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**CAPITAL STRUCTURE AND PROFITABILITY OF STATE-OWNED
ENTERPRISES IN NAMIBIA**

by

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Philosophy in the Department of Economics,
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KEYWORDS

Agency Cost Theory

Capital structure

Granger causality

Irrelevance Theory

Liquidity

Namibia

Ordinary Least Square

Panel data

Pecking Order Theory

Pool mean group

Profitability

SOEs

Trade off Theory

ABSTRACT

Public enterprises require an optimal capital structure mix to fund long-term assets that will generate adequate resources to allow the public enterprises to remain financially sustainable over-time. The aim of this study is thus to examine the association between capital structure and profitability among Namibian commercial SOEs, to determine the direction of causality, if any, and to investigate the factors that impact capital structure among commercial SOEs in Namibia. Understanding the impact of capital structure on the performance of commercial SOEs could help the government and public enterprises to determine the apt level of capital structure that would allow these commercial SOEs to effectively take up their respective mandates. Data for various commercial SOEs for the period 2011-2020 was used in the analysis. Given the study's length of time (10 years), data was organized in a panel format to allow for panel data modelling approach. Correlations and panel data models (OLS, fixed effect, and random effect models) were used in this study. A panel Granger causality approach was used to investigate the direction of causality. A negative association between capital structure and profitability of commercial SOEs in Namibia was discovered, however it was not statistically significant. As a result, capital structure is not considered a key determinant of commercial SOE performance in Namibia. The study, in contrast, discovered a significant negative relationship between financial performance and liquidity. Furthermore, the study also tested theories of capital structure which includes the Pecking order, Trade-off, and Agency cost theories. According to the sign of the coefficient and the significance, the capital structure of commercial SOEs in Namibia is better explained by the Trade-Off and the Agency cost Theory, which argue that there are advantages to using debt. Excessive use of debt may however diminish the benefits connected to its use. As a result, the commercial SOEs management will need to constantly rebalance the equity and debt combination within the entities as they embark on various projects that will fulfil the developmental objectives of the government, ensuring that the firms' capital structure is at optimal levels. The causality investigation revealed a unidirectional causality from total liabilities to total assets

(TLTA) to return on assets (ROA), liquidity (LIQ) to ROA, tangibility (TANG) to return on equity (ROE), debt to equity ratio (DER) to profitability (PR) and DER to size.

DECLARATION

I declare that *“Capital structure and profitability of state-owned enterprises in Namibia-2011-2020”* is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources that I have used or quoted have been indicated and acknowledged as complete references.

Meameno Johannes



Signature :.....

Date : November 2022

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Nathan Kolekeni, my nephew, for making my life so bright.

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DEDICATION

To my Mom and Dad

Lucia Sarti and Thomas Kamusheefa Johannes.

LIST OF ABBREVIATIONS

ACT	-Agency Cost Theory
AMTA	-Agro-Marketing Agency
CRAN	-Communications Regulatory Authority of Namibia
DER	-Debt to equity ratio
FE	-Fixed effects
EPS	-Earnings Per Share
IPS	- Im, Pesaran, and Shin
IR	-Inflation rate
MeatCo	- The Meat Corporation of Namibia
M&M	-Modigliani and Miller
MM1	-Modigliani and Miller proposition 1
MM2	-Modigliani and Miller proposition 2
MM3	-Modigliani and Miller proposition 3
MTC	- Mobile Telecommunications Company
NAC	-Namibia Airport Company
NamCode	- Corporate governance code for Namibia
NamCor	- National Petroleum Corporation of Namibia
Namport	- The Namibian Ports Authority
Nampost	-Namibia Post
Nampower	- Namibia Power Corporation
NSX	-Namibia Stock Exchange
OECD	-The Organisation for Economic Co-operation and Development
OLS	-Ordinary Least Square
POT	-Pecking Order Theory
RA	-Roads authority
RE-	-Random effects
ROA	-Return on assets
ROE	-Return on equity

SOE	-State Owned Enterprises
TETA	-Total equity to total assets
TLTA	-Total liabilities to total assets
TOT	-Trade off Theory
UK	-United Kingdom
VECM	-Vector Error Correlation Model
VIF	-Variance inflation factor
WACC	-Weighted Average Cost of Capital

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CHAPTER ONE: INTRODUCTION

1.1. Background

In recent years, capital structure has emerged as one of the most fascinating topics in corporate finance literature. Ideas from the pecking order theory, trade-off theory, and market timing theory have all been used to explain it (Chang, Batmunkh, Wong & Jargalsaikhan, 2019). According to Chang *et al.*, (2019) a corporation's capital structure, also referred to as its financial structure, is the specific ratio of debt to equity that it uses to finance its operations. A company's capital structure is composed of a range of securities, and generally speaking, there are numerous capital structures from which companies can choose.

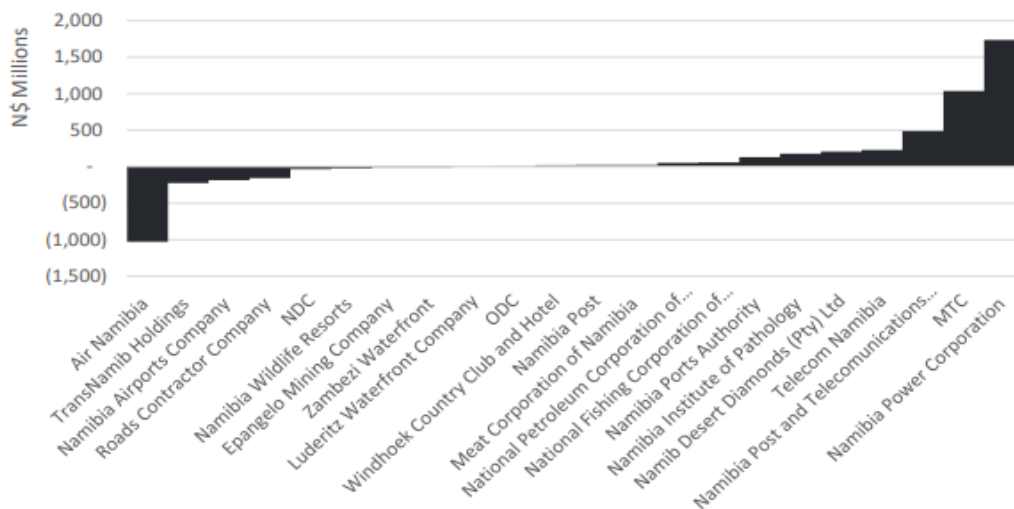
In 1958, Modigliani and Miller created the first capital structure theory. They claimed that in a perfect market, costs such as taxes, the cost of capital, information asymmetry, and bankruptcy costs would not have an impact on either. The value of the company's assets would be what ultimately determined how much it was worth (Modigliani & Miller, 1958).

The majority of the early research on the variables affecting capital structure was conducted on businesses in developed countries, particularly the United States. One of the groundbreaking studies was carried out by Titman and Wessels (1988), who looked into the theoretical variables affecting capital structure. On a firm's decision to select a debt-equity were, the influence of theoretical characteristics such as asset structure, non-debt tax shields, growth, uniqueness, industry categorization, company size, earnings volatility, and profitability was investigated. In an effort to increase the understanding of capital structure models, Rajan and Zingales (1995) investigated whether capital structure decisions in other countries are based on factors similar to those that affect capital structure in U.S. firms. Four variables on leverage: business size, profitability, growth, and the tangibility of assets were tested.

Although capital structure is one of the most contentious and widely researched financial subjects, the idea still leaves plenty of potential for more research. Recent studies have shifted their attention from developed economies where much research previously concentrated on developing economies. There are not many research studies that offer evidence from developing nations. Specifically, the factors that determine a firm's capital structure in Namibia are relatively little studied in the literature on financing choices. According to the researcher's access and knowledge, Namibia has not yet seen any studies on the factors influencing capital structure.

The profitability of some of the SOEs in Namibia has been the subject of various government initiatives aimed at improving their performance (Amunkete, 2015). Figure 1.1 below shows the profitability of 22 Namibian SOEs whose portfolios were taken over by the Ministry of Public Enterprises. As illustrated, without a government subsidy, most of them are non-profitable resulting in a need for them to get a government bailout, funds which could have been used to finance other economic activities.

Figure: 1.1: SOE profitability without subsidy



Source: *Cirrus Securities: Economic outlook 2020*

The company's capital structure is very critical to the success of its operations. It plays a vital role in the management of the company and its various stakeholders. Pandey (2004) stated that "a board of directors or a financial manager should always strive to develop a strategy that is beneficial to all shareholders". Ideally, the financing policy should be designed to raise the value of the company. Capital structure should be used to decrease financial risk and increase a company's profitability. Financial managers should consider the use of capital structure to improve their company's financial risk management and expand their profitability. However, they should not borrow too much to get the tax shield they deserve (Ilman, Zakaria & Nindito, 2011).

1.2. Problem Statement

A number of researchers (e.g. Shubita and Alsawalhah (2012); Amara and Aziz (2014) and Himani and Kumar(2014) studied the link between profitability and capital structure. However, the consensus on the subject has not been reached. According to Chandra, Tavip, Wijaya, Suharti, Mimelientesa and Ng (2019) some researchers claim that capital structure is influenced by debt, while other researchers claim that capital structure is not influenced by debt. In addition to that, the latter source also stresses that there are also studies that shows that the association between profitability and capital structure is negative while others say the relationship is positive. However, it is known that too much debt on board can cause risking technical bankruptcy if the company's cash inflow falls below the minimum level expected and too little debt lead to high cost of capital due to failure to take advantage of the tax benefit from debt financing (Fox, 1977). Despite all these, managers still have to decide on the mix of debt and equity that optimizes profitability. In other words, funds should be raised in a manner that there is a room for profit maximization. Hence managers need to acquaint themselves with the concept of capital structure and understand it.

Mbahijona (2016) studied how capital structure affects the financial performance of firms listed on the Namibian Stock Exchange (NSX). The researcher found that the

firms' performance was significantly and negatively affected by their capital structure. To advance developmental objectives, governments use SOEs as instruments targeted at reducing unemployment, poverty and inequality (Marotholi, 2018). By doing that, public enterprises are expected to maintain their financial footing over the long-run. They do so by raising funds through a capital structure that is optimized to provide enough funds to allow them to remain financially sustainable. There has been a national problem in Namibia where SOEs are often portrayed (see Weylandt and ANTI, 2016) as being unable to provide profitable operations.

This study attempted to fill the gap left by other studies in the field by investigating the effect of capital structure on commercial SOEs in Namibia by extending the performance measures and leverage measures that have been employed by other studies. The study employed two measure of leverage, total liabilities to total assets (TLTA) and total equity to total assets (TETA) in order to investigate the varying effects of these debt structures on corporate finance. Therefore, this study aims to explain the nature of capital structure and profitability among commercial SOEs in Namibia.

1.3. Research Objectives

The study aims to analyze the profitability and capital structure of State-owned enterprises in Namibia. The specific objectives are as follows:

- To investigate the relationship between capital structure and profitability of commercial SOEs in Namibia
- To evaluate whether there is causal relationship between capital structure and profitability of commercial SOEs in Namibia
- To investigate the determinants of commercial SOEs in Namibia.

1.4. Hypothesis

H₀: There is no relationship between capital structure and profitability (Irrelevance theory is true).

H₁: There is a relationship between capital structure and profitability (Irrelevance theory is not true).

H₀: There is no causal relationship between capital structure and profitability

H₁: There is a causal relationship between capital structure and profitability

H₀: There is no relationship between profitability and leverage among commercial SOEs in Namibia

H₁: There is a relationship between profitability and leverage among commercial SOEs in Namibia

The study also looked at other sub-hypothesis that could not be mentioned in the main hypotheses. Other theories such as the Agency cost theory, pecking order theory and the Static trade-off theory were also be tested.

