jatropha biofuel value chain in Ghana. *Environmental Science & Policy*, 84, 224-234.
- NYIATAGHER, Z. T. & OCHOLI, A. 2015. Profitability and marketing efficiency of maize in Kwande Local Government Area of Benue State, Nigeria. *Journal of Agribusiness and Rural Development*, 38, 803-810.
- O'TOOLE, C. M., LAWLESS, M. & LAMBERT, D. 2015. Non-bank financing in Ireland: A comparative perspective. *The Economic and Social Review*, 46, 133-161.
- OBERHOLSTER, C., ADENDORFF, C. & JONKER, K. 2015. Financing agricultural production from a value chain perspective: Recent evidence from South Africa. *Outlook on AGRICULTURE*, 44, 49-60.
- OBETEN, O. I. & OCHENI, S. 2014. Empirical study of the impact of corporate governance on the performance of financial institutions in Nigeria. *Journal of Good Governance and Sustainable Development in Africa*, 2, 57-73.
- OBIDZINSKI, K., ANDRIANI, R., KOMARUDIN, H. & ANDRIANTO, A. 2012. Environmental and social impacts of oil palm plantations and their implications for biofuel production in Indonesia. *Ecology and Society*, 17.
- OCHOLI, A. & AYILA, V. 2018. Determinants of technical efficiency of small-scale broiler production enterprises in Benue State, Nigeria. *Int. J. Agric. Vet. Sci*, 4, 4-17.
- OEHMKE, M. & OPP, M. M. 2022. A theory of socially responsible investment. *Swedish House of Finance Research Paper*.
- OGBO, A. I. & UKPERE, W. I. 2014. The impact of effective inventory control management on organisational performance: A study of 7up bottling company Nile Mile Enugu, Nigeria. *Mediterranean Journal of Social Sciences*, 5, 109.

- OGBUKE, N. J., YUSUF, Y. Y., DHARMA, K. & MERCANGOZ, B. A. 2022. Big data supply chain analytics: ethical, privacy and security challenges posed to business, industries and society. *Production Planning & Control*, 33, 123-137.
- OINO, I. 2019. Do disclosure and transparency affect bank's financial performance? *Corporate Governance: The international journal of business in society*, 19, 1344-1361.
- OKWARA, M., UMEBALI, E., AGU, F., UKOHA, I. & ANYANWU, U. 2019. Resource-use Efficiency in Small Scale Broiler Production in Owerri Municipal Council of Imo State, Nigeria. *Asian Journal of Agricultural Extension, Economics & Sociology*, 36, 1-7.
- OLIVEIRA, M. O. R. D., SONZA, I. B. & DA SILVA, T. S. 2023. Brand equity and company performance: evidence from a quasi-experiment in an emerging market. *Marketing Intelligence & Planning*, 41, 393-408.
- OLOSO, N. O., SMITH, P. W., ADEYEMO, I. A., ODEOKUN, I. A., ISOLA, T. O., FASANMI, O. G. & FASINA, F. O. 2020. The broiler chicken production value chain in Nigeria between needs and policy: situation analysis, action plan for development, and lessons for other developing countries. *CABI Reviews*.
- OMOMOWO, O. I. & BABALOLA, O. O. 2021. Constraints and prospects of improving cowpea productivity to ensure food, nutritional security and environmental sustainability. *Frontiers in Plant Science*, 12, 751731.
- OMULO, G. & KUMEH, E. M. 2020. Farmer-to-farmer digital network as a strategy to strengthen agricultural performance in Kenya: A research note on 'Wefarm' platform. *Technological Forecasting and Social Change*, 158, 120120.
- ONWUBOLU, G. C. & DUBE, B. 2006. Implementing an improved inventory control system in a small company: a case study. *Production Planning & Control*, 17, 67-76.
- ORGANIZATION, W. H. 2021. *The State of Food Security and Nutrition in the World 2021: Transforming food systems for food security, improved nutrition and affordable healthy diets for all*, Food & Agriculture Org.
- ORR, A. 2018. Killing the goose? The value chain for sorghum beer in Kenya. *Journal of Agribusiness in Developing and Emerging Economies*.
- ORR, A., GIEREND, A. & CHOUDHARY, D. 2017. Value chains for sorghum and millets in Eastern and Southern Africa: Priorities for the CGIAR research program for dryland cereals. Socioeconomics Discussion Paper Series.

- ORS, T., TAKIL, D. & ALTIN, M. 2015. Evaluating the financial performances of the enterprises operating in Istanbul stock exchange technology index.
- OTURAKCI, M. 2023. Comprehensive analysis of the global innovation index: statistical and strategic approach. *Technology Analysis & Strategic Management*, 35, 676-688.
- OUMA, E. A. & JAGWE, J. 2010. Banana value chains in Central Africa: constraints and opportunities.
- ÖZ, Ö. 2002. Assessing Porter's framework for national advantage: the case of Turkey. *Journal of Business Research*, 55, 509-515.
- ÖZ, Ö. 2019. *The Competitive Advantage of Nations: the case of Turkey: assessing Porter's framework for national advantage*, Routledge.
- OZDEMIR, D., SHARMA, M., DHIR, A. & DAIM, T. 2022. Supply chain resilience during the COVID-19 pandemic. *Technology in Society*, 68, 101847.
- PACHECO, P., GNYCH, S., DERMAWAN, A., KOMARUDIN, H. & OKARDA, B. 2017. The palm oil global value chain: Implications for economic growth and social and environmental sustainability.
- PADACHI, K. 2006. Trends in working capital management and its impact on firms' performance: an analysis of Mauritian small manufacturing firms. *International Review of business research papers*, 2, 45-58.
- PAHL, S., TIMMER, M. P., GOUMA, R. & WOLTJER, P. 2019. Jobs in global value chains: new evidence for four African countries in international perspective. *World Bank Policy research working paper*.
- PAIS, M. A. & GAMA, P. M. 2015. Working capital management and SMEs profitability: Portuguese evidence. *International journal of managerial finance*, 11, 341-358.
- PAKDEL, M. & ASHRAFI, M. 2019. Relationship between working capital management and the performance of firm in different business cycles. *Dutch Journal of Finance and Management*, 3, em0057.
- PAL, A. & KANT, K. 2019. Using blockchain for provenance and traceability in internet of things-integrated food logistics. *Computer*, 52, 94-98.
- PALMER, C. 2008. A theory of risk and resilience factors in military families. *Military Psychology*, 20, 205-217.
- PALTRINIERI, A., DREASSI, A., ROSSI, S. & KHAN, A. 2021. Risk-adjusted profitability and stability of Islamic and conventional banks: does revenue diversification matter? *Global Finance Journal*, 50, 100517.

- PANDA, A. K. & NANDA, S. 2018. Working capital financing and corporate profitability of Indian manufacturing firms. *Management Decision*, 56, 441-457.
- PANDA, S., MODAK, N. M. & CÁRDENAS-BARRÓN, L. E. 2020. Does extended warranty depict competitive advantage to a retailer in a retail-e-tail channel supply chain. *Computers & Industrial Engineering*, 149, 106770.
- PANDEY, V., PANT, M. & SNASEL, V. 2022. Blockchain technology in food supply chains: Review and bibliometric analysis. *Technology in Society*, 69, 101954.
- PANIGRAHI, C. & SHARMA, A. 2013. Working capital management and firms' performance: An analysis of selected Indian cement companies. *Asian Journal of Research in Business Economics and Management*, 3.
- PARIKH, S. & WEINGAST, B. R. 1997. Comparative Theory of Federalism: India, A. *Va. L. Rev.*, 83, 1593.
- PARVIN, M. M., ISLAM, N., ISLAM, F. & HABIBULLAH, M. 2013. An analysis of costs of production of banana and profitability at Narsingdi and Gazipur district in Bangladesh. *International journal of research in commerce, it & management*, 3.
- PATTIRUHU, J. R. & PAAIS, M. 2020. Effect of liquidity, profitability, leverage, and firm size on dividend policy. *The Journal of Asian Finance, Economics and Business (JAFEB)*, 7, 35-42.
- PAUL, J. & SINGH, G. 2017. The 45 years of foreign direct investment research: Approaches, advances and analytical areas. *The World Economy*, 40, 2512-2527.
- PAUL, P. & MITRA, P. 2018. Analysis of the effect of working capital management on profitability of the firm: Evidence from Indian steel industry. *Asia-Pacific Journal of Management Research and Innovation*, 14, 32-38.
- PEREVOZOVA, I., HORAL, L., MOKHNENKO, A., HRECHANYK, N., USTENKO, A., MALYNKA, O. & MYKHAILYSHYN, L. 2020. Integration of the supply chain management and development of the marketing system. *International Journal of Supply Chain Management*, 9, 496-507.
- PETTIT, T. J. 2008. *Supply chain resilience: development of a conceptual framework, an assessment tool and an implementation process*. The Ohio State University.
- PETTIT, T. J., CROXTON, K. L. & FIKSEL, J. 2013. Ensuring supply chain resilience: development and implementation of an assessment tool. *Journal of business logistics*, 34, 46-76.

- PETTIT, T. J., CROXTON, K. L. & FIKSEL, J. 2019. The evolution of resilience in supply chain management: a retrospective on ensuring supply chain resilience. *Journal of business logistics*, 40, 56-65.
- PETTIT, T. J., FIKSEL, J. & CROXTON, K. L. 2010. Ensuring supply chain resilience: development of a conceptual framework. *Journal of business logistics*, 31, 1-21.
- PHAM, N.-S. 2023. Intertemporal equilibrium with physical capital and financial asset: role of dividend taxation. *Mathematical Social Sciences*, 123, 95-104.
- PHOCHANIKORN, P. & TAN, C. 2019. A new extension to a multi-criteria decision-making model for sustainable supplier selection under an intuitionistic fuzzy environment. *Sustainability*, 11, 5413.
- PHUONG, N. & HUNG, D. 2020. Impact of working capital management on firm profitability: Empirical study in Vietnam. *Accounting*, 6, 259-266.
- PINDADO, J., DE QUEIROZ, V. & DE LA TORRE, C. 2010. How do firm characteristics influence the relationship between R&D and firm value? *Financial Management*, 39, 757-782.
- PIRTTILÄ, M., VIROLAINEN, V. M., LIND, L. & KÄRRI, T. 2020. Working capital management in the Russian automotive industry supply chain. *International Journal of Production Economics*, 221, 107474.
- PONO, M. & MUNIZU, M. 2021. The role of company competitiveness as mediation variable the impact of supply chain practices on operational performance. *Uncertain Supply Chain Management*, 9, 125-132.
- PONSIAN, N., CHRISPINA, K., TAGO, G. & MKIIBI, H. 2014. The effect of working capital management on profitability. *International Journal of Economics, Finance and Management Sciences*, 2, 347-355.
- PORTER, M. E. 1985. Technology and competitive advantage. *Journal of business strategy*.
- PORTER, M. E. 1986. Changing patterns of international competition. *California management review*, 28, 9-40.
- PORTER, M. E. 1990. The competitive advantage of nations. *Harvard business review*, 73, 91.
- PORTER, M. E. 2011. *Competitive advantage of nations: creating and sustaining superior performance*, simon and schuster.
- PORTER, M. E. & MILLAR, V. E. 1985. How information gives you competitive advantage. Harvard Business Review Reprint Service.