1.5. Motivation

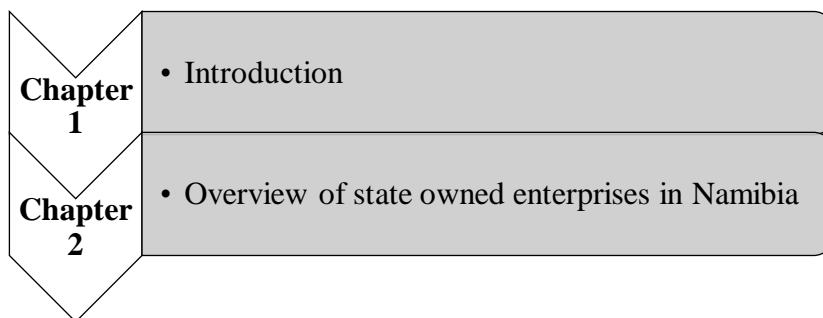
The research regarding the link between capital structure and profitability was necessitated by the controversy of the capital structure theory. Managers need to equip themselves with the implication of capital mix on the firm's profitability. Hence, the findings of the study will be of paramount importance to manager deciding on sources of funds. Although there is a collection of papers on the subject, most of the studies appear to be macro therefore the role of this study to the micro-literature cannot be trivialized. A couple of studies have been done on capital structure and profitability in developing countries, many focus on the private sector and not the public sector. The study is important in the sense that it will contribute to existing literature on capital

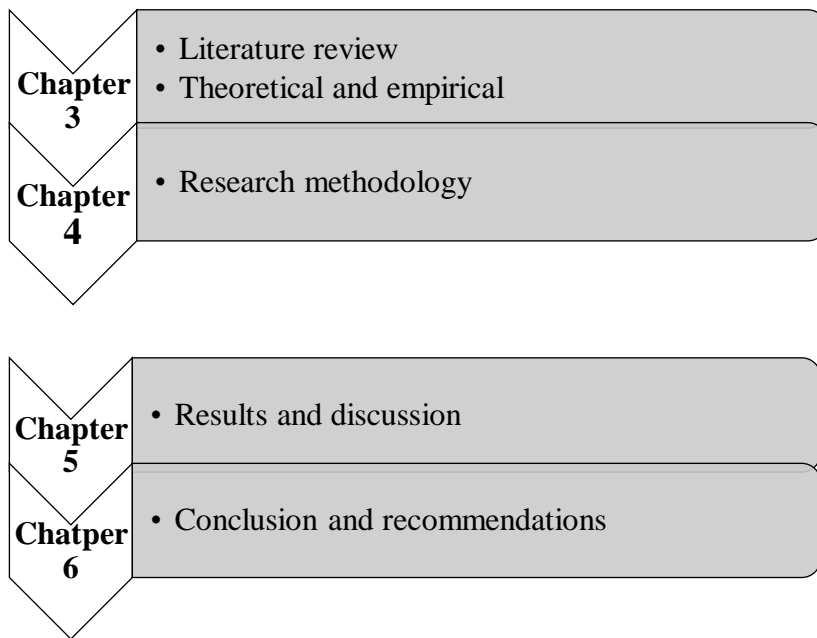
structure and profitability of SOEs specifically in the Namibian context. Additionally, the findings could be used as a reference point by policy makers, management and board of directors of SOEs.

1.6. Structure of the Thesis

The study consists of 6 chapters. The first chapter introduces the study and provides a background to the study, problem statement, objective, hypotheses, motivation and the structure of the thesis. Chapter two provides an overview of State-Owned Enterprises in Namibia. It begins with an introduction to the chapter, followed by the historical overview of State-Owned Enterprises in Namibia, the challenges faced by State Owned Enterprises in Namibia and the Chapter summary. The theoretical literature and empirical literature of capital structure are discussed and reviewed in Chapter 3 of the study while Chapter 4 deals with the research methodology. Chapter 5 deals with the research analysis and finally, chapter 6 presents the Summary, Conclusion and Recommendations.

Figure 1.2. Structure of the Thesis





Source: Authors construction

CHAPTER TWO: OVERVIEW OF STATE-OWNED ENTERPRISES IN NAMIBIA

2.1. Introduction

A thorough discussion on SOEs in Namibia is presented in this chapter. It begins with several definitions of SOEs, then provides a historical review of SOEs in Namibia before identifying the present legal framework and operating procedures. Significant issues with SOE performance, governance, and reform are also noted and examined.

2.2. Definition of SOEs

Reviewing how state-owned enterprises are typically classified, as well as how they are categorized from both a global and Namibian viewpoint, is vital when conducting the study on Namibia's commercial SOEs. According to The International Monetary Fund (2014), SOEs are defined as public enterprises that are treated as for-profit businesses and are separated from their owners, the government, by statutory and administrative rules. In their financial accounts, they clearly display the assets and liabilities that are utilised in running their firm. Governmental organizations that engage in extensive public trade of commercial and industrial commodities are among them.

SOEs can be categorized as either commercial or non-commercial entities, depending on the justification for their creation. Commercial SOEs are government-owned companies that perform government duties in a manner consistent with commercial principles and are motivated by profit maximization however, they also need to improve service delivery (Moeti, 2013).

On the other hand, governments create non-commercial SOEs to perform tasks on their behalf with the primary goal of offering goods and services to the general population. They carry out particular goals that are not financially motivated and are prohibited by law from declaring any dividends (OECD, 2014). Accordingly, SOEs may be

characterized as government owned and controlled businesses that prioritize financial operations and economic expansion. According to Ferreira (1993), SOEs are legitimate businesses that the government has formed partially or completely to operate as business organizations. Even when the government makes financial interventions, SOEs still have a responsibility to create money through the sale of the commodities, services, and products they trade (Ferreira, 1993).

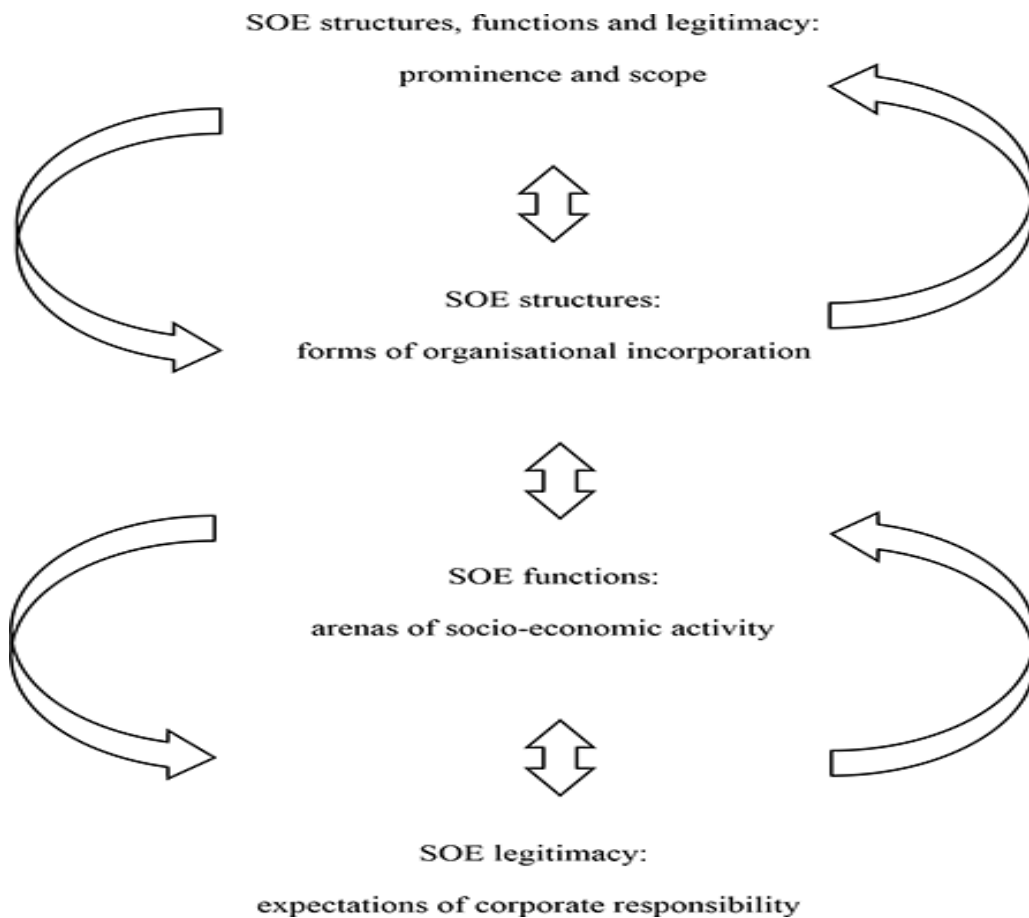
The Namibian economy places a lot of value on SOEs since they are regarded as engines of economic growth and important sources of infrastructure services like transportation and water. This allows the economy to expand while guaranteeing that everyone has access to high-quality services (Kikeri, 2018). Although we have these definitions of commercial and non-commercial SOEs, modelling them is not quite easy due to the influence of several factors such as board appointments and government utilities (McLellan, 2005), ownership structure (Gillis 1980), role of government (OECD, 2005b), as well as their own role and function (Lawson, 1994; Martin, 1996).

According to Gillis (1980), SOE definition in some categories is based on specific elements, for instance the government being the primary stockholder, the supply of goods and services, and policy issues. Because SOEs are a hybrid of the public and private sectors, both sectors frequently have an impact on their goals and organizational structures. Due to this, SOEs are institutionally distinct from other economic organizations like private businesses and governmental agencies. Moreover, Chang (2007) states that SOEs were initially established to address problems such as market failure and capital shortfalls, encourage economic development, offer public services, and ensure government control over the overall course of the economy by infusing capital and technology into deliberate areas that lack private sector interest and/or capacity.

2.3. State Owned Enterprises roles and responsibilities

Thynne (2021) asserts that state-owned enterprises (SOEs), which are also commonly privatized through divestment, are common in many nations. The fact that they exist and are for sale distinguishes public governance, which entails tactical interactions between the government, the market, and civil society. They thus represent interrelated arenas for socioeconomic activity, corporate responsibility expectations, and organizational incorporation forms. In light of this, the current emphasis is on their interconnected structures, functions, and legitimacy in theory and practice (see Figure 2.1 below).

Figure 2.1. Interlocking of SOE structures, functions and legitimacy



Source: Thynne, 2021

SOEs' roles and the goods and services provided by them can be intertwined and mutually beneficial. Owner, customer, user, seller, buyer, regulator and producer are among their roles. They include water, physical infrastructure, electricity, telecommunications, finance, education, healthcare, gas, postal service, and natural resources (Thynne, 2021).

According to Thynne (2021), the SOE roles of provider, producer and seller are supply-based, while consumer, buyer and user are demand-based. Owner, facilitator and regulator are both supply and demand. More specifically, the roles can intersect and crisscross as supply and demand mixes. As a result, SOEs can frequently regulate and facilitate markets in a variety of significant ways. This is especially true where they have monopolies and the ability to diversify their businesses. These circumstances enable them to broaden the scope and impact of their market and civil society roles, goods, and services (Thynne, 2021).

Additionally, SOEs are either active or passive owners of land, physical infrastructure, buildings, equipment, and subsidiaries of other SOEs. Active ownership entails using what one owns to directly purchase, produce, provide, and sell goods and services. Leasing or hiring out their assets to other producers and providers is the definition of passive ownership. While the passive approach decouples regulation and facilitation from production and provision in a way that necessitates the adoption of legally binding agreements with other contributors, the active approach gives them immediate regulatory and facilitative capacity through production and provision (Thynne, 2021).

Thynne (2021) continued by arguing that the goods and services involved influence SOEs and the roles they play. The focus is on the availability, accessibility, consumption, and use of those goods and services, as well as their reasons, means, and locations. For availability, place, quantity, and quality are particularly important; for accessibility, rights, ability, and affordability; and as reactions to consumption and use, replenishment, maintenance, and enhancement. All of this calls for strategic action that is appropriate and draws on the direct knowledge of supply and demand that SOEs

have. This makes it possible to continuously learn the right lessons and make managerial adjustments as a result.

Government policies, including both legislative and non-legislative ones, will undoubtedly have an impact on the roles, products, and services that SOEs provide (Thynne, 2021). Policies frequently acknowledge that important social and community service obligations must be balanced against or added to commercial economic objectives (Thynne, 1994). These obligations are particularly crucial when the products and services are "primary necessities" of life, necessitating a transparent, "common calling" style of management and governance (Klappstein, 2014; Taggart, 1997, pp. 6–7). Their importance, as well as the response, justifies regulation, especially of fees for consumption or use as a way to ease access to goods and services in the public interest (Thynne, 2021).

2.4. A Historical Overview of State-Owned Enterprises in Namibia

Namibia's history regarding its SOEs cannot be separated from the history of the struggle against the foreign rule on one hand and for social-political and economic liberation on the other (Limbo, 2019). Like many other countries in post-independence Africa, the Namibian government aimed to set up a public sector that was quick to respond to the needs of all Namibians. Though the public sector existed before independence, there was still a large group of people and communities left out because of racial and/or political reasons.

Post-Independence the Namibian government started with 12 SOEs in 1990 which grew exponentially to over 45 SOEs by 2003. This number however grew further as the government devoted much attention to the sector. By the end of 2017 there was a total of 97 SOEs in Namibia (Weylandt & ANTI, 2016). The growth in the number of SOEs in the first years after independence was driven by an array of factors. Firstly, some SOEs had to be created in order to build and cater for the new state after

independence and secondly, the government was keen on commercialization and privatization (Taylor, 2006). Although it is true that numerous SOEs have experienced many challenges which include performance and governance, it is important to note that they are not condemned by their fundamental nature.

2.4.1. “The Public Enterprises Governance Act (Act No. 1 of 2019)”

Upon being elected as the President of the Republic of Namibia in March 2015, President Hage Geingob recognized the reform of SOEs in Namibia as one of the key issues under his presidency. This led to the establishment of the Ministry of Public Enterprises (MPE) which was responsible for reforming the Namibian public enterprises by adopting a Centralized Governance Model to replace the existing Dual-Governance Model. The ministry was also responsible in ensuring that SOEs are placed in a position where they are well managed and not presenting a financial liability to the State.

The Namibian parliament passed the Public Enterprises Governance Act (Act No. 1 of 2019) in 2019, which repealed and replaced the SOE Governance Act (Act No 2 of 2006). The very first stage of Public Enterprise in Namibia operated in a situation where they were completely decentralized. This meant that the individual Portfolio Ministries were responsible for all functions related to the Public Enterprise under their jurisdiction.

The new Act makes use of a hybrid model for governing Public Enterprises in Namibia which classifies the public enterprises into 3 categories. Section 2 (2)(a)(b)(c) of the Act classifies public enterprises into these three categories:

“(2) In the notice referred to in subsection (1) the Minister must -

(a) if he or she is of the opinion that the board, corporation, council, fund, trust, body,

business or company -

(i) provides a product or renders a service;

(ii) is capable of making a sustained profit; and

(iii) does not perform a regulatory function or administers a fund in the public interest,

[The verb “administers” should be “administer” to be grammatically correct if the opening phrase

“does not” applies to both subsequent clauses (ie, the body does not perform a regulatory function and the body does not administer a fund in the public interest). Alternatively, the provision may have been intended to refer to one negative situation and one positive situation (ie, the body does not perform a regulatory function, or the body administers a fund in the public interest). It is not possible to tell from the structure of subparagraph (iii) which meaning was intended.]

specify that it is a commercial public enterprise;

(b) if he or she is of the opinion that the board, corporation, council, fund, trust, body,

business or company -

(i) was established to administer, allocate or utilise funds intended for a specific purpose; and

(ii) those funds are obtained from moneys appropriated by Parliament or obtained from a levy imposed for the purpose referred to in subparagraph (i),

specify that it is an extra-budgetary fund;

(c) if he or she is of the opinion that the board, corporation, council, fund, trust, body, business or company does not comply with either paragraph (a) or paragraph (b), specify that it is a non-commercial public enterprise.”

Of the three categories that were classified in the Act (commercial, non-commercial and extra budgetary), commercial enterprises are to become the exclusive domain and accountability of the Minister heading the Ministry of Public Enterprises. Moreover, the Minister is responsible for the other two categories in a power-sharing arrangement, alongside the relevant Minister, as defined in Section 1 of the Act.

Following recommendations by a high-level panel on the Namibian economy, the Ministry of Public Enterprises began its transformation into a department under the Ministry of Finance. The Ministry lasted for 7 years, from 2015 until 2022 under the leadership of Leon Jooste. Given these changes, the responsibilities now fall onto the Minister of Finance.

2.4.2. The Namibian Corporate Governance Code (NamCode)

According to the King Report, the NamCode, and the State-owned Enterprises Governance Act No. 2 of 2006, State Owned Enterprises fully adhere to the fundamentals of good corporate governance. In accordance with the NamCode (2014, p2-4), boards of directors are frequently faced with a variety of complex decisions, and the best option is not always obvious. The NamCode includes a list of best practice principles to help and direct directors in selecting the best option for their entities. The King Report on Corporate Governance for South Africa and its successors, King II and King III, have been a crucial resource for directors and regulators in numerous

jurisdictions ever since it was first published in 1994. The NamCode, which is based on King III, offers guidance to all corporate entities operating in Namibia on various aspects of governance. Ethical leadership and corporate citizenship, boards of directors, audit committees, risk governance, information technology governance, compliance with laws, codes, rules, and standards, internal audit, managing stakeholder relationships, and integrated reporting and disclosure are a few of these elements.

The NamCode also covers issues related to the Board and Directors, including the composition of the Board, the roles and responsibilities of the Chairperson and CEO, the appointment procedure for the Board, compensation, director development, and director performance evaluations. The relationship between risk management and the company's strategic and operational processes is also covered, as are the three lines of defence for risk management (line management, risk experts and assurance functions), alternative dispute resolution and stakeholder relationships, IT Governance and IT Risk Management, as well as compliance with laws and regulations.

Since the primary goal of the NamCode is for businesses to "apply or explain," rather than be forced to follow recommended practice, there are no constitutional requirements for establishments to adhere to it. However, if they choose not to use the advised practices as outlined in the NamCode, directors should be able to articulate their decision and justification to shareholders and other stakeholders. The NamCode is applicable to Directors of SOEs even though it was initially written for use by listed companies.

State Owned Enterprises fall and operate within the context of corporate governance and as a regard it is fundamental to understand what corporate governance entails. "One of the great attributes of practicing good governance is that a well-governed company usually is able to attract better employees than one that is not" King (2006). It is also established that company A, which practices good corporate governance compared with company B in the same industry which does not practice good governance, company A will be able to raise capital more cheaply (King, 2006). For this reason, the

directors of any company alone need to ensure that their companies are being well governed (King, 2006).

2.5. Performance of SOEs in Namibia

One cannot separate the existence of SOEs from Government intervention as it is essential to SOEs operations. According to OECD estimates from 2016, 22% of the top 100 corporations in the world are under government control.

In addition to being a shareholder, the government also acts as a stakeholder. In both capacities, the government demands that SOEs adopt sound corporate governance practices. According to the OECD (2014), via effective corporate governance, SOEs should carry out the government's mission to contribute to and reallocate funds for economic development projects. The link between them must be evident as a guide for the engagement between the government and the SOEs. This does not imply that the government should get involved in all of the operations of the SOEs. Clarification and communication of the connection between the government and SOEs are essential, as the OECD (1998) underlined, particularly about government goals, monitoring, and reporting, as well as the evaluation of director positions and performance. As the OECD (1998) highlighted, the clear connection between the government and the SOEs include boosting financial discipline, focusing on the core business, and managing the ties between the government and the SOEs.

It is common knowledge that very few Namibian SOEs make a profit. Recent initiatives, such as the NamCode and the Public Enterprise Act 1 of 2019 are aimed at turning them around.

One in every 20 jobs are supported by parastatals, according to the government, whose business portfolio is valued at N\$90 billion. Namibia Power Corporation (Nampower), which had a profit after tax of N\$1.2 billion in 2017/18, is among the best-performing parastatals (Minney, 2019). This is primarily due to Nampower's status as a monopoly,

whose prices are controlled by the Electric Control Board, allowing them to continually raise prices and generate profits. The Mobile Telecommunications Corporation (MTC), which generated N\$711 million in 2016–17, and Telecom Namibia (N\$244 million in 2016–17), are two additional top producers (Minney, 2019).

During the 2022/2023 budget review, Namibia’s Minister of Finance Ipumbu Shiimi increased the budget for the phased-out Ministry of Public Enterprises from N\$734 million to N\$791 million. While motivating this allocation, the Minister of Finance, who was also acting as the Minister of Public Enterprises said the biggest allocation (which is N\$ 747 million) of the ministry’s budget will go to the 10 parastatals that fall under the ministry.

Table 2.1: 2022/2023 budget allocation of Namibia’s 10 parastatals under the Ministry of Public Enterprises.

Parastatal	Allocation
Namibia Wildlife Resort (NWR)	N\$188 million
TransNamib	N\$175 million
Namibia Institute of Pathology (NIP)	N\$107 million
Agriculture Business Development Agency (AgriBusDev)	N\$75 million
Agro-Marketing Trade Agency (AMTA)	N\$72 million
Road Contractor Company (RCC)	N\$55 million
Namibia Airport Company (NAC)	N\$47.5 million
Epangelo Mining	N\$12 million
Lüderitz Waterfront	N\$9.8 million
Zambezi Waterfront	N\$4,5 million

Source: 2022/2023 budget review and Authors construction

The remaining N\$44 million is to go towards legal, economic, financial advisory, policy coordination and support services.

On the 11th February 2021 the Namibian Government announced the immediate shut down and liquidation of Namibia's national airline AirNamibia. The airline operated 10 aircrafts on routes to 18 destinations, seven being domestic (Minney, 2019). The decision to close the airline was taken after careful consideration as the national airline was not profitable and has not been profitable since inception. According to a media statement release by the Ministry of Finance (2021), at the time of its shut-down, the airline had significant debt of about N\$3 billion and government guaranteed debt of N\$2.58 billion. This was a situation that the government was unable to sustain in economic conditions it was facing (which were exacerbated by the Covid-19 pandemic) and it was therefore unreasonable for the airline to trade out of insolvency.

The national airline was attempted to be saved on numerous occasions, but none of these efforts were successful. It was discovered during these efforts that a sizeable sum of more than N\$4 billion would need to be made available in order to save the national airline. This, however, was not feasible at the time because using this amount of money would have come at the expense of other national priorities like agriculture, housing, health, and education. Another effort to save the national airline involved collaborating with other airlines that are already operating in and out of Namibia as well as those that plan to, to see if they would be interested in strategic alliances (Ministry of Finance, 2021).

When AirNamibia was shut down and liquidated, it was leasing two aircraft for which the government had previously provided guarantees. Regardless of whether AirNamibia continued to operate or was liquidated, the government was required to pay this estimated sum of N\$2 billion to N\$2.5 billion (Ministry of Finance, 2021).

2.6. Why SOEs fail

SOEs in Namibia either fail to a point whereby they start seeking financial bailouts from the government or they fail to a point of being liquidated. State institutions that

fell victim on not being able to remain operational include AirNamibia and Small Medium Enterprises (SME) Bank. It is therefore necessary to understand why SOEs fail.

When enterprises are owned by a state, rather than shareholders interested in looking out after their investment, the people making the decisions have less at stake. Therefore, you see things like corruption, nepotism and spoiled systems leading to situations where we have unqualified people in positions that affect the operation of the entities, unwillingness to make profitable investments where they are needed, and cultural problems (Thomas, 2018). This does not however mean that enterprises owned by shareholders and not the state are immune to all these aspects.

State-enterprises are not unique to these behaviours as any enterprise where ownership becomes so diffuse that perverse incentives arise leading to a lack of responsibility within the organization is subject to these problems. It is just that state-owned enterprises are, by definition, owned by a group so diffuse that it cannot shape the organization in a way that leads incentives and structures that benefit and maintain the enterprise (Thomas, 2018).