- POURAGHAJAN, A. & EMAMGHOLIPOURARCHI, M. 2012. Impact of working capital management on profitability and market evaluation: Evidence from Tehran Stock Exchange. *International Journal of Business and Social Science*, 3.
- PREMANANDH, J. 2011. Factors affecting food security and contribution of modern technologies in food sustainability. *Journal of the Science of Food and Agriculture*, 91, 2707-2714.
- PRIHASTIWI, N. 2022. Analysis of the Application of the Capital Asset Pricing Model (CAPM) Method to Final Decision in Share Investment. *Journal of Contemporary Information Technology, Management, and Accounting*, 3, 117-124.
- PROKOP, D., HUGGINS, R. & BRISTOW, G. 2019. The survival of academic spinoff companies: An empirical study of key determinants. *International Small Business Journal*, 37, 502-535.
- PROPPER, C. & VAN REENEN, J. 2010. Can pay regulation kill? Panel data evidence on the effect of labor markets on hospital performance. *Journal of Political Economy*, 118, 222-273.
- PUR, D., JÁČOVÁ, H. & HORÁK, J. 2015. An evaluation of selected assets and their impact on the declarative characteristic of ratio indicators in financial analyses.
- PURNOMO, H., OKARDA, B., DERMAWAN, A., ILHAM, Q. P., PACHECO, P., NURFATRIANI, F. & SUHENDANG, E. 2020. Reconciling oil palm economic development and environmental conservation in Indonesia: A value chain dynamic approach. *Forest Policy and Economics*, 111, 102089.
- PURNOMO, H., OKARDA, B., DEWAYANI, A. A., ALI, M., ACHDIAWAN, R., KARTODIHARDJO, H., PACHECO, P. & JUNIWAYTY, K. S. 2018. Reducing forest and land fires through good palm oil value chain governance. *Forest policy and economics*, 91, 94-106.
- PURWANTI, T. 2019. An analysis of cash and receivables turnover effect towards company profitability. *International Journal of Seocology*, 037–044-037–044.
- PUTRI, A. F. B., MARIMIN, M. & SAPTONO, I. T. 2018. Strategy for increasing working performance of broiler in the integrated poultry industries: study case in Sierad Produce Co. *Indonesian Journal of Business and Entrepreneurship (IJBE)*, 4, 261-261.
- PUTRI, I. G. A. P. T. & RAHYUDA, H. 2020. Effect of capital structure and sales growth on firm value with profitability as mediation. *International Research Journal of Management, IT and Social Sciences*, 7, 145-155.

- QAIM, M., SIBHATU, K. T., SIREGAR, H. & GRASS, I. 2020. Environmental, economic, and social consequences of the oil palm boom.
- QI, W., HUANG, Z., DINÇER, H., KORSAKIENÉ, R. & YÜKSEL, S. 2020. Corporate governance-based strategic approach to sustainability in energy industry of emerging economies with a novel interval-valued intuitionistic fuzzy hybrid decision making model. *Sustainability*, 12, 3307.
- QUADER, M. 2012. *Value chain analysis of black tiger shrimp culture in Cox'sBazar District, Bangladesh*. Universitetet i Tromsø.
- QUEENAN, K., SOBRATEE, N., DAVIDS, R., MABHAUDHI, T., CHIMONYO, M., SLOTOW, R., SHANKAR, B. & HÄSLER, B. 2020. A systems analysis and conceptual system dynamics model of the livestock-derived food system in South Africa: A tool for policy guidance. *Journal of agriculture, food systems, and community development*, 9.
- QUEIROZ, M. M., FOSSO WAMBA, S. & BRANSKI, R. M. 2022a. Supply chain resilience during the COVID-19: empirical evidence from an emerging economy. *Benchmarking: An International Journal*, 29, 1999-2018.
- QUEIROZ, M. M., WAMBA, S. F., JABBOUR, C. J. C. & MACHADO, M. C. 2022b. Supply chain resilience in the UK during the coronavirus pandemic: a resource orchestration perspective. *International Journal of Production Economics*, 245, 108405.
- QUENTIN, C. 2021. Gently down the stream: BEPS, value theory, and the allocation of profitability along global value chains. *World Tax Journal*, 13.
- QURESHI, M. E., DIXON, J. & WOOD, M. 2015. Public policies for improving food and nutrition security at different scales. *Food Security*, 7, 393-403.
- QUYNH, D. V. X. & HUY, N. H. 2018. Supply chain management practices, competitive advantages and firm performance: a case of small and medium enterprises (SMEs) in Vietnam. *Journal of Modern Accounting and Auditing*, 14, 136-146.
- RAHAYU, S. M. & SAIFI, M. 2019. The reciprocal relationship between profitability and capital structure and its impacts on the corporate values of manufacturing companies in Indonesia. *International Journal of Productivity and Performance Management*, 69, 236-251.
- RAHMAN, A., RICHARDS, R., DARGUSCH, P. & WADLEY, D. 2023. Pathways to reduce Indonesia's dependence on oil and achieve longer-term decarbonization. *Renewable Energy*, 202, 1305-1323.

- RAHMAN, M. H. 2020. Financial analysis of costco wholesale corporation: exploring the strengths and weaknesses. *The Bangladesh Journal of Agricultural Economics*, 41, 17-34.
- RAI, J. S., ITANI, M. N., DWYER, B. & SINGH, A. 2023. The Impact of Fantasy Cricket Motivational Factors on Participants' Media and Gambling Consumption Behaviour: Fantasy Team Attachment as a Mediator. *Journal of Global Sport Management*, 1-24.
- RAI, J. S., YOUSAF, A., ITANI, M. N. & SINGH, A. 2021. Sports celebrity personality and purchase intention: the role of endorser-brand congruence, brand credibility and brand image transfer. *Sport, Business and Management: An International Journal*, 11, 340-361.
- RAJNOHA, R., LESNIKOVA, P., STEFKO, R., SCHMIDTOVA, J. & FORMANEK, I. 2019. Transformations in strategic business planning in the context of sustainability and business goals setting. *Transformations in business & Economics*, 18, 44-66.
- RAJPUT, N., KHANNA, M. A. & OBEROI, S. 2012. Global innovation index and its impact on GDP of BRICS nations-innovation linkages with economic growth: An empirical study. *Global Journal of Enterprise Information System*, 4, 35-44.
- RANATHILAKA, M., LASHMI, N. & ATUKORALA, W. 2018. A Cost Benefit Analysis On Production And Marketing Of Banana: Base On Walawa Region In Sri Lanka. *Journal of Smart Economic Growth*, 3, 69-83.
- RANATHILAKA, M., LASHMI, N. & ATUKORALA, W. 2019. PRODUCTION AND MARKETING OF BANANA:: ESTIMATING THE PROFITABILITY USING WALAWA REGION IN SRI LANKA. *Jbfem*, 2, 23-32.
- RANDALL, W. S. & FARRIS, M. T. 2009. Supply chain financing: using cash-to-cash variables to strengthen the supply chain. *International Journal of Physical Distribution & Logistics Management*.
- RAO, P. & HOLT, D. 2005. Do green supply chains lead to competitiveness and economic performance? *International journal of operations & production management*, 25, 898-916.
- RAPP, M. S. 2010. Information asymmetries and the value-relevance of cash flow and accounting figures—empirical analysis and implications for managerial accounting. *Problems and Perspectives in Management*, 8.
- RASHID, S., TEFERA, N., MINOT, N. & AYELE, G. 2013. Fertilizer in Ethiopia: An assessment of policies, value chain, and profitability.

- RAUGEI, M., PELUSO, A., LECCISI, E. & FTHENAKIS, V. 2020. Life-cycle carbon emissions and energy return on investment for 80% domestic renewable electricity with battery storage in California (USA). *Energies*, 13, 3934.
- RAUT, R. D., LUTHRA, S., NARKHEDE, B. E., MANGLA, S. K., GARDAS, B. B. & PRIYADARSHINEE, P. 2019. Examining the performance oriented indicators for implementing green management practices in the Indian agro sector. *Journal of Cleaner Production*, 215, 926-943.
- RAY, A., KUMAR, V., KUMAR, A., RAI, R., KHANDELWAL, M. & SINGH, T. 2020. Stability prediction of Himalayan residual soil slope using artificial neural network. *Natural Hazards*, 103, 3523-3540.
- RAY, R. 2021. Testimony before the US-China Economic and Security Review Commission China in Latin America and the Caribbean Introduction.
- RAY, S. 2012. Evaluating the impact of working capital management components on corporate profitability: evidence from Indian manufacturing firms. *International Journal of Economic Practices and Theories*, 2, 127-136.
- RAZA, M. Y., BASHIR, M., LATIF, K., SHAH, T. S. & AHMED, M. 2015. Impact of working capital management on profitability: Evidence from Pakistan oil sector. *International Journal of Accounting and Financial Reporting*, 5.
- RAZA, S. A., JAWAID, S. T., ARIF, I. & QAZI, F. 2011. Validity of capital asset pricing model in Pakistan: Evidence from Karachi Stock Exchange. *African Journal of Business Management*, 5, 12598-12605.
- RAZAVI, S., MOSTAFA, G., ROHOLLAH, A. & KASHANI, M. 2011. Relationship between technological readiness and innovation: A secondary analysis of countries global competitiveness. *European Journal of Scientific Research*, 59, 318-328.
- RAZAVI, S. M., ABDOLLAHI, B., GHASEMI, R. & SHAFIE, H. 2012. Relationship between innovation and business sophistication: A secondary analysis of countries global competitiveness. *European Journal of Scientific Research*, 79, 29-39.
- REARDON, T., ECHEVERRIA, R., BERDEGUÉ, J., MINTEN, B., LIVERPOOL-TASIE, S., TSCHIRLEY, D. & ZILBERMAN, D. 2019. Rapid transformation of food systems in developing regions: Highlighting the role of agricultural research & innovations. *Agricultural systems*, 172, 47-59.
- REHMAN, A., KHAN, F. U. & HUSSAIN, A. 2019. Testing GDP for the moderating effect in the relationship of firm characteristics and risk disclosure quality in banking sector of Pakistan. *Pakistan Business Review*, 20, 971-984.