As much as there is a large number of SOEs that fail, they are needed to provide citizens with access to vital services such as healthcare, water, transport and electricity. Apart from the reasons given above, internal corruption, government indicating wrong people for key positions, lack of investments, problems in careers plans or people development and company cultural problems are among the main reasons why SOEs fail (Polck, 2018). Stringent government control and limitations around the general operations and decision making also affect the survival of SOEs (Pimentel, 2020).

Some State-Owned Enterprises are established to sell services that are not feasible from a business perspective, like rail based transportation (Lahuddin, 2020). If a private company wants to build railways, the initial investment will be large, and needs 10 years or more for them to get a return on their investments (Lahuddin, 2020). One would understand why TransNamib is struggling to make money for government. In a

developing country, professionals do not run SOEs but a politician who has no educational background in public administration will rather preside over an SOE, and government as the shareholder will expect the SOE to be profitable (Lahuddin, 2020).

2.7. Ways in which SOEs can be better managed

Enhancing SOE effectiveness will have benefits like higher profitability, which will lead to further, scalable advancements in the government's financial situation (Sanchez, 2016). By redistributing resources among the SOE sector and the economy, these improvements help to increase productivity and economic activity (Sanchez, 2016). There are many methods for increasing SOE efficiency, and the World Bank's immense experience has adequately shown that, in most cases, efforts to increase SOE efficiency on a per-SOE basis have been seriously undermined by flaws in the overall public policy and oversight scheme (Sanchez, 2016). Individual reforms frequently fall short of conducting an objective analysis of the existence of SOEs or the interactions between governments and businesses (Sanchez, 2016).

Furthermore, according to Sanchez (2016), the SOE sector has been the focus of several reforms in recent decades. They were created to either increase its effectiveness or stop it from developing into a problem. These changes can be grouped into three categories: privatization, owner role restructuring, and strengthened corporate governance. These reforms have had only modest effects, and many issues still exist (Sanchez, 2016).

Additionally, in many developing nations, SOEs continue to be a vital source of employment, public service delivery, and socioeconomic development (Kim & Ali, 2017). However, for many years, the effectiveness of SOEs in developing countries has been severely hampered by the overlapping ownership and management responsibilities of most developing country governments, as well as the majority SOEs' ambiguous and imprecise mandates (Kim & Ali, 2017). Kim and Ali (2017) went on to say that it has become more difficult to monitor and assess the performance of SOEs in some countries due to the lack of a centralized and reliable database on them.

Therefore, they must ensure that the ownership and management functions of SOEs are separated in order to improve SOE performance in developing nations. Second, they must designate autonomous and qualified management to develop strategies for achieving both short- and long-term goals that are clear and quantifiable. Third, SOE management must set up open and impartial monitoring and evaluation systems so that they can regularly report on performance to all significant stakeholders and recommend changes as necessary. Finally, SOEs must offer competitive salary packages to entice qualified and talented individuals to join their ranks (Kim & Ali, 2017). To create a professionally competitive workplace culture and raise the effectiveness and profitability of SOEs, these employees should be rewarded for improved performance and disciplined for persistent underperformance (Kim & Ali, 2017).

2.8. A brief description of the commercial SOEs

2.8.1. Namibia Post Office (Nampost)

Nampost was founded in 1992 and manage 92 post offices in Namibia at the time. NamPost is Namibia's designated postal service provider, operating under a license from the Communications Regulatory Authority of Namibia (CRAN). According to their 2021 Annual Report, their primary goal is to create value for our shareholders and other stakeholders while delivering social impact and return, including the universal service obligation mandated by CRAN's postal license. They add value to communities and businesses by ensuring the availability and affordability of services that promote interaction and improve Namibians' quality of life.

The Namibian government owns 100 % of Namibia post and telecom holdings LTD, which owns 100 % of Nampost. NamPost's governance practices, according to their 2021 Annual report, are guided by the Corporate Governance Code for Namibia (NamCode), which is based on King III Report on Corporate Governance for South Africa 2009 (King III) principles, as well as King IV (2016).

2.8.2. NamPower

The former Southwest Africa Water and Electricity Corporation (SWAWEK) gave rise to Namibia's national power utility, NamPower, according to the NamPowers company profile. SWAWEK was established on December 19, 1964, as a privately held, 100 % owned subsidiary of the Industrial Development Corporation of the Republic of South Africa (IDC). SWAWEK's success depended heavily on the efficient construction of the hydropower station, the Ruacana Scheme, and the creation of a transmission system for the distribution of electricity through the nation's central districts to Windhoek. Over the course of its 32-year existence, SWAWEK has significantly influenced the economic growth of the nation. Most regions were connected to the network by the early 1980s, and the 240 MW Ruacana Scheme went into operation in 1978.

In accordance with the Electricity Act (Act 2000), which required the national power industry to be restructured, the company publicly committed itself to the continued development and social upliftment of the Namibian people. According to the company profile, NamPower made comprehensive energy provision and supply efficiency throughout Namibia an even higher priority as the new millennium approached. As a state-owned enterprise, NamPower is governed by the Electricity Control Board and reports to the Ministry of Mines and Energy, which is the shareholder and represents the Namibian Government. A Board of Directors provides oversight and direction for the utility, which is incorporated and thus operates under the Companies Act.

2.8.3. Mobile telecommunications Limited (MTC)

With over two million active subscribers, Mobile Telecommunications Limited (MTC) is Namibia's largest mobile carrier and a provider of mobile telecommunications and internet services. MTC was Namibia's only cellular provider when it was established in 1995. The Namibian government, Namibia Post and Telecommunications Holdings (NPTH), Telia, and Swedfund joined forces to create MTC. In 2006, the Namibian government sold 34% of MTC shares to Portugal Telecom for N\$1.34 billion while

keeping the remaining stake through NPTH. In May 2004, NPTH completed a deal in which it acquired the 49 % stake in MTC held by Telia Overseas AB and Swedfund International AB. This is in accordance with the data presented on the MTC website (Mobile Telecommunications Company).

According to the company profile for 2021–2022, MTC has been a publicly traded company wholly owned by Namibia Post and Telecom Holdings Limited (NPTH), a government organization, since 2018. Following its listing on the Namibian Stock Exchange (NSX) on November 19, 2021, MTC's shareholding structure changed, with NPTH now holding 60% of the company's shares and private institutional and retail investors owning 40%.

2.8.4. The Namibian ports authority (Namport)

The Namibian Ports Authority (also referred to as "Namport") was created by the Namibian Ports Authority Act, No. 2 of 1994. It is a public enterprise according to the Public Enterprises Governance Act, No. 1 of 2019. Namport, Namdock, Namport Property Holdings (Pty) Ltd, Lüderitz Boatyard (Pty) Ltd, and Namibia e-Trade Services (Pty) Ltd are collectively referred to as the "Group" along with Namport. From its headquarters in Walvis Bay, Namport oversees the management of Namibia's ports in Walvis Bay and Lüderitz. Southern Africa, Europe, Asia, and the Americas can all be reached quickly and conveniently through the Port of Walvis Bay, which is located on the southwest coast of Africa. The only shareholder of the business is the government of Namibia.

The southern regions of Namibia as well as South African markets in the Northern Cape are served by the port of Lüderitz, which is located 254 nautical miles south of the port of Walvis Bay. Namibia's ports act as natural entry points for international trade, and its stable political climate attracts foreign direct investment. Namibia is able to compete as a transport hub for all regional and international trade between the countries of the Southern African Development Community, Europe, Asia, the

Americas, and the rest of the world thanks to its connecting transport corridors, which are strategically positioned to provide direct access to major shipping routes (Vision & Mission (namport.com.na)).

The 2016 King Report on Corporate Governance for South Africa (King IVTM), NamCode, and the Public Enterprises Governance Act 2019 (Act 1 of 2019) are among the documents that the Authority's corporate governance philosophy claims the corporate governance structure complies with. Seven (7) non-executive directors, each of whom has been appointed for a three-year term, make up the Board. The Board of Directors was given authority under the Governance Agreement that was signed with the portfolio minister. Each director signs a performance agreement with the portfolio minister in accordance with the Public Enterprises Governance Act No. 1 of 2019. (as may be amended from time-to-time).

2.8.5. Meat Corporation of Namibia (MeatCo)

As a government agency in charge of the production and export of Namibian meat, the Swameat Corporation was established in 1986. In 2001, it changed its name to Meat Corporation of Namibia (MeatCo).

According to their 2021 Annual Report, Meatco adheres to the good corporate governance principles outlined in the NamCode and King IV Code on Corporate Governance, as well as any directives, regulations, or best practices issued from time to time in accordance with Sections 4 and 38 of the Public Enterprises Governance Act, Act 1 of 2019.

2.8.6. Telecom

The national telecommunications provider, Telecom Namibia Limited, was established in August 1992 and is wholly owned by the Government of the Republic of Namibia. It is commercialized business and a division of Namibia Post and Telecom Holdings Limited, Telecom Namibia conducts business.

The company, which uses a 100% digital transmission network, offers a wide range of communication services and solutions in broadband, data, and voice over fixed, fixed-wireless, and mobile platforms. According to the annual report, Telecom Namibia has adopted a strategy for integrated communication solutions, with products and services catered to wholesale customers, corporations, the government, large and medium-sized businesses, small businesses, small offices with home offices, and residential customers.

2.8.7. National Petroleum Corporation of Namibia (Namcor)

The Government of Namibia is the only shareholder of Namcor, which is a company that has been legally established under the Namibian Companies Act 28 of 2004. They are authorized to carry out reconnaissance, exploration, and production operations independently or in cooperation with other industry organizations under the Petroleum (Exploration and Production) Act of 1991. Their annual report claims that by selling various petroleum products to various market segments, they create value in the downstream industry.

2.8.8. Roads Authority

The Roads Authority, whose primary mission is to (Roads Authority Namibia Roads Authority Namibia - About Us (ra.org.na)) build and maintain Namibia's road infrastructure, is critical to Namibian road safety. Namibia's road network is regarded as one of the safest, efficient, and most sustainable in the world, and it is the envy of many countries. According to their website, the development of road infrastructure and the expansion of the road network have greatly aided Namibia's and the SADC sub-economic region's development. Their road construction projects aimed at expanding road infrastructure to previously neglected and marginalized communities remain high priorities for the Government of the Republic of Namibia and other development partners.

2.9. Chapter Summary

In this chapter, a summary of SOEs in Namibia was provided. SOEs were defined in terms of commercial and non-commercial, and it was discovered that despite these definitions, modelling SOEs is difficult due to the influence of various factors like board appointments (McLellan, 2005), ownership structure, and policy considerations (Gillis, 1980).

There was also discussion on the history of Namibia's SOEs and its connections to the history of the liberation struggle. Even though Namibia's SOEs have a history of inefficiency and underwhelming performance, they are important to the country's economic growth, and new initiatives like the NamCode and the Public Enterprise Act 1 of 2019 are working to improve things. This chapter also looked at the roles and responsibilities of SOEs and a brief description of the SOEs that are considered in this study.

CHAPTER THREE: LITERATURE REVIEW

3.1. Introduction

Academics have invested a lot of time and energy into researching capital structure and how it affects firm performance, but there is still no agreement on the projected outcomes. The current chapter presents a thorough review of the theoretical and empirical studies that have already been conducted and explains research gaps based on prior literature. The review of the theoretical literature is followed by a review of the empirical literature on capital structure and firm performance in the first section of the chapter. The methods used in capital structure research are then reviewed, and finally the research gaps are discussed.

3.2. Theoretical Literature Review

Capital structure is described by a number of theories. The capital structure that seems famous is the irrelevance theories. This theory states that “the value of a firm and its cost of capital depend entirely on the real assets that the firm owns, and the firm’s financial capital structure cannot ever impact the market value of those real assets”, (Culp, 2006). Furthermore, Wafula and Otuya (2019) outline the assumption of the Modigliani and Miller-Irrelevance (M&M) theory of capital structure namely; perfect markets, no tax, no transactional costs, complete rationality, substitution between personal and corporate leverage as well as easy identification of financial institution with similar risk categories. These assumptions seem unrealistic hence the practicality of this principle is dubious. The theory was later revised into a second version which includes taxes, bankruptcy cost and asymmetric information to reach a more plausible accommodation with stylized factors of capital structure (Gordon, 1989).