- REHMAN, M. A., SETH, D. & SHRIVASTAVA, R. 2016. Impact of green manufacturing practices on organisational performance in Indian context: an empirical study. *Journal of cleaner production*, 137, 427-448.
- REJEB, A., KEOGH, J. G., ZAILANI, S., TREIBLMAIER, H. & REJEB, K. 2020. Blockchain technology in the food industry: A review of potentials, challenges and future research directions. *Logistics*, 4, 27.
- REN, T., LIU, N., YANG, H., XIAO, Y. & HU, Y. 2019. Working capital management and firm performance in China. *Asian Review of Accounting*.
- REZAEI, M. & POURALI, M. R. 2015. The relationship between working capital management components and profitability: Evidence from Iran. *European Online Journal of Natural and Social Sciences: Proceedings*, 4, pp. 342-351.
- RIYADI, S., NUGROHO, M. & ARIF, D. 2021. The effect of supply network and management control system on the efficiency and profitability of manufacturing companies. *Uncertain Supply Chain Management*, 9, 963-972.
- RIZKI, M. K., AGRIYANTO, R. & FARIDA, D. N. 2019. The effect of sustainability report and profitability on company value: Evidence from Indonesian Sharia shares. *Economica: Jurnal Ekonomi Islam*, 10, 117-140.
- RL, M. & MISHRA, A. K. 2022. Measuring financial performance of Indian manufacturing firms: application of decision tree algorithms. *Measuring Business Excellence*, 26, 288-307.
- ROCHMAH, H. N. & ARDIANTO, A. 2020. Catering dividend: Dividend premium and free cash flow on dividend policy. *Cogent Business & Management*, 7, 1812927.
- ROESPINOEDJI, D., AFGHAN PRAWIRA, E., SOLIHIN, I., SAUDI, M. H. M. & ALAEDDIN, O. 2019. Determinants of supply chain performance: Moderating role of firm size in tourism hotel industry in Indonesia. *International Journal of Supply Chain Management*, 8, 219-230.
- ROKO, L. P. & OPUSUNJU, M. I. 2016. Value chain and performance in agro allied small and medium scale enterprise in Sokoto State, Nigeria. *International Journal of Business and Social Research*, 6, 08-19.
- ROLDAN, M. B., FROMM, I. & AIDOO, R. 2013. From producers to export markets: the case of the cocoa value chain in Ghana. *Journal of African Development*, 15, 121-138.
- ROOSTIKA, R., WAHYUNINGSIH, T. & HARYONO, S. 2015. The impacts of external competitiveness factors in the handicrafts industry. *Polish Journal of Management Studies*, 12, 166-176.

- ROS-TONEN, M. A., BITZER, V., LAVEN, A., DE LETH, D. O., VAN LEYNSEELE, Y. & VOS, A. 2019. Conceptualizing inclusiveness of smallholder value chain integration. *Current opinion in environmental sustainability*, 41, 10-17.
- ROS-TONEN, M. A., REED, J. & SUNDERLAND, T. 2018. From synergy to complexity: the trend toward integrated value chain and landscape governance. *Environmental Management*, 62, 1-14.
- ROSDIANA, R. 2023. Analysis of Capital Asset Pricing Models: Evidence from the Bank Sector on the Indonesia Stock Exchange (IDX). *International Journal of Business and Economic Studies*, 5, 1-15.
- ROSEGRANT, M. W., KOO, J., CENACCHI, N., RINGLER, C., ROBERTSON, R. D., FISHER, M., COX, C. M., GARRETT, K., PEREZ, N. D. & SABBAGH, P. 2014. *Food security in a world of natural resource scarcity: The role of agricultural technologies*, Intl Food Policy Res Inst.
- ROUBÍK, H., LOŠŤÁK, M., KETUAMA, C. T., PROCHÁZKA, P., SOUKUPOVÁ, J., HAKL, J., KARLÍK, P. & HEJCMAN, M. 2022. Current coronavirus crisis and past pandemics-What can happen in post-COVID-19 agriculture? *Sustainable Production and Consumption*, 30, 752-760.
- ROVANTO, I. K. & BASK, A. 2021. Systemic circular business model application at the company, supply chain and society levels—A view into circular economy native and adopter companies. *Business Strategy and the Environment*, 30, 1153-1173.
- ROY, H., JIRLI, B. & MAJI, S. 2023. Comparative Financial Performance Analysis of Farmer Producer Companies in Eastern Uttar Pradesh. *Economic Affairs*, 68, 479-490.
- ROY, P. & GHOSH, S. 2022. Perceived marketing system effectiveness by pineapple growers in Tripura. *Indian Journal of Extension Education*, 58, 24-28.
- ROY, R. & RAHMAN, M. A. 2022. ASSESSMENT OF MANGO VALUE CHAIN IN BANGLADESH. *SAARC Journal of Agriculture*, 20.
- ROY, S. 2018. Impact of competitiveness drivers on global competitiveness index. *Pacific Business Review International*, 11, 17-29.
- ROY, S. & KEMME, D. M. 2020. The run-up to the global financial crisis: A longer historical view of financial liberalization, capital inflows, and asset bubbles. *International Review of Financial Analysis*, 69, 101377.
- ROZ, K. 2021. Supply Chain Management: A Study on Competitive Advantage Relationship and Operational Performance during Pandemic Covid 19 in Indonesia. *International Business Research*, 14, 34-40.

- RUBEN, R., CAVATASSI, R., LIPPER, L., SMALING, E. & WINTERS, P. 2021. Towards food systems transformation—five paradigm shifts for healthy, inclusive and sustainable food systems. *Food Security*, 13, 1423-1430.
- RUEL, S. & EL BAZ, J. 2023. Disaster readiness' influence on the impact of supply chain resilience and robustness on firms' financial performance: A COVID-19 empirical investigation. *International Journal of Production Research*, 61, 2594-2612.
- RUGGERI, K., ALÍ, S., BERGE, M. L., BERTOLDO, G., BJØRNDAL, L. D., CORTIJOS-BERNABEU, A., DAVISON, C., DEMIĆ, E., ESTEBAN-SERNA, C. & FRIEDEMANN, M. 2020. Replicating patterns of prospect theory for decision under risk. *Nature human behaviour*, 4, 622-633.
- RUGMAN, A. M. & D'CRUZ, J. R. 1993. The" double diamond" model of international competitiveness: The Canadian experience. *MIR: Management International Review*, 17-39.
- RUKASHA, T., NYAGADZA, B., PASHAPA, R. & MUPOSHI, A. 2021. Covid-19 impact on Zimbabwean agricultural supply chains and markets: A sustainable livelihoods perspective. *Cogent Social Sciences*, 7, 1928980.
- RUPA, R. A. & SAIF, A. N. M. 2022. Impact of green supply chain management (GSCM) on business performance and environmental sustainability: case of a developing country. *Business Perspectives and Research*, 10, 140-163.
- RUSANESCU, M. 2014. ABC analysis, model for classifying inventory. *Hidraulica*, 17.
- SÁ, M. M. D., MIGUEL, P. L. D. S., BRITO, R. P. D. & PEREIRA, S. C. F. 2020. Supply chain resilience: the whole is not the sum of the parts. *International Journal of Operations & Production Management*, 40, 92-115.
- SACHLAS, A., BERSIMIS, S. & PSARAKIS, S. 2019. Risk-adjusted control charts: theory, methods, and applications in health. *Statistics in Biosciences*, 11, 630-658.
- SADEGHI, S., RASOULI, N. & JANDAGHI, G. 2016. Identifying and prioritizing contributing factors in supply chain competitiveness by using PLS-BWM techniques (case study: Payam shoes company). *World Scientific News*, 49, 117-143.
- SADIQ, M., SINGH, I., LAWAL, M., AHMAD, M. & MUHAMMAD, H. 2018. Efficiency of productive resources used in backyard poultry farms in Niger State of Nigeria. *Journal Science & Technology*, 4, 1-11.
- SAGE, C. 2013. The interconnected challenges for food security from a food regimes perspective: Energy, climate and malconsumption. *Journal of rural studies*, 29, 71-80.

- SAITONE, T. L. & SEXTON, R. J. 2017. Agri-food supply chain: evolution and performance with conflicting consumer and societal demands. *European Review of Agricultural Economics*, 44, 634-657.
- SAKO, M. & ZYLBERBERG, E. 2019. Supplier strategy in global value chains: Shaping governance and profiting from upgrading. *Socio-Economic Review*, 17, 687-707.
- SALEH, I. & ABU AFIFA, M. 2020. The effect of credit risk, liquidity risk and bank capital on bank profitability: Evidence from an emerging market. *Cogent Economics & Finance*, 8, 1814509.
- SALEHI, M., MAHDAVI, N., ZARIF AGAHI DARI, S. & TARIGHI, H. 2019. Association between the availability of financial resources and working capital management with stock surplus returns in Iran. *International Journal of Emerging Markets*, 14, 343-361.
- SALMAN, A., FOLAJIN, O. O. & ORIOWO, A. 2014. Working capital management and profitability: A study of selected listed manufacturing companies in Nigerian Stock Exchange. *International Journal of Academic Research in Business and Social Sciences*, 4, 287.
- SAMILOGLU, F. & AKGÜN, A. İ. 2016. The relationship between working capital management and profitability: Evidence from Turkey. *Business and Economics Research Journal*, 7, 1.
- SANCHÍS-PEDREGOSA, C., PALACÍN-SÁNCHEZ, M.-J. & GONZÁLEZ-ZAMORA, M.-D.-M. 2014. Exploring the financial impact of outsourcing services strategy on manufacturing firms. *Operations Management Research*, 7, 77-85.
- SANDERS, N. R. 2014. *Big data driven supply chain management: A framework for implementing analytics and turning information into intelligence*, Pearson Education.
- SANDOVAL, R. C., ROCHE, M., BELAUSTEGUIGOITIA, I., ALVARADO, M., GALICIA, L., GOMES, F. S. & PARAJE, G. 2021. Excise taxes on sugar-sweetened beverages in Latin America and the Caribbean. *Revista Panamericana de Salud Pública*, 45, e21.
- SANE ZERANG, E., TALEIZADEH, A. A. & RAZMI, J. 2018. Analytical comparisons in a three-echelon closed-loop supply chain with price and marketing effort-dependent demand: game theory approaches. *Environment, development and sustainability*, 20, 451-478.

- SANG, B. 2021. Application of genetic algorithm and BP neural network in supply chain finance under information sharing. *Journal of Computational and Applied Mathematics*, 384, 113170.
- SANGOLKAR, U. 2012. A study of banana production and marketing in Wardha district of Maharashtra. *International Research Journal of Agricultural Economics and Statistics*, 3, 72-76.
- SANTINI, A. L. & INDRAYANI, E. 2020. the Effect of Profitability, Liquidity, Leverage, Capital Intensity and Firm Size on Tax Aggressiveness With Market Performance As an Intervening Variable (Banking Companies Listed on Indonesia Stock Exchange in 2014-2018). *Jurnal Ilmiah Ekonomi Bisnis*, 25, 290-303.
- SAPUTRA, F. 2022. Analysis of Total Debt, Revenue and Net Profit on Stock Prices of Foods And Beverages Companies on the Indonesia Stock Exchange (IDX) Period 2018-2021. *Journal of Accounting and Finance Management*, 3, 10-20.
- SARI, D. 2021. The effect of leverage, profitability and company size on tax avoidance (an empirical study on mining sector companies listed on Indonesia Stock Exchange Period 2013-2019). *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12, 860-868.
- SARI, D. P., NABELLA, S. D. & FADLILAH, A. H. 2022. The effect of profitability, liquidity, leverage, and activity ratios on dividend policy in manufacturing companies in the food and beverage industry sector listed on the Indonesia Stock Exchange in the 2016-2020 period. *Jurnal Mantik*, 6, 1365-1375.
- SARI, I. A. G. D. M. & SEDANA, I. B. P. 2020. Profitability and liquidity on firm value and capital structure as intervening variable. *International research journal of management, IT and Social Sciences*, 7, 116-127.
- SARJA, M., ONKILA, T. & MÄKELÄ, M. 2021. A systematic literature review of the transition to the circular economy in business organizations: Obstacles, catalysts and ambivalences. *Journal of Cleaner Production*, 286, 125492.
- SATRIONO, B., PROFITA, A. & SITANIA, F. D. 2020. Perancangan dan Pengukuran Kinerja Perusahaan Berbasis Kerangka Agri-Food Supply Chain. *Jurnal INTECH Teknik Industri Universitas Serang Raya*, 6, 123-131.
- SAVITRI, D. A. M. & RAHMAWATI, I. N. 2017. Pengaruh leverage, intensitas persediaan, intensitas aset tetap, dan profitabilitas terhadap agresivitas pajak. *Jurnal Ilmu Manajemen dan Akuntansi Terapan (JIMAT)*, 8, 19-32.

- SAZEGAR, M., FOROUHARFAR, A., HILL, V. & FAGHIH, N. 2018. The innovation-based competitive advantage in Oman's transition to a knowledge-based economy: dynamics of innovation for promotion of entrepreneurship. *Entrepreneurship Ecosystem in the Middle East and North Africa (MENA) Dynamics in Trends, Policy and Business Environment*, 491-518.
- SCANDELIUS, C. & COHEN, G. 2016. Sustainability program brands: Platforms for collaboration and co-creation. *Industrial Marketing Management*, 57, 166-176.
- SCHERER, C. W. & CHO, H. 2003. A social network contagion theory of risk perception. *Risk Analysis: An International Journal*, 23, 261-267.
- SCHMIDTHUBER, L., HILGERS, D. & HOFMANN, S. 2022. International Public Sector Accounting Standards (IPSASs): A systematic literature review and future research agenda. *Financial Accountability & Management*, 38, 119-142.
- SCHRÖDER, P., ALBALADEJO, M., RIBAS, P. A., MACEWEN, M. & TILKANEN, J. 2020. The circular economy in Latin America and the Caribbean. *The Royal Institute of International Affairs, Chatham House: London, UK*.
- SEKEROGLU, G. & ALTAN, M. 2014. The relationship between inventory management and profitability: A comparative research on Turkish firms operated in weaving industry, eatables industry, wholesale and retail industry. *International Journal of Mechanical and Industrial Engineering*, 8, 1698-1703.
- SELOMO, M. R. & GOVENDER, K. K. 2016. Procurement and supply chain management in Government Institutions: A case study of select Departments in the Limpopo province, South Africa. *Dutch Journal of Finance and Management*, 1, 37.
- SEMAN, N. A. A., ZAKUAN, N., JUSOH, A., ARIF, M. S. M. & SAMAN, M. Z. M. 2012. The relationship of green supply chain management and green innovation concept. *Procedia-Social and Behavioral Sciences*, 57, 453-457.
- SENSINI, L. 2020. Working capital management and performance: evidence from Italian SME's. *International Journal of Business Management and Economic Research (IJBMER)*, 11, 1749-1755.
- SENSINI, L. & VAZQUEZ, M. 2021. Effects of Working Capital Management on SME Profitability: Evidence from an emergent economy. *International Journal of Business and Management*, 16, 85-95.
- SEONG, B.-H. & HONG, C.-Y. 2021. Does risk awareness of COVID-19 affect visits to national parks? Analyzing the tourist decision-making process using the theory of

- planned behavior. *International Journal of Environmental Research and Public Health*, 18, 5081.
- SETIANTO, R. H., SIPAYUNG, R. S. & AZMAN-SAINI, W. N. 2022. Working capital financing and corporate profitability in the ASEAN region: The role of financial development. *Entrepreneurial Business and Economics Review*, 10, 51-64.
- SETIAWAN, S., ARIF, D., MAHMUDAH, S., AGUSTINA, H. & MARTAH, V. 2021. The effect of supply chain management on multi-channel retailing and business performance. *Uncertain Supply Chain Management*, 9, 823-830.
- SETYANTI, S. W. L. H. 2017. The quadruple helix model: enhancing innovative performance of Indonesian creative industry.
- SHAFIQ, M., TASMIN, R. & QURESHI, M. I. 2019a. A developed framework of mediating role of inbound innovation strategy between bos and innovation performance. *International Journal of Engineering and Advanced Technology*, 8, 1375-1381.
- SHAFIQ, M., TASMIN, R., QURESHI, M. I. & TAKALA, J. 2019b. A new framework of blue ocean strategy for innovation performance in manufacturing sector. *International Journal of Engineering and Advanced Technology*, 8, 1382-1389.
- SHAFIQ, M., TASMIN, R., TAKALA, J., QURESHI, M. I. & RASHID, M. 2018. Mediating role of open innovation between the relationship of Blue Ocean Strategy and innovation performance, a study of Malaysian industry.
- SHAFIQUE, M., ASGHAR, M. & RAHMAN, H. 2017. The impact of green supply chain management practices on performance: Moderating role of institutional pressure with mediating effect of green innovation. *Business, Management and Economics Engineering*, 15, 91-108.
- SHAHID, A., ALMOGREN, A., JAVAID, N., AL-ZAHRANI, F. A., ZUAIR, M. & ALAM, M. 2020. Blockchain-based agri-food supply chain: A complete solution. *Ieee Access*, 8, 69230-69243.
- SHAO, R., WU, C. & LI, J. 2022. A comprehensive review on dry concrete: Application, raw material, preparation, mechanical, smart and durability performance. *Journal of Building Engineering*, 55, 104676.
- SHARMA, A. K. & KUMAR, S. 2011. Effect of working capital management on firm profitability: Empirical evidence from India. *Global business review*, 12, 159-173.
- SHARMA, M., DHAKAL, S. C., ADHIKARI, R. K. & TIWARI, U. 2021. Competitiveness of banana value chain along Hetauda-Dumkibas road corridor, Nepal: An eclectic approach. *Archives of Agriculture and Environmental Science*, 6, 42-53.

- SHARMA, S. & UPADHAYAYA, S. 2020. Marketing Of Mandarin Orange In Jajarkot District: A Value Chain Analysis. *Malaysian E Commerce Journal (MECJ)*, 4, 5-8.
- SHARPE, W. F. 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, 19, 425-442.
- SHEN, Z. M. & SUN, Y. 2023. Strengthening supply chain resilience during COVID-19: A case study of JD. com. *Journal of Operations Management*, 69, 359-383.
- SHIFERAW, B., PRASANNA, B. M., HELLIN, J. & BÄNZIGER, M. 2011. Crops that feed the world 6. Past successes and future challenges to the role played by maize in global food security. *Food security*, 3, 307-327.
- SHIFERAW, B., SMALE, M., BRAUN, H.-J., DUVEILLER, E., REYNOLDS, M. & MURICHO, G. 2013. Crops that feed the world 10. Past successes and future challenges to the role played by wheat in global food security. *Food Security*, 5, 291-317.
- SHIGETOMI, Y., ISHIMURA, Y. & YAMAMOTO, Y. 2020. Trends in global dependency on the Indonesian palm oil and resultant environmental impacts. *Scientific Reports*, 10, 20624.
- SHINKEVICH, A. I., GALIMULINA, F. F., POLOZHENTSEVA, Y. S., YARLYCHENKO, A. A. & BARSEGYAN, N. V. 2021. Computer analysis of energy and resource efficiency in the context of transformation of petrochemical supply chains. *International Journal of Energy Economics and Policy*, 11, 529-536.
- SHISHODIA, A., SHARMA, R., RAJESH, R. & MUNIM, Z. H. 2023. Supply chain resilience: A review, conceptual framework and future research. *The International Journal of Logistics Management*, 34, 879-908.
- SHMATKOVSKA, T., DZIAMULYCH, M., VAVDIIUK, N., PETRUKHA, S., KORETSKA, N. & BILOCHENKO, A. 2022. Trends and Conditions for the formation of profitability of agricultural enterprises: A case study of Lviv Region, Ukraine. *Universal Journal of Agricultural Research*, 10, 88-98.
- SHOKOUHYAR, S., SEDDIGH, M. R. & PANAHI FAR, F. 2020. Impact of big data analytics capabilities on supply chain sustainability: A case study of Iran. *World Journal of Science, Technology and Sustainable Development*, 17, 33-57.
- SHUBITA, M. F. 2013. Working capital management and profitability: a case of industrial Jordanian companies. *International Journal of Business and Social Science*, 4.

- SHUKOR, A. A. A., NEWAZ, M. S., RAHMAN, M. K. & TAHA, A. Z. 2021. Supply chain integration and its impact on supply chain agility and organizational flexibility in manufacturing firms. *International Journal of Emerging Markets*, 16, 1721-1744.
- SHVINDINA, H., TARANIUK, L., KOTENKO, S., AWUJOLA, A., TARANIUK, K. & HONGZHOU, Q. 2022. Cross-country analysis of competitiveness towards innovation potential assessment for industrials. *Journal of Eastern European and Central Asian Research (JEECAR)*, 9, 165-182.
- SIAL, M. & CHAUDHRY, A. 2012. Relationship between working capital management and firm profitability: Manufacturing sector of Pakistan. Available at SSRN 2105638.
- SIBIYA, D. Z. & BARNARD, B. 2020. Institutionalizing entrepreneurship: The case of B-BBEE based enterprise and supplier development in South Africa. *IUP Journal of Business Strategy*, 17, 7-45.
- SILWAL, P. P. & BAJRACHARYA, S. 2021. Behavioral factors influencing stock investment decision of individuals. *The International Research Journal of Management Science*, 6, 53-73.
- SIMPSON, G. B., BADENHORST, J., JEWITT, G. P., BERCHNER, M. & DAVIES, E. 2019. Competition for land: the water-energy-food nexus and coal mining in Mpumalanga Province, South Africa. *Frontiers in Environmental Science*, 7, 86.
- SINGH, S., AGRAWAL, V. & MOHANTY, R. 2022. Multi-criteria decision analysis of significant enablers for a competitive supply chain. *Journal of Advances in Management Research*, 19, 414-442.
- SINGH, S. & CHATTERJEE, S. 2022. Value chain analysis of *Rhododendron arboreum* squash 'buransh' as a non-timber forest product (NTFP) in Western Himalayas: Case study of Chamoli district, Uttarakhand in India. *Trees, Forests and People*, 7, 100200.
- SINGH, Z. Interventions to minimise postharvest losses, ensure the quality and safety of tropical and subtropical fruits: An overview. V International Conference on Postharvest and Quality Management of Horticultural Products of Interest for Tropical Regions 1340, 2021. 1-12.
- SINGHANIA, M. & MEHTA, P. 2017. Working capital management and firms' profitability: evidence from emerging Asian countries. *South Asian Journal of Business Studies*, 6, 80-97.
- SINGHANIA, M., SHARMA, N. & YAGNESH ROHIT, J. 2014. Working capital management and profitability: evidence from Indian manufacturing companies. *Decision*, 41, 313-326.