The static trade off and pecking order theories are also reviewed in this section. Calabrese (2011) states that “the static trade-off theory is based on a notion that firms

balance the costs and benefits of debt to reach an optimal leverage level, while the pecking order theory suggests that firms simply prefer internal funds to external borrowing”. As cited by Stančić, Janković, and Čupić (2016) this theory argues that managers are hesitant when it comes to issuing equity due to the high information asymmetry and transaction costs. The concept of the pecking order aims to address the inadequacies of the M&M theory and consider the various factors that affect the decisions made by the management team and outside investors.

The equity market timing theory and the agency cost theories are also discussed. According to Barker and Wurgler (2002), “Equity market timing refers to the act of issuing share at a high prices and repurchasing them at a low prices in order to exploit temporary fluctuation in the cost of equity relative to the cost of other forms of capital”. Boudry, Kallberg and Liu (2009) argued that managers try to time the market when they think that their company is of more value than it actually is. This theory counters other theories that suggest that managers are more concerned with controlling the market than with the true value of their companies.

The agency cost theory states that “An optimal capital structure is attainable by reducing the costs resulting from the conflicts between the managers and the owners”, (Chechet & Olayiwola, 2014). The scholars in this conviction believe that capital structure is defined by the agency costs. There are different versions of the agency cost theory that appears in the literature reviewed. Firstly, Jensen and Meckling (1976) claim that “an optimal capital structure can be obtained by trading off the agency cost of debt (asset substitution) against the benefit of debt (increase in managerial ownership)”. Secondly, Jensen (1986) suggests that industries where there are high leverages are likely to experience over investments with low free cash. Thirdly, Harris and Raviv (1990) claim that if a firm has a higher liquidation value than a similar firm with lower investigation costs, it will have a higher market value than if it has a lower liquidation value.

An in-depth review of the theories discussed above is provided below.

3.2.1. The Modigliani and Miller- Irrelevance Theory

The capital structure irrelevance theory by Modigliani and Miller (1958) serves as the foundation for contemporary company finance theory. There was no widely acknowledged capital structure theory prior to them. Beginning with the presumption that the business has a certain set of anticipated cash flows, Modigliani and Miller proceed. When a company decides to finance its assets with a certain mix of debt and equity, all it does is distribute the cash flows among the investors. Since investors and businesses are expected to have equal access to financial markets, leverage may be created at home. Any leverage that was desired but not offered may be provided by the investor, and any leverage that the business assumed but that the investor did not desire may be eliminated. Consequently, the firm's leverage has no impact on the firm's market value.

Looking at the initial work from Modigliani and Miller (1958), it is clear that this theory is a compilation of findings intended to show that financial judgments are irrelevant under ideal capital market conditions. The Modigliani and Miller theory (1958) became the primary explanation of the capital structure very quickly after it was published (Pan, 2012).

The basic thesis and the principles of Modigliani and Miller's Theorem (1958) imply that there is a completely efficient market without taxes, transaction fees, or bankruptcy costs. They also imply that all participants have access to a wealth of information. To make the theory more accurate, Modigliani and Miller (1958) added the impact of taxes to their model in 1963. Three significant statements that constitute the foundation of Modigliani and Miller's theorem may be inferred from their publications from 1958, 1961, and 1963 (Breuer & Gürtler, 2008).

3.2.1.1. Modigliani-Miller Proposition 1

According to the Modigliani-Miller Proposition 1 Theory (MM1), the cost of capital and the value of the firm are unaffected by a change in the capital structure in a certain market pricing process, absent taxes, transaction costs, asymmetric knowledge, and a perfect market. The real assets of the firm, not the securities it has issued, are what define its worth. In other words, as long as the firm's investment choices are assumed to be obvious, capital structure decisions are meaningless.

The theorem was initially shown by Modigliani and Miller(1958) on the presumption that there are no taxes. It is comprised of two claims: Firstly, the value of the company and the total cost of capital are unrelated to the capital structure. By multiplying the anticipated net operating income by the rate appropriate for that risk class, the overall market value of the company is calculated. Secondly, As the capital structure contains more debt, the financial risk rises. As a result, the low cost benefit of debt is precisely compensated by rising equity costs. As a result, the overall cost of capital is unchanged.

As described by Modigliani and Miller (1958), their approach is based on the assumptions given below:

Perfect Capital Market

The assumption is that there is a perfect capital market. In addition, investors are free to purchase and sell securities, have access to all information and updates, are able to do so without incurring any fees (such as broker commissions or transfer fees), and are on an equal footing with businesses when it comes to borrowing against assets (Bose, 2010).

The First Proposition without the Effect of Taxes

In their research, Modigliani and Miller take into account and examine two firms with two different capital structures, one of which includes debt while the other does not.

By assuming that both firms get an equal amount of cash flow, Modigliani and Miller (1958) have come to the conclusion that financial decisions made by corporations have no impact on their market value (Brigham & Ehrhardt, 2010).

In essence, Modigliani and Miller contend that the capital structure requires that projected cash flow be distributed evenly across investors, with no impact on the company's value (Popescu & Sorin, 2011). The profitability and risk of the company's assets, not its capital structure, define its value, according to Modigliani and Miller (1958).

The M&M theory equation can be represented as follows, according to Pan (2012):

$$VL = VU \quad \dots 2.1$$

Where:

- VU = Value of the unlevered firm (financing only through equity)
- VL = Value of the levered firm (financing through a mix of debt and equity)

Using this formula, Modigliani and Miller (1958) claim that financial choices have no bearing on a company's market value.

The First Proposition with the Effect of Taxes

The tax shield effect is the idea put out in the first tax proposal by Modigliani and Miller that corporations with greater debt in their capital structures are more valued or have a greater market value than enterprises without debt in their capital structures because interest is excluded from taxation. The tax share paid by firms with debt in their capital structure is lower than it is for firms without debt because of the taxation system (which excludes the interest paid on the debt). This affects the market value of the firm directly (Alifani & Nugroho, 2013).

The M&M theory equation can be represented as follows, according to Pan (2012):

$$VL = VU + TCD \quad \dots 2.2$$

Where:

- VL = Value of the levered firm in the capital structure
- VU = Value of an unlevered firm in the capital structure (D)
- TCD = Tax ratio (TC) x the value of the debt

Alifani and Nugroho (2013) assert that firms find it advantageous to include debt in their capital structure owing to the tax shield effect, which results in lower tax payments due to the payment of interest and has an impact on the market value of the firm.

The MMI proposition has some implications as its assumptions are rather unrealistic. It is difficult to assert that all the parameters outlined in MM1 proposition are present in a single market. Breuer and Gürtler (2008) emphasize that MM1 proposition does not take into account any type of arguments based on the flaws in capital markets.

3.2.1.2. Modigliani-Miller Proposition 2

According to the Modigliani-Miller Proposition 2 Theory (MM2) "the cost of equity increases with the increment of debt-equity ratio in the capital structure of a firm." Even though all of the assertions from 1 to 3 have the same names, Breuer and Gürtler (2008) claim that they all differ considerably. According to Villamil (2000), MM2s argument holds that the leverage of a firm has no impact on its weighted average cost of capital (WACC). As a result, MM2 proposition stipulates that the cost of equity of the firm grows linearly as the debt equity ratio of the firm rises.

The Second proposition without the effect of taxes

By means of MM2, Modigliani and Miller (1958) contend that the expected return on equity (K_e), given that investors are rational, is inversely proportional to the rise in gearing (D/E). The advantage of less expensive debt financing offsets the projected return on equity (K_e), thus the weighted average cost of capital (WAAC) stays the same (Alifani & Nugroho, 2013).

The Second proposition with the effect of taxes

Modigliani and Miller (1963) took the impact of taxes into account in their work. They argued that the ratio of corporate tax is the same as the present value of tax savings. Since these businesses pay less tax as a result of the tax shield phenomenon, the firm can reduce weighted average cost of capital (WAAC) by raising the share of debt in the capital structure (Brigham & Ehrhardt, 2010).

3.2.1.3. Modigliani-Miller Proposition 3

The Modigliani-Miller Proposition 3 Theory (MM3) contends that a company's dividend policy has no bearing on the market value of the company as a whole. The dividend policy has no impact on the firm's value, according to Modigliani and Miller (1961), whose study on Dividend policy, growth, and valuation of shares was published in the Journal of Business. Additionally, the MM3 proposition establishes that the company's market value is unrelated to its dividend policy, as stated by Villamil (2000). A firm's market value, according to Modigliani and Miller (1961), is determined by its earning potential and the risk attached to its underlying assets. Additionally, they asserted that a company's dividend policy has no bearing on its value in a perfect market (Modigliani & Miller, 1961).

The MM3 proposition, as stated by Breuer and Gürtler (2008), is nothing more than net present value. In relation to this argument, the authors also emphasize the possibility of the company's financiers forming their own opinions about the firm's investment choices.

3.2.2. The Trade-Off Theory

The term trade-off theory is used by various authors (Kraus and Litzenberger (1973), Jensen and Meckling (1976) and Myers (1977)) inter alia, to describe a group of related

theories. In each of these hypotheses, a business decision-maker weighs the advantages and disadvantages of various leverage strategies. It is frequently expected that an internal solution will be found, balancing marginal costs and marginal benefits. The Modigliani-Miller theorem controversy gave rise to the trade-off theory's initial iteration. When corporate income tax was added to the initial irrelevance theory, this resulted in a benefit for creditors by protecting earnings from taxes. This indicated a 100% debt financing strategy because the firm's objective function is linear and there is no debt offset cost.

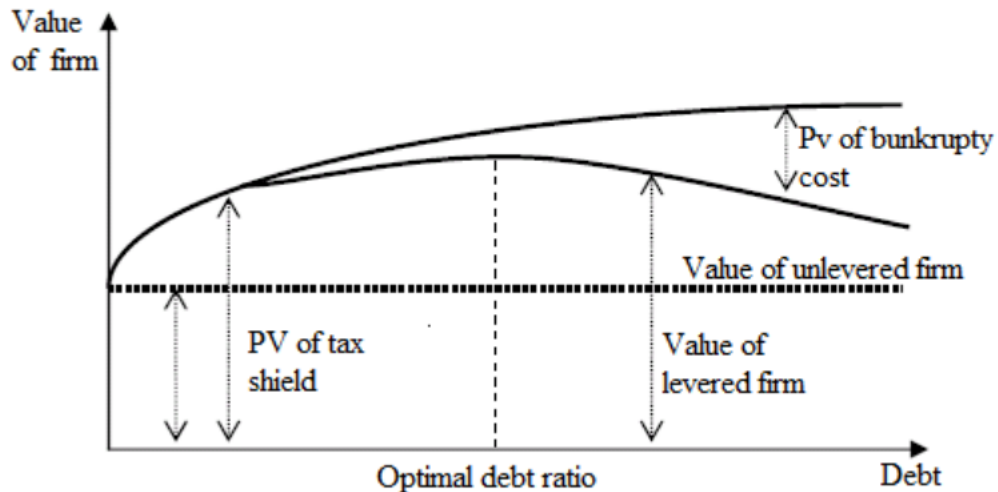
3.2.2.1. The Static Trade Off Theory

According to the static trade-off theory, businesses should base their financial decisions on a comparison of the advantages and disadvantages of debt derived from the optimal capital structure, which includes the tax benefits of debt, the reduction of free cash flow agency costs, the costs of financial distress, and the agency costs of stakeholders (Rasiah & Kim, 2011). In essence, the static trade-off theory maintains the assumptions of market efficiency and symmetric information while determining an optimal capital structure by introducing additional defects, such as taxes, expenses associated with financial distress, and agency costs (Baker & Wurgler, 2002).

Baxter (1967) further alludes that, the expenses associated with financial difficulty have been determined to be substantial and might offset the tax benefits of borrowing money. We can see the gist of this hypothesis in Figure 3.1. For corporations, debt has both advantages and drawbacks: positives stem from tax savings of debt as explained by Modigliani and Miller (1963), while downsides arise from the rising likelihood of bankruptcy for a firm with larger debt, raising the cost of failure. According to the trade-off theory's prediction, the ideal capital structure exists and is established by striking a balance between tax advantages and debt costs while taking other constant factors into account.