- SJÖBERG, L. 2020. Explaining risk perception: an empirical evaluation of cultural theory¹. *Risk Management*. Routledge.
- SMALLEY, R. 2013. Plantations, contract farming and commercial farming areas in Africa: A comparative review.
- SMIT, A. 2010. The competitive advantage of nations: is Porter's Diamond Framework a new theory that explains the international competitiveness of countries? *Southern African business review*, 14.
- SMITH, M. A., MITRA, S. & NARASIMHAN, S. 1998. Information systems outsourcing: a study of pre-event firm characteristics. *Journal of management information systems*, 15, 61-93.
- SNOWDON, B. & STONEHOUSE, G. 2006. Competitiveness in a globalised world: Michael Porter on the microeconomic foundations of the competitiveness of nations, regions, and firms. *Journal of international business studies*, 37, 163-175.
- SOEWARNO, N. & TIAHJADI, B. 2020. Measures that matter: an empirical investigation of intellectual capital and financial performance of banking firms in Indonesia. *Journal of Intellectual Capital*, 21, 1085-1106.
- SOFRANKOVA, B., HORVATHOVA, J., KISELAKOVA, D. & MATKOVA, S. 2017. Identification of key performance indicators with the application of mathematical and statistical methods. *Journal of Financial Studies & Research*, 403204.
- SOHN, S. Y., KIM, D. H. & JEON, S. Y. 2016. Re-evaluation of global innovation index based on a structural equation model. *Technology Analysis & Strategic Management*, 28, 492-505.
- SOLAKIVI, T., TÖYLI, J., ENGBLOM, J. & OJALA, L. 2011. Logistics outsourcing and company performance of SMEs: Evidence from 223 firms operating in Finland. *Strategic Outsourcing: An International Journal*, 4, 131-151.
- SOLAKOGLU, M. N. & DEMIR, N. 2016. The role of firm characteristics on the relationship between gender diversity and firm performance. *Management Decision*, 54, 1407-1419.
- SONG, H. & GAO, X. 2018. Green supply chain game model and analysis under revenue-sharing contract. *Journal of Cleaner Production*, 170, 183-192.
- SONG, Q., CHEN, Y., ZHONG, Y., LAN, K., FONG, S. & TANG, R. 2021. A supply-chain system framework based on internet of things using blockchain technology. *ACM Transactions on Internet Technology (TOIT)*, 21, 1-24.

- SORI, O. & WANA, H. 2019. Profitability and value chain assessment of groundnut in Digga District of East Wollega Zone, Oromia National Regional State, Ethiopia. *Agric For Fish*, 8, 81-88.
- SOUSA-ZOMER, T. T., MAGALHÃES, L., ZANCUL, E. & CAUCHICK-MIGUEL, P. A. 2018. Exploring the challenges for circular business implementation in manufacturing companies: An empirical investigation of a pay-per-use service provider. *Resources, Conservation and Recycling*, 135, 3-13.
- SOYEMI, K. A. & OLAWALE, L. S. 2019. Firm characteristics and financial reporting quality: Evidence from non-financial firms in Nigeria. *International Journal of Economics, Management and Accounting*, 27, 445-472.
- SPEICH, C., BARTH-JAEGGI, T., MUSARD, C., HAVUGIMANA, C., NWOKORO, C., GAKUBA, E., ZAMIL, F., SÉCULA, F., THÖNNISSEN, C. & SIX, J. 2023. Nutrition in City Ecosystems (NICE): Protocol of a multi-sectoral development project to improve food and nutrition security of secondary city populations in Bangladesh, Kenya and Rwanda. *Frontiers in Public Health*, 11, 1081535.
- SPIERTZ, H. 2012. Avenues to meet food security. The role of agronomy on solving complexity in food production and resource use. *European Journal of Agronomy*, 43, 1-8.
- SPIES, D. C. 2011. *Analysis and quantification of the South African red meat value chain*. University of the Free State.
- SREIH, J. F., LUSSIER, R. N. & SONFIELD, M. C. 2019. Differences in management styles, levels of profitability, and performance across generations, and the development of the family business success model. *Journal of Organizational Change Management*.
- SRIVASTAVA, A. & DASHORA, K. 2022. Application of blockchain technology for agrifood supply chain management: a systematic literature review on benefits and challenges. *Benchmarking: An International Journal*, 29, 3426-3442.
- STARITZ, C., MORRIS, M. & PLANK, L. 2017. Clothing value chains and Sub-Saharan Africa: Global exports, regional dynamics and industrial development outcomes. *Future fragmentation processes: Effectively engaging with the ascendancy of global value chains*, 123-132.
- STATHERS, T., HOLCROFT, D., KITINOJA, L., MVUMI, B. M., ENGLISH, A., OMOTILEWA, O., KOCHER, M., AULT, J. & TORERO, M. 2020. A scoping

- review of interventions for crop postharvest loss reduction in sub-Saharan Africa and South Asia. *Nature Sustainability*, 3, 821-835.
- STEPHENS, E. C., MARTIN, G., VAN WIJK, M., TIMSINA, J. & SNOW, V. 2020. Impacts of COVID-19 on agricultural and food systems worldwide and on progress to the sustainable development goals. Elsevier.
- STONE, H. B. & RANCHHOD, A. 2006. Competitive advantage of a nation in the global arena: a quantitative advancement to Porter's diamond applied to the UK, USA and BRIC nations. *Strategic Change*, 15, 283-284.
- STRAKOVA, J., KORAUŠ, A., VÁCHAL, J., POLLÁK, F., ČERNÁK, F., TALÍŘ, M. & KOLLMANN, J. 2021. Sustainable development economics of enterprises in the services sector based on effective management of value streams. *Sustainability*, 13, 8978.
- STRAKOVÁ, J., RAJIANI, I., PÁRTLOVÁ, P., VÁCHAL, J. & DOBROVIČ, J. 2020. Use of the value chain in the process of generating a sustainable business strategy on the example of manufacturing and industrial enterprises in the Czech Republic. *Sustainability*, 12, 1520.
- STRANGE, R. & HUMPHREY, J. 2019. What lies between market and hierarchy? Insights from internalization theory and global value chain theory. *Journal of International Business Studies*, 50, 1401-1413.
- STRIJKER, D., BOSWORTH, G. & BOUTER, G. 2020. Research methods in rural studies: Qualitative, quantitative and mixed methods. *Journal of Rural Studies*, 78, 262-270.
- STROUMPOULIS, A., KOPANAKI, E. & KARAGANIS, G. 2021. Examining the relationship between information systems, sustainable SCM, and competitive advantage. *Sustainability*, 13, 11715.
- SUBAGIO, S., RATNAWATI, T. & RIDWAN, M. S. 2022. The Influences of Internal Capabilities, External Network and Value Chain Strategy on Competitive Strategy in Improving Company Performance in Food and Beverage MSME Companies in East Java. *Int. J. Sci. Eng. Sci*, 5, 69-75.
- SUBRAMANIAN, K., SARKAR, M. K., WANG, H., QIN, Z.-H., CHOPRA, S. S., JIN, M., KUMAR, V., CHEN, C., TSANG, C.-W. & LIN, C. S. K. 2022. An overview of cotton and polyester, and their blended waste textile valorisation to value-added products: A circular economy approach—research trends, opportunities and challenges. *Critical Reviews in Environmental Science and Technology*, 52, 3921-3942.

- SUDIYATNO, B., PUSPITASARI, E., SUWARTI, T. & ASYIF, M. M. 2020. Determinants of firm value and profitability: Evidence from Indonesia. *The Journal of Asian Finance, Economics and Business (JAFEB)*, 7, 769-778.
- SUGENG, S., PRASETYO, E. & ZAMAN, B. 2020. Does capital intensity, inventory intensity, firm size, firm risk, and political connections affect tax aggressiveness? *JEMA: Jurnal Ilmiah Bidang Akuntansi dan Manajemen*, 17, 78-87.
- SUKI, N. M., SUKI, N. M., SHARIF, A., AFSHAN, S. & REXHEPI, G. 2023. Importance of green innovation for business sustainability: Identifying the key role of green intellectual capital and green SCM. *Business Strategy and the Environment*, 32, 1542-1558.
- SUN, H., WAN, Y., ZHANG, L. & ZHOU, Z. 2019. Evolutionary game of the green investment in a two-echelon supply chain under a government subsidy mechanism. *Journal of cleaner production*, 235, 1315-1326.
- SUN, M., GRONDYS, K., HAJIYEV, N. & ZHUKOV, P. 2021. Improving the e-commerce business model in a sustainable environment. *Sustainability*, 13, 12667.
- SUNDAY, O. & JOSEPH, E. E. 2017. Inventory management and SMEs profitability. A study of furniture manufacturing, wholesale and eatery industry in Delta State, Nigeria. *Journal of Finance*, 5, 75-79.
- SUNJOKO, M. I. & ARILYN, E. J. 2016. Effects of inventory turnover, total asset turnover, fixed asset turnover, current ratio and average collection period on profitability. *Jurnal Bisnis dan Akuntansi*, 18, 79-83.
- SUPRIYANTO, S., ALEXANDRI, M., KOSTINI, N. & DAI, R. 2023. The effect of macroeconomics and supply chain finance (SCF) on profitability: Evidence from manufacturing companies. *Uncertain Supply Chain Management*, 11, 331-338.
- SURANA, K., DOBLINGER, C., ANADON, L. D. & HULTMAN, N. 2020. Effects of technology complexity on the emergence and evolution of wind industry manufacturing locations along global value chains. *Nature Energy*, 5, 811-821.
- SUSANTI, A. & MARYUDI, A. 2016. Development narratives, notions of forest crisis, and boom of oil palm plantations in Indonesia. *Forest policy and economics*, 73, 130-139.
- SVENSSON, N. & FUNCK, E. K. 2019. Management control in circular economy. Exploring and theorizing the adaptation of management control to circular business models. *Journal of Cleaner Production*, 233, 390-398.
- SWAMY, V. & DHARANI, M. 2016. Analyzing the agricultural value chain financing: approaches and tools in India. *Agricultural Finance Review*.