Until the firm's worth is maximized, companies switch debt for equity or equity for debt. This is the original static trade-off theory, which results from the Modigliani and Miller theory's failure to account for the imposition and nullity of bankruptcy costs.

Figure 3.1. Static trade off theory of capital structure



Source: Myers (1984)

3.2.2.2. The dynamic Trade-Off theory

In order to build models that take time into account, it is necessary to mention a number of factors that are often overlooked in single-period models. The functions of expectations and adjustment costs are particularly important. The proper financing choice in a dynamic model often depends on the financing margin that the company projects for the next period. In the upcoming quarter, some businesses plan to make payments while others plan to raise money. If money has to be raised, it could be done through debt or equity. A firm often combines a number of these activities.

Stiglitz (1973), who examines the effects of taxation from a public finance perspective, is a significant forerunner to contemporary dynamic trade-off theories.

Stiglitz (1973) took the extreme step of assuming away uncertainty, so his model is not a trade-off theory.

Kane, Marcus and MacDonald (1984) and Brennan and Schwartz (1985) are the first to use dynamic models to take into account the trade-off between tax savings and bankruptcy costs. Both examined continuous time models without transaction costs, with uncertainty, taxes, and bankruptcy costs. Since firms are able to quickly rebalance after negative shocks, they retain high debt levels in order to benefit from the tax breaks.

Deferring leverage choices to the following period can also take into account the option values encoded in the decision using dynamic trade-off models. A company with minimal leverage now has the opportunity to expand leverage in the future, according to Goldstein, Ju and Leland (2001). According to their presumptions, the potential to raise leverage in the future helps to lower the currently desirable leverage level. Fischer, Heinkel and Zechner (1989) and Goldstein *et al.*, (2001) and their models were both the subject of analysis by Strebulaev (2007). Again, if companies are forced to finance optimally only sometimes due to transaction costs, the majority of enterprises' debt levels will frequently depart from the ideal. According to the model, the firm's leverage reacts more to long-term value changes than it does to short-term equity fluctuations.

In dynamic models, certain concepts are fairly universal. The financial decision that is best made today depends on what is anticipated to be best in the following period. It could be best to raise money or to disperse it in the next time frame. It can be prudent to raise more funding via loan or equity if you are doing so. In each scenario, identifying the pertinent comparison for the company in the present period will be aided by what is anticipated to be ideal in the next era. Since a lot of the research on dynamic trade-off models is still in its early stages, any conclusions about its findings must be taken with some caution.

3.2.3. The Agency Cost theory

The agency costs are another important cost element. Jensen and Meckling (1976) and Jensen (1986) contend that they are the outcome of ex post asymmetric knowledge and conflicts of interest among the numerous stakeholders in the firm. The static trade-off theory with agency costs therefore presupposes that a firm selects its capital structure by weighing the tax benefits of debt against the costs of financial hardship from having too much debt as well as the agency costs of debt against the agency costs of equity. Regarding the subject of capital structure, there are two different agency conflicts to be distinguished: the first is a conflict between shareholders and managers, and the second is a conflict between shareholders and creditors.

- Agency conflict between shareholders and managers

Conflict of this nature arises when management and stockholders who do not control the entire firm have conflicting interests. Managers in the firm do not have all the remaining authority. The owner-goal manager's is to maximize its own activity rather than the value of the firm when it does not fully control the subsidiary, which indicates that there is an external shareholder. The severer the disparity between the manager's interests and those of shareholders, the less ownership the manager has.

The loss of conflict lessens and the activity of the director of equity rises as a result of raising the debt and ongoing managerial activities. Additionally, as interest rates rise and free cash flow declines with increased debt, businesses must pay more in cash. As a result, managers' ability to engage in some activities that have an impact on profit maximization will likewise decline (Jensen, 1986). Further, by using debt financing, the company's control may be restricted to a small number of agents when assembling capital debt financing, such bank loans or bond sales, which lowers the cost of agency management.

In addition, the disciplinary function of debt is proposed for Harris and Raviv (1990). Since managers still do not act in their investors' best interests, in this situation, directors may decide not to liquidate the business due to its reputation and other factors.

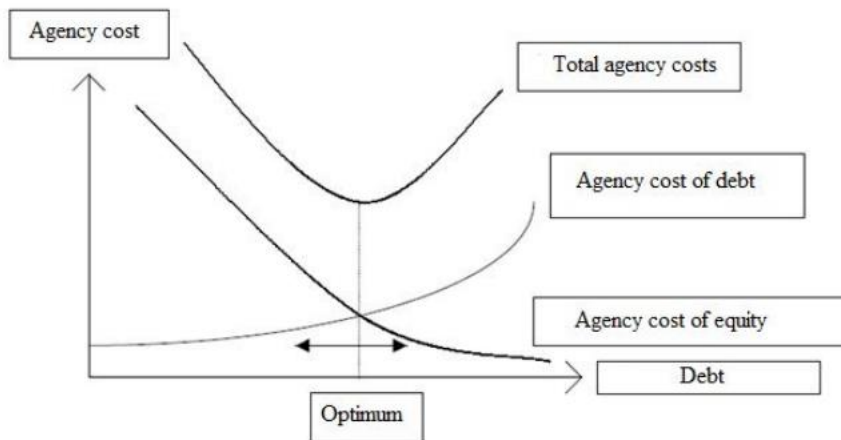
By providing the creditors the authority to compel the firm into liquidation, the debt can act as a corrective measure.

- The agency relationship between shareholders and creditors

Conflict between creditors and shareholders over a loan arrangement made by shareholders for increased investment constitutes the second type of dispute. When an investment produces significant profits, shareholders can take home the majority of the proceeds. However, the creditors also lose money if the project fails. As a result, shareholders could favour making exceedingly hazardous investments. Risky ventures have the effect of lowering the loan value. The debt financing agency expenses are what they are. However, if the debt issuers can foresee how equity supporters would behave in terms of risk, whether or not to take too much of a chance, they may properly assess whether to pass along the costs once again to equity supporters.

Thus, according to Jensen and Meckling (1976), the ideal capital structure may be reached by identifying the location where the total cost of agency is the lowest. Figure 3.2 below can be used to describe it. By loosening up the MM proposition 1 that cost agency does not exist, they came to this result. Myers (1977) gave an expansion of the issues with agency costs. The shareholders have little motivation to increase the value of investments while a society is facing bankruptcy because the majority of the returns from these placements will go to creditors, but in the interim, shareholders bear the whole expense. The more debt financing, the more substantial agency costs of debt in this case.

Figure 3.2. Financing Structure and agency costs of debt



Source: Jensen (1976)

3.2.4. The Pecking Order Theory

Myers and Majluf (1984) present pecking order theory based on Donaldson's (1961) results that management prefers domestically produced money over using external funds, supposing ideal capital market as advocated by Modigliani and Miller (1958). According to the pecking order theory, firms should use internal resources before issuing debt and should only issue equity capital as a last option. This theory contends that firms prefer equity funding over debt capital.

Al-Tally (2014) alludes that, firms prefer to finance new initiatives using internally produced cash first, followed by loan capital, and only in extreme cases would they issue equity. When funds that are generated internally are not enough to cover investment demands, firms borrow more, according to the pecking order theory (Shyam-Sunder and Myers, 1999). Myers (2001) discovered that firms with better profit and growth potential would utilize less loan capital, and that the firms debt ratio reflects the cumulative number for external funding. Profits are kept on hand if the company has no investment prospects so that it won't need external financing in the

future. Further, because a firm's debt ratio is not optimal, it represents the total amount of outside financing.

Pecking order theory studies have not been able to demonstrate how important this theory is in influencing capital structure of a firm. Fama and French (1998) examined the trade-off theory with pecking order theory and found that the latter better captured several characteristics of financial data. Shyam-Sunder and Myers (1999) also supports this findings. Due to flaws in this theory, theories of capital structure have to be developed further in order to address the capital structure conundrum.

3.2.5. The Market timing theory

According to Baker and Wurgler (2002), previous attempts to time the equity market have resulted in the current capital structure as a whole. Market timing suggests that businesses issue new shares when they believe they are overvalued and that businesses repurchase their own shares when they believe they are cheap. Managers frequently issue either debt or equity depending on which market is more advantageous at the time, claim Frank and Goyal (2009). When things are right, more money may be raised to take advantage of the situation even if there are no current initiatives that call for it. They suggest that corporations tend to issue new shares when investors are overly optimistic about future earnings and that equity market timing is generally successful.

Market value fluctuations have a long-term effect on capital structure. Although Zwiebel's (1996) managerial entrenchment theory of capital structure is somewhat consistent with market timing theory, actual management practice demonstrates that managers take advantage of new investors rather than existing ones. According to this view, capital structure represents all of the unsuccessful attempts to time the equity market. The market timing theory, one of the more contemporary theories of capital structure, contends that all prior attempts to time the equity market have essentially led to the current capital structure of a company.

When examining the long-term performance of share prices and share issuance, Frank and Goyal (2009) argue that timing stock markets is typically successful. When the market is confident in a company's future prospects, corporations are more inclined to issue equity because the asking price for those shares will be greater. As a result, management would typically refrain from issuing shares unless the price of the shares, the issuance cost, and the firm's cost of equity were all high compared to the cost of debt. In contrast, when a company's equity is undervalued, management may try to raise money by issuing loans or by trying to buy back their stock.

In addition, evidence supporting the influence of equity market timing on the firm's capital structure is provided by Baker and Wurgler (2002). They define a market timing metric as a weighted average of the firm's market to book values over the previous few years of external capital requirements. They discover that changes in leverage are highly and favourably connected to their market timing metric, leading them to draw the conclusion that a firm's capital structure represents the culmination of prior efforts to time the equity market.

3.2.6. Information signalling theory

This theory contends that a company's capital structure decision provides outside investors with insider information. It also discusses how lenders find it challenging to determine the degree of risk due to asymmetric or insufficient information within firms. A manager's willingness to engage in expensive capital structure reorganization change programs serves as a validated signal of this information. Managers are motivated to share insider information about a company's value with the public stock market. Leland and Pyle (1977) argue that a firm signals an increase in its value by reducing its leverage, in contrast to Ross (1977), who claims that a firm signals an increase in its asset value by increasing its leverage(debt). The Ross (1977) model predicts that an increase in debt will lead to an increase in price, while the Leland and Pyle (1977)

model predicts a decrease in price. This is in accordance with the two signalling hypotheses discussed above.

3.2.7. Free cash flow theory

Free cash flow refers to the funds that remain after a business has paid all of its costs, including investments. The ability to pursue opportunities that raise shareholder value makes it significant because it allows a business to do so. According to this theory, reducing free cash flow by paying debt interest and dividends deters managers from misusing company profits for their own gain (Jensen, 1986). Due to legal requirements, according to Jensen (1986), paying dividends is preferable to paying debt principal and interest in order to increase the level of free cash flow.

3.2.8. Life cycle theory

The theory holds that firms utilize various forms of financing at various stages of growth. According to the corporate life cycle theory put forth by Disiboshi (1989), organizations are created, grow, and eventually die. Most entrepreneurs lose money because they try to gain from debt. Entrepreneurs use personal guarantors because no one wants to lend to them. Ownership and management are indissolubly entwined; they cannot be distinguished. Decision flexibility is important now because future prospects are unknown and there are no assets that could serve as collateral. The upstart stage and the growth stage are comparable. Businesses that are expanding quickly are unlikely to take on a lot of debt because doing so would restrict their ability to take on new projects.

Borrowing is significant and affordable at the old stage as firms have amassed a sizable asset base. Management and ownership become separated as businesses mature and grow. Management discipline becomes critical, necessitating significant borrowing.

The company's investment requirements are predictable. Firms in their golden years have no investment needs and tend to pay off the majority of their debt.