- SWINNEN, J. F. 2007. *Global supply chains, standards and the poor: How the globalization of food systems and standards affects rural development and poverty*, Cabi.
- SYAFRIZAL, A. & ILHAM, R. N. 2023. EFFECT OF CAPITAL ADEQUACY RATIO, NON PERFORMING FINANCING, FINANCING TO DEPOSIT RATIO, OPERATING EXPENSES AND OPERATIONAL INCOME ON PROFITABILITY AT PT. BANK ACEH SYARIAH. *Journal of Accounting Research, Utility Finance and Digital Assets*, 1, 312-322.
- TADESSE, B. & TEMESGEN, A. 2019. Value chain analysis of banana in Mizan aman town of Bench Maji zone, southwest Ethiopia. *Int. J. Horticult. Agricul. Food Sci*, 3.
- TAHIRI JOUTI, A. 2019. An integrated approach for building sustainable Islamic social finance ecosystems. *ISRA International Journal of Islamic Finance*, 11, 246-266.
- TALEIZADEH, A. A., MOSHTAGH, M. S. & MOON, I. 2018. Pricing, product quality, and collection optimization in a decentralized closed-loop supply chain with different channel structures: Game theoretical approach. *Journal of Cleaner Production*, 189, 406-431.
- TANG, X., LIU, P. L.-F., LIN, P., JIANG, Y. & LIN, Y.-H. 2022. An empirical model for predicting wave attenuation inside vegetation domain. *Ocean Engineering*, 257, 111636.
- TANJUNG, P. R. S. & WAHYUDI, S. M. 2019. Analysis the Effect Disclosure of Sustainability Report, Economic Value Added and Other Fundamental Factors of Companies on Company Value. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 9, 237-249.
- TANVEER, B., NAZIR, M. I., KHAN, M. A., KHAN, M. A. & RAZZAQ, S. 2016. The impact of working capital management on firms financial performance: evidence from Pakistan. *International Journal of Economics and Financial Issues*, 6, 1097-1105.
- TANWARI, A., LAKHIAR, A. Q. & SHAIKH, G. Y. 2000. ABC analysis as a inventory control technique. *Quaid-E-Awam University research journal of engineering, science and technology*, 1.
- TARANENKO, I. 2013. Strategic analysis of innovation-based competitiveness in the global economy. *Montenegrin Journal of Economics*, 9, 127.
- TAREKEGN, K., ASADO, A., GAFARO, T. & SHITAYE, Y. 2020. Value chain analysis of banana in Bench Maji and Sheka Zones of Southern Ethiopia. *Cogent Food & Agriculture*, 6, 1785103.

- TAUFIK, T. A. Indonesia's sub-national innovation system policy and programmes. National Workshop on Subnational Innovation Systems and Technology Capacity Building Policies to Enhance Competitiveness of SMEs, Jakarta, 2007.
- TAVOLETTI, E. & TE VELDE, R. 2008. Cutting Porter's last diamond: Competitive and comparative (dis) advantages in the Dutch flower cluster. *Transition Studies Review*, 15, 303-319.
- TEMU, A. E. & MARWA, N. W. 2007. Changes in the governance of global value chains of fresh fruits and vegetables: Opportunities and challenges for producers in Sub-Saharan Africa.
- TEO, L., KHONG, R. W. & PEK, C.-K. 2019. WHICH IS THE BETTER DETERMINANT FOR DIVIDENDS IN THE KUALA LUMPUR COMPOSITE INDEX- PROFITABILITY OR CASH-FLOW? *International Journal of Business and Society*, 20, 1003-1021.
- TEPLICKÁ, K. & STRAKA, M. 2020. Sustainability of extraction of raw material by a combination of mobile and stationary mining machines and optimization of machine life cycle. *Sustainability*, 12, 10454.
- TESFAY, T., KAHSAY, Y., GIRMAY, S. & WELU, G. 2016. Value chain analysis of banana in "Tekeze" river basin, North Ethiopia. *Journal of Biology, Agriculture and Healthcare*, 6, 34-40.
- THENUWARA, M. & EKANAYAKE, N. 2021. The Impact of Working Capital Management on Profitability: Evidence from Listed Companies in Sri Lankan Consumer Staples Sector. *Journal of Business and Technology*, 5, 104.
- THORING, K., MUELLER, R. & BADKE-SCHAUB, P. 2020. Workshops as a research method: Guidelines for designing and evaluating artifacts through workshops.
- TIEBOUT, C. M. 1956. A pure theory of local expenditures. *Journal of political economy*, 64, 416-424.
- TIROLE, J. 1999. Incomplete contracts: Where do we stand? *Econometrica*, 67, 741-781.
- TIRTAYASA, S. & MUKMIN, M. 2017. Factor Analysis Of Competitiveness Small Medium Industry Case In Serdang Bedagai District, North Sumatra, Indonesia. *International Journal Of Scientific & Technology Research*, 6, 157-161.
- TIWARI, S., WEE, H.-M. & DARYANTO, Y. 2018. Big data analytics in supply chain management between 2010 and 2016: Insights to industries. *Computers & Industrial Engineering*, 115, 319-330.

- TONG, X., YU, H. & LIU, T. 2021. Using weighted entropy to measure the recyclability of municipal solid waste in China: exploring the geographical disparity for circular economy. *Journal of Cleaner Production*, 312, 127719.
- TOUŠEK, Z., HINKE, J., GREGOR, B. & PROKOP, M. 2023. How does the effect of external financing on profitability differ across tiers? Evidence from the automotive supply chain.
- TOUSSAINT, M., CABANELAS, P. & BLANCO-GONZÁLEZ, A. 2021. Social sustainability in the food value chain: An integrative approach beyond corporate social responsibility. *Corporate Social Responsibility and Environmental Management*, 28, 103-115.
- TRAN, N., BAILEY, C., WILSON, N. & PHILLIPS, M. 2013. Governance of global value chains in response to food safety and certification standards: the case of shrimp from Vietnam. *World development*, 45, 325-336.
- TRIENEKENS, J. & VAN DIJK, M. P. 2011. *Global value chains: Linking local producers from developing countries to international markets*, Amsterdam University Press.
- TRUNFIO, N., LEE, H., STARKEY, J., AGARABI, C., LIU, J. & YOON, S. 2017. Characterization of mammalian cell culture raw materials by combining spectroscopy and chemometrics. *Biotechnology Progress*, 33, 1127-1138.
- TSENG, M.-L., BUI, T.-D., LIM, M. K., TSAI, F. M. & TAN, R. R. 2021. Comparing world regional sustainable supply chain finance using big data analytics: a bibliometric analysis. *Industrial Management & Data Systems*, 121, 657-700.
- TUFFOUR, J. K. & BOATENG, J. A. 2017. Is working capital management important? Empirical evidence from manufacturing companies in Ghana. *Review of Innovation and Competitiveness: A Journal of Economic and Social Research*, 3, 5-20.
- TUKAMUHABWA, B. R., STEVENSON, M., BUSBY, J. & ZORZINI, M. 2015. Supply chain resilience: definition, review and theoretical foundations for further study. *International journal of production research*, 53, 5592-5623.
- TUMUKUNDE, R., MULYUNGI, P. & MBURU, D. M. 2020. Effect of market factors on rice profitability in Rwanda. *International Journal of Science and Research*, 9, 232-237.
- TUOMALA, V. & GRANT, D. B. 2022. Exploring supply chain issues affecting food access and security among urban poor in South Africa. *The International Journal of Logistics Management*, 33, 27-48.

- TURKER, D. & ALTUNTAS, C. 2014. Sustainable supply chain management in the fast fashion industry: An analysis of corporate reports. *European Management Journal*, 32, 837-849.
- UKAEGBU, B. 2014. The significance of working capital management in determining firm profitability: Evidence from developing economies in Africa. *Research in International Business and Finance*, 31, 1-16.
- UMAR, M., KHAN, S. A. R., ZIA-UL-HAQ, H. M., YUSLIZA, M. Y. & FAROOQ, K. 2022. The role of emerging technologies in implementing green practices to achieve sustainable operations. *The TQM Journal*, 34, 232-249.
- UMIRZOKOV, A., ABDULLO, M., JOBIROV, F., SAIDULLOZODA, S. & TASHRIPOV, A. Assessment of the resource of elements of transportation machines operated in mining energy enterprises. IOP Conference Series: Earth and Environmental Science, 2022. IOP Publishing, 012063.
- ÜNAL, E. & SHAO, J. 2019. A taxonomy of circular economy implementation strategies for manufacturing firms: Analysis of 391 cradle-to-cradle products. *Journal of Cleaner Production*, 212, 754-765.
- USAMA, M. 2012. Working capital management and its affect on firm's profitability and liquidity: In other food sector of (KSE) Karachi stock exchange. *Arabian Journal of Business and Management Review (OMAN Chapter)*, 1, 62.
- USAPFA, L. 2015. *Value chain analysis and resource-use efficiency of small-holders broiler farmers in Capricorn District, Limpopo Province*. University of Limpopo.
- USMAN, K. & LIU, Z. 2015. Innovation index framework to measure the innovation capacity and efficiency of SAARC countries. *European Journal of Social Sciences*, 46, 325-338.
- UTAMI, C. W., SUMAJI, Y. M. P., SUSANTO, H., SEPTINA, F. & PRATAMA, I. 2019. Effect of supply chain management practices on financial and economic sustainable performance of Indonesian SMEs.
- UTAMI, W. 2015. Financial performance and the quality of sustainability disclosure based on global reporting initiative: Value relevances study in Indonesia Stock Exchange. *Mediterranean Journal of Social Sciences*, 6, 243.
- VAHID, T. K., ELHAM, G., KHOSROSHAHI MOHSEN, A. & MOHAMMADREZA, E. 2012a. Working capital management and corporate performance: evidence from Iranian companies. *Procedia-Social and Behavioral Sciences*, 62, 1313-1318.

- VAHID, T. K., MOHSEN, A. K. & MOHAMMADREZA, E. 2012b. The impact of working capital management policies on firm's profitability and value: Evidence from Iranian companies. *International Research Journal of Finance and Economics*, 88, 155-162.
- VAN DER LANS, C., SNOEK, H., DE BOER, F. & ELINGS, A. 2012. Vegetable chains in Kenya: production and consumption of vegetables in the Nairobi metropolis. Wageningen UR Greenhouse Horticulture.
- VANTI, E. N. & SUPANDI, E. D. 2020. Pembentukan Portofolio Optimal dengan Menggunakan Mean Absolute Deviation dan Conditional Mean Variance. *Jurnal Fourier*, 9, 25-34.
- VARES, H., PARVANDI, Y., GHASEMI, R. & ABDULLAHI, B. 2011. Transition from an efficiency-driven economy to innovation-driven: a secondary analysis of countries global competitiveness. *European Journal of Economics, Finance and Administrative Sciences*, 31, 124-132.
- VARKEY, H., TYSON, A. & CHOIRUZZAD, S. A. B. 2018. Palm oil intensification and expansion in Indonesia and Malaysia: Environmental and socio-political factors influencing policy. *Forest Policy and Economics*, 92, 148-159.
- VEBRIANTO, R., THAHIR, M., PUTRIANI, Z., MAHARTIKA, I. & ILHAMI, A. 2020. Mixed Methods Research: Trends and Issues in Research Methodology. *Bedelau: Journal of Education and Learning*, 1, 63-73.
- VERMA, A. & SETH, N. 2010. Achieving supply chain competitiveness: Some critical issues. *International Journal of Science Engineering and Technology*, 2, 6209-6213.
- VERMA, A. & SETH, N. 2011. A conceptual framework for supply chain competitiveness. *International Journal of Human and Social Sciences*, 6, 5-10.
- VERMAAK, I., HAMMAN, J. H. & VILJOEN, A. M. 2010. High performance thin layer chromatography as a method to authenticate Hoodia gordonii raw material and products. *South African Journal of Botany*, 76, 119-124.
- VERMEULEN, W. 2010. Sustainable supply chain governance systems: conditions for effective market based governance in global trade. *Progress in Industrial Ecology, An International Journal*, 7, 138-162.
- VESAL, S. M., NAZARI, M., HOSSEINZADEH, M., SHAMSADDINI, R. & NAWASER, K. 2013. The Relationship between " Labor Market Efficiency" and " Business Sophistication" in Global Competitiveness. *International Journal of Business and Management*, 8, 83.

- VIDANAPATHIRANA, R., HATHURUSINGHE, C., RAMBUKWELLA, R. & SOMARATHNE, T. 2012. A Study on value chain of Pineapple and Banana in Sri Lanka.
- VIRTANEN, E. A., LAPPALAINEN, J., NURMI, M., VIITASALO, M., TIKANMÄKI, M., HEINONEN, J., ATLASKIN, E., KALLASVUO, M., TIKKANEN, H. & MOILANEN, A. 2022. Balancing profitability of energy production, societal impacts and biodiversity in offshore wind farm design. *Renewable and Sustainable Energy Reviews*, 158, 112087.
- VISHNANI, S. & SHAH, B. K. 2007. Impact of working capital management policies on corporate performance—An empirical study. *Global business review*, 8, 267-281.
- VISKARI, S., LIND, L., KÄRRI, T. & SCHUPP, F. 2012. Using working capital management to improve profitability in the value chain of automotive industry. *International Journal of Services and Operations Management*, 13, 42-64.
- VISKARI, S., PIRTTILÄ, M. & KÄRRI, T. 2011. Improving profitability by managing working capital in the value chain of pulp and paper industry. *International Journal of Managerial and Financial Accounting*, 3, 348-366.
- VONSÉE, B., CRIJNS-GRAUS, W. & LIU, W. 2019. Energy technology dependence-A value chain analysis of geothermal power in the EU. *Energy*, 178, 419-435.
- VU, N., GHADGE, A. & BOURLAKIS, M. 2023. Blockchain adoption in food supply chains: A review and implementation framework. *Production Planning & Control*, 34, 506-523.
- VURAL, G., SÖKMEN, A. G. & ÇETENAK, E. H. 2012. Affects of working capital management on firm's performance: Evidence from Turkey. *International Journal of Economics and Financial Issues*, 2, 488-495.
- WAGNER, S. M., GROSSE-RUYKEN, P. T. & ERHUN, F. 2012. The link between supply chain fit and financial performance of the firm. *Journal of operations management*, 30, 340-353.
- WAHYUDI, S. M. 2021. The effect of corporate governance and company characteristics on disclosure of sustainability report companies. *European Journal of Business and Management Research*, 6, 94-99.
- WAHYUNINGRUM, I. F. S., BUDIHardjo, M. A., MUHAMMAD, F. I., DJAJADIKERTA, H. G. & TRIREKSANI, T. 2020. Do environmental and financial performances affect environmental disclosures? Evidence from listed companies in Indonesia.

- WAJO, A. 2021. Effect of Cash Turnover, Receivable Turnover, Inventory Turnover and Growth Opportunity on Profitability. *ATESTASI: Jurnal Ilmiah Akuntansi*, 4, 61-69.
- WALTERS, D., HELMAN, D., WALTERS, D. & HELMAN, D. 2020. Profitability: Interpretations and Considerations. *Strategic Capability Response Analysis: The Convergence of Industrié 4.0, Value Chain Network Management 2.0 and Stakeholder Value-Led Management*, 99-139.
- WAN, N. & HONG, D. 2019. The impacts of subsidy policies and transfer pricing policies on the closed-loop supply chain with dual collection channels. *Journal of Cleaner Production*, 224, 881-891.
- WANG, C., REN, J. & LIANG, H. 2023. MSGraph: Modeling multi-scale K-line sequences with graph attention network for profitable indices recommendation. *Electronic Research Archive*, 31, 2626-2650.
- WANG, N., HE, Q. & JIANG, B. 2019a. Hybrid closed-loop supply chains with competition in recycling and product markets. *International Journal of Production Economics*, 217, 246-258.
- WANG, W., ZHANG, Y., ZHANG, W., GAO, G. & ZHANG, H. 2021. Incentive mechanisms in a green supply chain under demand uncertainty. *Journal of cleaner production*, 279, 123636.
- WANG, Y.-C., LIN, H.-W. W., LEE, T.-S. & TSAI, J.-J. 2019b. Corporate Performance and the Dual Roles of Boards: Firm Characteristics, Governance Regulations, and CEO-Director Relationships. *會計評論*, 81-117.
- WANG, Y. & HOU, G. 2020. A duopoly game with heterogeneous green supply chains in optimal price and market stability with consumer green preference. *Journal of Cleaner Production*, 255, 120161.
- WANG, Z., AKBAR, M. & AKBAR, A. 2020. The interplay between working capital management and a firm's financial performance across the corporate life cycle. *Sustainability*, 12, 1661.
- WARSANGA, W. B. 2014. Coordination and structure of agri-food value chains: Analysis of banana value chain strands in Tanzania.
- WEERASINGHA, J. P., BANDARA, Y. M. & EDIRISINGHE, P. M. 2023. Determining the invoicing dates for raw material order and finish product dispatch using neural networks under exchange rate volatility. *International Journal of Logistics Research and Applications*, 26, 211-231.

- WERNER, M., BAIR, J. & FERNÁNDEZ, V. R. 2014. Linking up to development? Global value chains and the making of a post-Washington Consensus. *Development and change*, 45, 1219-1247.
- WIBOWO, S. S. A. & ROHYATI, E. 2018. The effect of working capital turnover and profitability of inventory turnover manufacturing companies listed in Indonesia stock exchange. *Journal of Applied Accounting and Taxation*, 3, 95-98.
- WIHARDJA, M. M. 2016. The effect of the commodity boom on Indonesia's macroeconomic fundamentals and industrial development. *International Organisations Research Journal*, 11, 39-54.
- WIJK, J. V. & KWAKKENBOS, H. 2012. Beer multinationals supporting Africa's development? How partnerships include smallholders into sorghum-beer supply chains.
- WILDE, G. J. 1998. Risk homeostasis theory: an overview. *Injury prevention*, 4, 89-91.
- WILLY, O. C. C. & OGETO 2012. Macroeconomic fluctuations effects on the financial performance of listed manufacturing firms in Kenya. *International journal of social sciences*, 21, 26-40.
- WILSON, R. T. & LEWIS, I. 2015. The rice value chain in Tanzania. *A Report from the Southern Highlands Food Systems Programme, FAO*, 9.
- WONG, C. W., WONG, C. Y. & BOON-ITT, S. 2020a. Environmental management systems, practices and outcomes: Differences in resource allocation between small and large firms. *International Journal of Production Economics*, 228, 107734.
- WONG, C. Y., WONG, C. W. & BOON-ITT, S. 2020b. Effects of green supply chain integration and green innovation on environmental and cost performance. *International Journal of Production Research*, 58, 4589-4609.
- WORKIE, E., MACKOLIL, J., NYIKA, J. & RAMADAS, S. 2020. Deciphering the impact of COVID-19 pandemic on food security, agriculture, and livelihoods: A review of the evidence from developing countries. *Current Research in Environmental Sustainability*, 2, 100014.
- XUE, H., YUAN, Y., LIN, Y. & CAI, J. Early warning decision-making system based on cloud computing technology for retail supply chain unconventional emergency. 2017 IEEE 2nd International Conference on Cloud Computing and Big Data Analysis (ICCCBDA), 2017. IEEE, 224-229.

- YAKOVLEVA, N., FREI, R. & RAMA MURTHY, S. 2019. *Editorial introduction: Achieving sustainable development goals through sustainable supply chains in the post-global economy*, Springer.
- YANG, L., TAKASE, M., ZHANG, M., ZHAO, T. & WU, X. 2014. Potential non-edible oil feedstock for biodiesel production in Africa: a survey. *Renewable and sustainable energy reviews*, 38, 461-477.
- YANG, X., ZHAO, K., TAO, X. & SHIU, E. 2019. Developing and validating a theory-based model of crowdfunding investment intention—Perspectives from social exchange theory and customer value perspective. *Sustainability*, 11, 2525.
- YANTI, L. D. & HARTONO, L. 2019. Effect of Leverage, Profitability and Company Size on Tax Aggressiveness.(Empirical Study: Subsector Manufacturing Companies Food, Beverage, Cosmetics and Household Purposes Manufacturing Listed on the Indonesia Stock Exchange for 2014-2017). *ECo-Fin*, 1, 1-11.
- YE, L. Research on Supply Chain Big Data Management Based on Machine Learning Algorithms. 2022 International Conference on Cloud Computing, Big Data Applications and Software Engineering (CBASE), 2022. IEEE, 207-213.
- YEH, Y.-P. 2016. Critical influence of relational governance on relationship value in strategic supply management. *European Business Review*, 28, 137-154.
- YETTON, P., CRAIG, J. & DAVIS, J. 1992. Are diamonds a country's best friend? A critique of Porter's theory of national competition as applied to Canada, New Zealand and Australia. *Australian Journal of Management*, 17, 89-119.
- YI, P., HUANG, M., GUO, L. & SHI, T. 2016. Dual recycling channel decision in retailer oriented closed-loop supply chain for construction machinery remanufacturing. *Journal of Cleaner Production*, 137, 1393-1405.
- YILDIZ, T. 2016. The exploration of the relationships between the global competitiveness, the ICT and education. *Business, Management and Education*, 14, 249-274.
- YILMAZ, B. 2002. Turkey's competitiveness in the European Union: a comparison with Greece, Portugal, Spain, and the EU/12/15. *Russian and East European Finance and Trade*, 54-72.
- YIU, L. D., YEUNG, A. C. & CHENG, T. E. 2021. The impact of business intelligence systems on profitability and risks of firms. *International Journal of Production Research*, 59, 3951-3974.
- YOLANDIKA, C., BERLIANA, D. & ANGGRAINI, N. 2021. Efisiensi Kinerja Rantai Pasok Ikan Patin di Pringsewu, Lampung Pangasius Supply Chain Performance

- Efficiency in Pringsewu, Lampung. *Journal of Food System & Agribusiness*, 5, 107-115.
- YUSR, M. M., ALIYU, O. A., KHATTAK, A., SALIMON, M. G. & MUHAMMAD, S. 2022. Determinants of SMEs' product innovation performance in Malaysia: an extended model. *Cogent Business & Management*, 9, 2152649.
- YUSUF, M. & TRONDSSEN, T. 2013. IMPROVING INDONESIA'S COMPETITIVENESS: INNOVATION, VALUE CHAINS AND CLUSTER-BASES FOR REALISING THE HUGE POTENTIAL OF MARINE AND FISHERIES. *International Journal of Organizational Innovation*, 6.
- YUSUF, M. & TRONDSSEN, T. 2014. Competitive forces and innovation strategies: a study of the Indonesian crab industries. *Journal of Agribusiness in Developing and Emerging Economies*, 4, 78-96.
- ZALAGHI, H., GODINI, M. & MANSOURI, K. 2019. The moderating role of firms characteristics on the relationship between working capital management and financial performance. *Advances in Mathematical Finance and Applications*, 4, 71-88.
- ZAMORA-TORRES, A. I. 2014. Countries' competitiveness on innovation and technology. *Global Journal of Business Research*, 8, 73-83.
- ZAMORA, E. A. 2016. Value chain analysis: A brief review. *Asian Journal of Innovation and Policy*, 5, 116-128.
- ZEITUN, R. 2009. Ownership structure, corporate performance and failure: Evidence from panel data of emerging market the case of Jordan. *Corporate Ownership and Control*, 6, 96.
- ZEITUN, R., TIAN, G. & KEEN, S. 2007. Macroeconomic determinants of corporate performance and failure: evidence from an emerging market the case of Jordan.
- ZERBIB, O. D. 2022. A Sustainable Capital Asset Pricing Model (S-CAPM): Evidence from Environmental Integration and Sin Stock Exclusion. *Review of Finance*, 26, 1345-1388.
- ZHANG, C., ZHANG, D. & ZHENG, C. Research on the Application of Auto Spare Parts Sales Forecast in the Age of Big Data. 2022 International Conference on Computers and Artificial Intelligence Technologies (CAIT), 2022a. IEEE, 48-52.
- ZHANG, H., YANG, F., LI, Y. & LI, H. 2015. Predicting profitability of listed construction companies based on principal component analysis and support vector machine—Evidence from China. *Automation in Construction*, 53, 22-28.