3.3. Determinants of capital structure

The fundamental theory of determinants of capital structure is covered in this part, followed by a discussion on the trade-off theory and pecking order theory. Thereafter, the development of anticipated relationships and the dependent variable's hypothesis will follow.

The fundamental research on capital structure by Modigliani and Miller (1958, 1963) yields two important findings. First, in a perfect capital market with perfect information and no transaction costs, a company's value is unrelated to its capital structure. Second, when taxes are taken into account in the Modigliani and Miller framework, tax rates and the associated interest tax shields start to take centre stage in deciding the best capital structure.

In practice, company value becomes a function of capital structure once market frictions have been considered. Furthermore, rather than the high, excessive amounts recommended by the corner solution, businesses often have moderate and more conservative debt levels on their balance sheets. There has been a significant growth in the capital structure literature as an effort to comprehend how businesses raise capital. See, for instance, Rajan and Zingales (1995), Booth, Aivazian, Demirguc-Kunt and Maksimovic (2001), Titman and Wessels (1988) and MacKie-Mason (1990). However, despite the exponential rise in the literature on capital structure caused by Modigliani and Miller's (1958, 1963) seminal contributions, neither the question of how businesses should obtain capital nor a general theory on capital structure have been resolved. As a result, several research have been done in an effort to evaluate the two primary capital structure theories: the pecking order theory and the trade-off theory.

The trade-off theory (TOT) claims that debt has certain advantages and disadvantages. One way debt is advantageous is because interest tax deductions result in tax savings.

On the other hand, the likelihood of default rises as debt levels rise. In other words, it raises the expenses associated with financial difficulty, such as those incurred when a company files for bankruptcy or undergoes reorganization. These expenses include the direct legal and administrative costs associated with financial trouble, the costs associated with selling assets, and the costs that are brought up by the conflicts of interest between equity and debt holders. One group's attempt to obtain a bigger portion of fixed payout as the business is liquidated is typically the cause of such disputes (Myers, 2003).

There is no capital structure with a definite objective, claims the Pecking Order Theory (POT) (Huang and Song, 2006). Due to the informational disparity between insiders (like current shareholders and management) and outsiders (like market participants), businesses prefer internal funding over external funding, and when considering external sources, they almost always choose debt over equity, only turning to equity as a last resort (Myers, 2003).

As was previously discussed, the majority of research on capital structure focus on developed economies, are static in nature, and frequently use mean-based analysis. Below the main determinants of capital structure in relation to the pecking order and trade-off theory are discussed.

3.3.1. Pecking-Order Theory

It is common knowledge that businesses may obtain funding via retained profits, debt, and equity. According to the pecking order theory, a corporation favours internal sources of finance (retained earnings) to external ones (debt and equity). When outside finance appears to be necessary, the business will, nevertheless, choose to issue debt rather than stock. This conduct is related to the degree of knowledge that debt costs less than equity (Frank & Goyal, 2003). Accordingly, businesses will utilise their liquid assets to the fullest extent possible and regard external funding as their last resort,

according to this theory. According to Myers (2001), this tendency is driven by managers' desire to provide as little information about the firm as possible, which favours internal finance over external.

According to the pecking order theory, a more profitable firm will utilize retained earnings to finance its investment before using bonds or stock. Profitability and a company's leverage are predicted to have a negative connection. This predicted association may be supported by several research, including Shyam- Sunder and Myers (1999), who discovered that prosperous businesses typically had lower debt ratios. Rajan and Zingales (1995) and Titman and Wessels (1988) also discovered a negative association between the two variables, corroborating Shyam- Sunder and Myers (1999).

3.3.2. Liquidity

The Pecking-order theory states that, a corporation values internal funding more than external funding, hence one may anticipate that a company with great liquidity would borrow less. As a result, a negative link between a company's leverage and liquidity is anticipated. Deesomsak, Paudyal and Pescetto (2004) went on to explain that manipulating liquid assets in favour of shareholders, notwithstanding potential conflicting interests of loan holders, would raise the agency cost of debt.

A higher level of current assets also means a higher level of liquidity, and since liquidity measures the firm's ability to meet obligations on dates agreed upon with creditors, it reduces the risk of the company defaulting. Businesses typically avoid having too much liquidity, according to Kontu and Mihanovi's (2019) assertion that there is a trade-off between liquidity and profitability. Since SMEs depend on short-term debt and must make their payments on time to avoid losing the chance to renegotiate credit on advantageous terms, managing the liquidity level is essential (Kontu & Mihanovi, 2019).

Liquidity levels that are high have a negative impact on indebtedness when the company has more resources to finance its investment (Lisbon, 2017; Proença *et al.*, 2014). As argued by Proença *et al.*, (2014) and Lisboa (2017), the liquidity and debt relationship is dependent on the maturity of the debt, with a positive relationship between liquidity and long-term debt and a negative relationship with short-term debt. The authors came to the conclusion that, along with profitability and asset structure, one other important determining factor in explaining capital structure decisions is liquidity.

Burgstaller and Wagner (2015) assert that the trade-off theory predicts a positive correlation between liquidity and the debt ratio. The pecking order theory is supported by the finding made by Hman and Yazdanfar (2017) that debt and liquidity are negatively correlated in SMEs. By having more readily available financial resources generated by retained earnings, businesses can become less dependent on outside capital (De Jong *et al.*, 2008; Hman & Yazdanfar, 2017). Many authors assert that businesses with stable liquidity conditions prefer to use domestic financing (Kontu & Mihanovi, 2019; Lisbon, 2017; Ahman & Yazdanfar, 2017). These authors' empirical research indicates that there is a statistically significant negative correlation between liquidity and levels of debt.

3.3.3. Trade-Off Theory

In a market free of flaws like taxes, transaction fees, and unreliable information, the use of debt and equity constitute equivalent alternatives to one another, according to the claim made by Modigliani and Miller in 1958. Consequently, a company's value has no bearing on the capital structure. However, capital structure is a key factor in determining a company's value in an unreliable market. Moreover, the static trade-off theory argues that, a company determines its level of leverage by weighing the benefits and drawbacks of borrowing (Myers, 1984).

It should be noted that there are advantages to using debts, such as the ability to deduct interest payments from taxes paid on earnings (Modigliani & Miller, 1958), the reduction of managers' propensity to make high-risk investments, and the signal it provides that businesses that borrow more frequently tend to be more profitable in accordance with signalling theory. The agency cost of debt is included in the prices, though. In terms of the trade-off theory, the following factors can be considered independent variables:

3.3.4. Tangibility

Tangibility is the primary factor that is company-specific. The ratio of total fixed assets to total assets may be used to determine the tangible factor, which is related to the pecking order theory. According to the theory put forward by Jensen and Meckling (1976), tangibility has an impact on a firm's leverage because when debt is granted, a corporation may migrate to riskier investments. They contended that if the risk was considerable, the business might utilize actual assets as collateral. As a result, the study anticipates a favourable correlation between tangibility and corporate ration. Harris and Raviv (1990) who suggested that leverage should rise with the liquidation value, provide more evidence for this.

3.3.5. Profitability

Profitability is also changeable in trade-off theory, much like in Pecking order theory. Within this context, profitability is anticipated to have a favourable correlation. Given that more successful businesses often enjoy more tax benefits, this link is predicted (Petit & Singer, 1985).

3.3.6. Size

The size of the company is one of the most important factors for access to debt, particularly when it comes to access to long-term debt, according to several studies (Bhaird & Lucey, 2014; Hendrawan, 2012). A company's size also has an impact on how much debt it owes (Fama and French (2002) ; Haro-de-rosario, Caba-Pérez and Cazorla-Papis (2015)). Although the nature of the relationship is unclear, Ohman and Yazdanfar (2017) and Serrasqueiro & Nunes (2012) discovered a negative correlation and a positive correlation between the dimension and short-term debt levels, respectively . On the other hand, some studies (Pealoza & Figueiredo, 2011; Santos, Ribeiro, Silva, & Melo, 2016) have found no evidence to support a connection between a firm's size and its debt load.

According to Hendrawan (2012), the dimension and the level of debt in both large and small businesses are positively correlated. Haro-de-rosario *et al.*, (2015) noted that this relationship is contradictory in the context of SMEs, despite the fact that some empirical studies have found a positive relationship while others have found a negative one. Vatavu (2012) notes that there is a correlation between the size of the firm and its level of debt based on the trade-off theory.

Al-Najjar and Al-Najjar (2017) and Ohman and Yazdanfar (2017), argued that large firms have a tendency to be the most diversified, to experience fewer information asymmetry problems, moral risk, and bankruptcy risks, to experience fewer financial difficulties, and to have access to a sizeable portion of long-term debt. In order to mitigate the effects of issues with information asymmetry, SMEs frequently replace long-term debt with short-term debt.

According to the trade-off theory, the leverage ratio and the size of a company are positively correlated. Deesomak *et al.*, (2004) claim that this is due to a larger firm's lower risk and expense of bankruptcy. Deesomak *et al.*, (2004) also highlighted the

positive effects of additional factors on leverage, including lower monitoring costs, lower agency costs of debt, and access to the credit market in relation to size.

3.3.7. GDP growth

Business activity typically coexists with a nation's economic expansion. Companies take advantage of growth and investment possibilities during periods of high demand in an effort to increase earnings and hence increase the firm's worth. According to the Trade-Off Theory, debt financing becomes more alluring as earnings rise as a result of increasing tax shield benefits. According to De Jong, Kabir and Nguyen (2008), businesses are more inclined to use debt to finance new investments the faster the economy is growing. However, the Pecking Order Theory asserts that increased GDP is linked to better profitability for businesses since they are able to employ more internal capital rather than debt financing. Academic research on the link between economic growth and leverage have produced somewhat conflicting findings. The results support the prediction made by the Pecking Order Theory that there will be a primarily negative association. While Ariff, Hassan, and Shamsher (2008), Haron and Ibrahim (2012), and Piaw and Jais (2014b) all discovered a negative correlation between economic growth and leverage, Hanousek and Shamshur (2011) find a positive association.

3.3.8. Taxes

Businesses should finance as much of their investment through debt as they can in the face of corporate income tax, according to Modigliani and Miller (1963). These writers believe that debt creates tax shelters, but they overlook key points including the fact that businesses can gain tax advantages in addition to or instead of tax shelters from debt and the fact that debt raises the likelihood of bankruptcy. To the extent that it does not materially raise the costs of financial crisis, businesses may, nonetheless, increase their leverage ratio. Scott (1976) makes a case in this framework for a favourable correlation between corporation tax rate and debt level. In terms of the amount of

leverage, Constand, Osteryoung and Nast (1991) and Michaelas, Chittenden and Poutziouris (1999) found no evidence of a major impact of corporation tax. According to Degryse, Goeij and Kappert (2012), the tax rate has a somewhat favourable impact on short-term debt but a large negative impact on total and long-term debt.

3.3.9. Firm age

A company's age determines its standing, credibility, level of tangible assets, and other factors that may affect its ability to access outside capital and the terms of that access (Serrasqueiro & Nunes, 2012). There is some debate in the literature regarding how the age of the firm affects indebtedness (Burgstaller & Wagner, 2015).

Some studies (Burgstaller & Wagner, 2015; Dwyer & Kotey, 2015; Serrasqueiro & Nunes, 2012) claim that older businesses are seen as already being stable, giving them a greater opportunity to choose between short-term and long-term debt. As a result, these businesses obtain a sizable portion of external resources with longer repayment terms than younger businesses do to fund their expansion. This is so because older businesses are exposed to relatively little information asymmetry and bankruptcy risk.

Moreover, the pecking order theory states that younger businesses rely more on outside financing than do older businesses. Ohman and Yazdanfar (2017) assert that because older businesses have accumulated profits that they can use to fund their operations, they tend to use less debt.

3.3.10. Geographical location

Studies have looked into how a company's capital structure might be affected by its location (Hendrawan, 2012; Russo & Rossi, 2001). Hall, Hutchinson, and Michaelas (2004) came to the conclusion that there is a connection between geographic location and capital structure choices for European SMEs. According to Haro-de-rosario *et al.*, (2015), there is statistically significant proof that location affects the capital structure

of Spanish companies. Russo and Rossi (2001) examined 1,700 firms in the highly diverse country of Italy between 1989 and 1995 and came to the conclusion that firms located in industrial parks have an easier time obtaining bank financing than those located outside of them, i.e., there is a correlation between the firm's location and its level of debt.