- ZHANG, P., LI, M., WANG, Y., YIN, Y., WANG, C. & ZHANG, Z. Research on Sales Forecast of Automobile Spare Parts Based on LightGBM and Feature Engineering. 2022 3rd International Conference on Computer Science and Management Technology (ICCSMT), 2022b. IEEE, 178-181.
- ZHANG, X. 2022. Value chain and technology-based complexity analysis of China's manufacturing exports. *Mathematical Problems in Engineering*, 2022.
- ZHAO, G., LIU, S., LOPEZ, C., LU, H., ELGUETA, S., CHEN, H. & BOSHKOSKA, B. M. 2019. Blockchain technology in agri-food value chain management: A synthesis of applications, challenges and future research directions. *Computers in industry*, 109, 83-99.
- ZHAO, L., LI, L., SONG, Y., LI, C. & WU, Y. 2018. Research on pricing and coordination strategy of a sustainable green supply chain with a capital-constrained retailer. *Complexity*, 2018, 1-12.
- ZHAO, X., WANG, P. & PAL, R. 2021. The effects of agro-food supply chain integration on product quality and financial performance: Evidence from Chinese agro-food processing business. *International Journal of Production Economics*, 231, 107832.
- ZHOU, Q., LI, Q., HU, X., YANG, W. & CHEN, W. 2021. Optimal contract design problem considering the retailer's fairness concern with asymmetric demand information. *Journal of Cleaner Production*, 287, 125407.

Appendices

Appendix 1: Extrait of the company Email

From: Support <rfsupport@SunolaOilMills.com>
Sent: Monday, 15 May 2023 11:23
To: Kansilembo Aliamutu (222120243) <222120243@stu.ukzn.ac.za>
Subject: #00233465 (Ref:IN:00233465)

Hi Kansilembo,

Thank you for sharing the proof of payments. Please follow the steps below to access company profile and download the financial statements:

1. Log in successfully to your company's Intranet (by the link below) page:

<http://ezproxy.sunolaOilMills:2048/login>

2. There should be a link to SunolaOilMills' Passport/Portal - click on it. Will be redirected to the login page and add your passport credentials.

Thanks, and regards,
Preeti Thakur
Digital Services Analyst

Appendix 2: Document review guidelines

Variables Description / Year	Measuring	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Purchase materials via Supplier Agreements	Raw material bought nationally compared to the price of products sold ratio											
imported goods of Raw Material (IRM)	Importing raw material compared to the price of products sold ratio											
Inventories management (IM)	The current ratio Current assets to current liability ratio											
Inbound logistics (IL)	Ratio of Financing in inbound logistic to total investment											
Outbound logistics (OL)	Ratio of Financing in outbound logistic to total investment											
Firm infrastructure cost	Ratio of Company infrastructure value to cost for merchandise delivered											
Development cost	Ratio Development cost to cost of goods sold											
firm Size	Logarithm of sales											
Firm Capital structure	Debt equity Ratio											
Return on Investment (ROI)	Ratio Earnings Before Tax with Interest/Total Assets											

Return on Equity (ROE)	Ratio Earnings Before Tax with Interests / Equity											
Tobin Q	Ratio Total assets value to replacement value of assets											

Appendix 3: Composite index for Profitability

year	Company number	Dependent Variable final Index
2012	1	0.254105
2012	2	0.247183
2012	3	0.420292
2012	4	0.789091
2012	5	0.564701
2012	6	0.411051
2012	7	0.334325
2012	8	0.366715
2012	9	0.32917
2012	10	0.315892
2012	11	0.387393
2012	12	0.438525
2012	13	0.465342
2012	14	0.641343
2012	15	0.411051
2012	16	0.366715
2012	17	0.438525
2012	18	0.32917
2012	19	0.566725
2012	20	0.366733
2012	21	0.566735
2012	22	0.456765
2013	1	0.323363
2013	2	0.277569
2013	3	0.448671
2013	4	0.828312
2013	5	0.637889
2013	6	0.450342
2013	7	0.453715
2013	8	0.569427
2013	9	0.378179

2013	10	0.43848
2013	11	0.563751
2013	12	0.540864
2013	13	0.240340
2013	14	0.892335
2013	15	0.597479
2013	16	0.557894
2013	17	0.430071
2013	18	0.142343
2013	19	0.527865
2013	20	0.657894
2013	21	0.557826
2013	22	0.627825
2014	1	0.469894
2014	2	0.430071
2014	3	0.597479
2014	4	0.892335
2014	5	0.557894
2014	6	0.64665
2014	7	0.604978
2014	8	0.741956
2014	9	0.507065
2014	10	0.596786
2014	11	0.763168
2014	12	0.787325
2014	13	0.440342
2014	14	0.141340
2014	15	0.741956
2014	16	0.507065
2014	17	0.787325
2014	18	0.141340
2014	19	0.557024
2014	20	0.627065

2014	21	0.657062
2014	22	0.597032
2015	1	0.399485
2015	2	0.345592
2015	3	0.637875
2015	4	0.79167
2015	5	0.50596
2015	6	0.608685
2015	7	0.461432
2015	8	0.726497
2015	9	0.482015
2015	10	0.524522
2015	11	0.907389
2015	12	0.838265
2015	13	0.343342
2015	14	0.223045
2015	15	0.713678
2015	16	0.511268
2015	17	0.482015
2015	18	0.343342
2015	19	0.753612
2015	20	0.653678
2015	21	0.713633
2015	22	0.663636
2016	1	0.392077
2016	2	0.390363
2016	3	0.773232
2016	4	1.060621
2016	5	0.511268
2016	6	0.713678
2016	7	0.443342
2016	8	0.741595
2016	9	0.438414
2016	10	0.680476
2016	11	0.858335
2016	12	0.819946
2016	13	0.453342
2016	14	0.542341
2016	15	0.791817
2016	16	1.019572

2016	17	0.870145
2016	18	0.680476
2016	19	0.560145
2016	20	0.620143
2016	21	0.870123
2016	22	0.640152
2017	1	0.415116
2017	2	0.417948
2017	3	0.870145
2017	4	1.019572
2017	5	0.59284
2017	6	0.791817
2017	7	0.565789
2017	8	0.804017
2017	9	0.475884
2017	10	0.707039
2017	11	0.984614
2017	12	0.901477
2017	13	0.804017
2017	14	0.707039
2017	15	0.617822
2017	16	0.988036
2017	17	0.804016
2017	18	1.286012
2017	19	0.604692
2017	20	0.734695
2017	21	0.684695
2017	22	0.734692
2018	1	0.499889
2018	2	0.506477
2018	3	0.988036
2018	4	1.286017
2018	5	0.617822
2018	6	0.898931
2018	7	0.589179
2018	8	0.844146
2018	9	0.504699
2018	10	0.840421
2018	11	1.303880
2018	12	1.002525
2018	13	0.604699
2018	14	0.637822
2018	15	0.604695

2018	16	0.506473
2018	17	0.617826
2018	18	0.898933
2018	19	0.964695
2018	20	0.674695
2018	21	0.704695
2018	22	0.754691
2019	1	0.531481
2019	2	0.745343
2019	3	0.567348
2019	4	0.589179
2019	5	0.532175
2019	6	0.840421
2019	7	0.745343
2019	8	0.634645
2019	9	0.255642
2019	10	0.823240
2019	11	0.665442
2019	12	0.831144
2019	13	0.313312
2019	14	0.71624
2019	15	0.665456
2019	16	0.255600
2019	17	0.685630
2019	18	0.533125
2019	19	0.665546
2019	20	0.313312
2019	21	0.71623
2019	22	0.66624
2020	1	0.663140
2020	2	0.745343
2020	3	0.563132
2020	4	0.745343
2020	5	0.533121
2020	6	0.653432
2020	7	0.998640
2020	8	0.685621
2020	9	0.832221
2020	10	0.952640
2020	11	0.534565
2020	12	0.67620
2020	13	0.967749

2020	14	0.896866
2020	15	0.97570
2020	16	0.745325
2020	17	0.685621
2020	18	0.685621
2020	19	0.896825
2020	20	0.745363
2020	21	0.967756
2020	22	0.657749
2021	1	0.986492
2021	2	0.745343
2021	3	0.997545
2021	4	0.718440
2021	5	0.674952
2021	6	0.745343
2021	7	0.964251
2021	8	0.685621
2021	9	0.733743
2021	10	0.634825
2021	11	0.975723
2021	12	0.89686
2021	13	0.997545
2021	14	0.832221
2021	15	0.964252
2021	16	0.634827
2021	17	0.896821
2021	18	0.718422
2021	19	0.89689
2021	20	0.997552
2021	21	0.634852
2021	22	0.733700
2022	1	0.745343
2022	2	0.313312
2022	3	0.716245
2022	4	0.745343
2022	5	0.685621
2022	6	0.997545
2022	7	1.303880
2022	8	0.896866
2022	9	0.363261
2022	10	0.634825
2022	11	0.998640

2022	12	0.463263
2022	13	0.785626
2022	14	0.336262
2022	15	0.697868
2022	16	0.546963
2022	17	0.336963
2022	18	0.634825
2022	19	0.634830
2022	20	0.997545
2022	21	0.685621
2022	22	0.745343

Appendix 4 : Ethical clearance letter



21 June 2023

Mr Kansilembo Aliamutu (222120243)
School Of Acc Economics&Fin
Westville

Dear Mr Kansilembo Aliamutu,

Original application number: 00021717

Project title: Value chain financing and profitability of edible oil manufacturing companies in South Africa.

Exemption from Ethics Review

In response to your application received on 19 June 2023, your school has indicated that the protocol has been granted **EXEMPTION FROM ETHICS REVIEW**.

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

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.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely,



Prof Josue Mbonigaba
Academic Leader Research
School Of Acc Economics&Fin

UKZN Research Ethics Office
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Website: <http://research.ukzn.ac.za/Research-Ethics/>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

INSPIRING GREATNESS