Similar to Russo and Rossi (2001)'s findings, Hendrawan (2012) found in his study of SMEs that the presence of industrial/business parks was positively and statistically associated with SMEs' ability to obtain bank loans as compared to businesses outside of the park (2001). The location variable is used in this study as a dummy variable, with a value of 1 if the firm is in the province's capital (Cabinda) and 0 otherwise, i.e., the province's rural towns.

3.4 Firms performance and its measurement

This section provides a broad understanding on a company in terms of its performance and various ways in which it can be measured.

3.4.1. Employment

Measures of employment growth are also fairly common, either on their own or in conjunction with other metrics like high-growth firms. A common control that serves as a fundamental indicator of a company's size is the number of employees. One common misconception is that employment growth is preferred by economists and policymakers as a preferred metric for assessing job creation (Siepel & Derjardin, 2020).

The research on the timing of growth yields contradictory results regarding the significance of employment growth. Employment growth normally leads to increased sales and profits (Siepel & Derjardin, 2020). However, as one of the final stages in the growth process, employment growth frequently lags behind in high-growth businesses (Siepel & Derjardin, 2020).

3.4.2. Turnover

If employment growth is preferred by economists and policymakers, as depicted in the caricature above, turnover (and derived measures) should be more prevalent in management literature because they more accurately reflect a firm's performance than size and indicate an increase in sales. The literature on firm growth (see above) states that while turnover growth typically follows employment growth, it may happen earlier for high-growth firms.

3.4.3. Profits/Profitability

Profits are a fundamental metric of firm performance because they are a clear indicator of a company's ability to recognize entrepreneurial opportunity. Coad *et al.*, (2017) and Chandler *et al.*, (2009) both made note of the significance of profit identification for fostering future growth. Profits can be measured in a variety of ways, including directly from financial statements and through financial ratios that are frequently used in finance literature (Siepel & Derjardin, 2020).

3.4.4 Productivity

Productivity is a key indicator of how well a business uses its inputs into production. Productivity can refer to either labor productivity, which is defined as the value added per worker or per worker hour, or capital productivity, which is defined as the value added per unit of fixed capital stock. The value of productivity is directly correlated with the types of technology used, which are typically capital- or labor-intensive technology (Siepel & Derjardin, 2020). Total factor productivity at the firm level is an important productivity indicator (Siepel & Derjardin, 2020).

Notably, deflated firm sales may be used as a substitute for output when it is unavailable, but the quality of this substitute greatly depends on the deflator's quality

and, consequently, the homogeneity of the produced good (Siepel & Derjardin, 2020). Additionally, the size of the firms, which can capture an increasing return on scale, processes, and organizational innovation are significant predictors of productivity.

3.4.5 Research & Development/Innovation

The literatures on entrepreneurship and innovation have many connections, and as a result, a number of entrepreneurship literature studies focus on the inventive activities of firms (Siepel & Derjardin, 2020). Innovation is a challenging concept to quantify because studies of it are limited to inputs like research and development (R&D), staff, or financial resources, intermediate outputs like patents, and outputs like sales of new products (Siepel & Derjardin, 2020). As such, a significant portion of the literature on entrepreneurship that employs innovation measures will rely either on readily accessible metrics like R&D or patents or on measurements resulting from survey tools like the Community Innovation Surveys, like the proportion of turnover that comes from products that have been released recently (Siepel & Derjardin, 2020).

3.4.6 Firm survival

The duration of a company's presence on a competitive market can be used as a gauge of its competitiveness (Siepel & Derjardin, 2020). As a result, the company's ability to survive is a performance indicator. However, there are a number of issues with the survival approach to firm performance (Siepel & Derjardin, 2020). Knowing how long it takes a firm to enter and leave a market, typically measured in months or years, is the definition of measuring survival (Siepel & Derjardin, 2020). So, compared to a new firm's entry, an existing firm's entry on a product market represents a different reality. Regarding exit, failure and/or bankruptcy need not necessarily be equated with this (Siepel & Derjardin, 2020).

Unrelated to business, it is true that the activity could end for a number of other, more dramatic, or positive reasons (such as the owner's retirement or passing) (Siepel &

Derjardin, 2020). The business activity may still be competitive after the firm has left, and it may even continue operating under a different firm's ownership (Siepel & Derjardin, 2020).

3.5. Empirical Literature Review

Numerous empirical studies have been conducted all over the world on the relationship between profitability and capital structure. This section is divided into two parts where we discuss the key capital structure studies. The first section will review the research on the relationship between capital structure and profitability, and the second section will review the research on the factors influencing capital structure.

The capital structure continues to be a subject of interest to academics, professionals, executives, and researchers. According to the literature study, many studies have been done to shed light on the impact of capital structure on the profitability of firms, but the majority of them were carried out in other areas of the world, with only one that the researcher came across being done on Namibian firms. To have a comprehensive knowledge of the existing literature on the impact of capital structure on profitability, a review of some of the key research is provided below.

Although many research studies on capital structure and profitability have been conducted, only few of these studies truly explain how capital structure affects profitability. The current study aims to investigate the impact of capital structure on profitability in selected Namibian commercial SOEs in order to close this gap in the literature. It also aims to examine the determinants of capital structure and analyse if there is a causal relationship between the two variables.

Corporate finance academics have worked very hard over the past few decades to convert the rationality of capital structure into empiricism (Aragaw, 2015). The research on the connection between capital structure and firm performance has yielded conflicting findings as will be highlighted below. As a result, there has been much

discussion on how capital structure and company value are related. In addition to Modigliani and Miller's ground-breaking work from 1958, which minimizes the importance of the capital structure theory and its revision the following year, other theories have also emerged. Some of the subsequent arguments and studies include the Pecking Order Theory by Myers and Majluf (1984), which challenges the static trade-off theory and supports empirical studies that focus on the connections between capital structure and the profitability/performance of firms.

3.5.1. Empirical literature on Capital structure and profitability

Bennett and Donnelly (1993) made an effort to comprehend the capital structure choice made in the UK using cross-sectional data. Their results found that tangibility, size, non-debt tax, and profitability all significantly contribute to the explanation of capital structure. They also found more evidence in favor of the classification of industries while describing the capital structures of UK businesses. Additionally, they were in agreement with Al-Najjar and Hussainey (2011) who found that changing the definition of leverage produces different results, especially when changing from book value to market value of leverage. The method of using different definitions of leverage was also used in this study for robustness.

Using a panel of IPO businesses, Helwege and Liang (1996) investigated the pecking order's existence. Their research's conclusions contradict the pecking order theory and support the optimum capital structure theory. This is mostly because under an ideal capital structure, businesses would need external borrowing even when there was no earnings loss in order to modify and attain their desired capital structure. Additionally, they draw the conclusion that, contrary to the pecking order theory, equity was not utilised less than bank loans, as anticipated by the theory. The sole evidence for the pecking order was the opinion that companies issuing public bonds are big and successful.

Shyam-Sunder and Myers (1999) used a sample of big US enterprises between 1971 and 1989, to examine the static trade-off theory against the pecking order models. To measure statistical power, they test each theory independently rather than evaluating all the hypotheses in the same model. They come to the conclusion that the pecking order theory holds up well for the sample of mature firms they used. Additionally, they discovered that when evaluated independently, the target adjustment model performs as expected. Additionally, they think the findings may apply to growing companies.

Data from 390 UK enterprises for the years 1984 to 1996 were utilized by Ozkan (2001). Their findings provide credence to the idea that businesses have a long-term goal leverage ratio and swiftly adapt to it. The trade-off theory's estimate that there is a negative relationship between leverage and the non-debt tax shield is supported by this outcome. Their work made further contributions to the capital structure modelling, which will be covered in more detail in the section on the capital structure's methodologies.

Frank and Goyal (2003) used a sample from 1971 to 1998 to analyse the publicly listed US companies. The pecking order notion was the sole thing that the initial study tested. Using a wider sample from 1950 to 2003, Frank and Goyal (2009) explored the bulk of the criteria that were thought to be significant in choosing capital structure. Their findings in the first publication showed proof of the pecking order theory in large enterprises. Additionally, they discover that external money is heavily utilized while domestic financing is insufficient to finance new initiatives. Moreover, they discovered in their second publication that the actual data is somewhat compatible with the trade-off theory. They come to the conclusion that the evidence from publicly listed US companies exposes gaps in the capital structure theories.

The authors questioned the market timing argument, arguing that management optimization might have affected the capital structure decision. Furthermore, they contended that because the pecking order theory does not take into account variations within industries, it does not account for the industry mean leverage. Then they made

a statement about how the trade-off theory considers a lot of the same things, including size, tangibility, development potential, and industry leverage. The connection between leverage and profitability is uncertain, which is a flaw in the theory. According to this relationship, businesses should employ more debt because they often have lower bankruptcy expenses. However, their investigation shows that the reverse is essentially true.

Spanish businesses were examined by Sogorb-Mira (2005). The sample utilized however differs merely because the first study concentrated on publicly traded companies while the subsequent study centred on Small or Medium Enterprises. The findings determined that the pecking order theory performs well in the case of SMEs, where their favoured method of financing is internal funds, followed by loans, and their last alternative is the issuing of equity. They also point out that Spanish SMEs behave in a manner that is comparable to that of businesses in developed nations.

Kayhan and Titman (2007) used a sample of US major enterprises from the 1960s to 2003 to study the influence of the firms' histories on their capital structures. The study looked at how investment costs, cash flows, and stock price histories all impacted leverage. Their findings show that the factors they utilized have a substantial influence on how capital structure changes. They draw the assumption that their results are in harmony with the optima capital structure theory, according to which businesses aim to alter their capital to a desired debt ratio. They discovered, however, that the rate of adjustment is viewed as being sluggish. Additionally, they contend that a rise in leverage is associated with higher financial deficits, as suggested by Shyam-Sunder and Myers (1999) and Frank and Goyal (2003). In another 2007 study, Using a sample of 129 companies from 1997 to 2001, Daskalakis and Psillaki (2007) investigated the capital structure of the listed companies in the Athena Stock Exchange in Greece. In terms of the relationship between the liquidity and interest coverage ratios, the study's findings lend credence to the pecking order idea. They discovered, however, that there

is a positive correlation between debt and size, which is consistent with the trade-off theory.

Leary and Roberts (2010) examined US firms using data from 1980-2015. Their data demonstrate that the pecking order theory does not fully explain more than half of the funding choices. They also point out that the model's accuracy rises sharply when more elements from other theories are considered. Only 20% of enterprises would adhere to the pecking order theory in their initial model whether capabilities were restricted or allowed to change. On the other hand, their model's ability to classify data improved when additional variables from the trade-off theory were included. They hypothesized that a model with a broad range of variables would accurately categorize 80% of the decisions. They also made strong arguments against the pecking-order idea, arguing that it is the outcome of incentives that are at odds.

Chen and Chen (2011) investigated the relationship between profitability and firm value using firm size, industry type, and capital structure as moderators. The study was distinctive because it broke from previous research that had looked at the impact of capital structure on company performance. The paper proposed a suitable approach to conduct the research gap and established a compelling case for it. Regarding the study's ramifications, no theoretical nor practical consequences were provided in the report. The research only published the results; it made no attempt to connect them to actual practice or demonstrate how varied the results are in light of the various methodologies and approaches used.

San and Heng (2011) looked at the connection between corporate performance of a business before and during a crisis. The study concentrated on construction firms that were listed on Bursa Malaysia's Main Board between 2005 and 2008. Based on the amount of paid up capital, all 49 construction enterprises were categorized as major, medium, and small. The outcome demonstrated a correlation between capital structure and company performance as well as evidence of no correlation between the variables

under investigation. ROC with DEMV and EPS with LDC have good relationships for large enterprises, however EPS with DC has a negative association. In the interim, only OM and LDCE have a favourable relationship in medium-sized businesses, while EPS and DC have a bad relationship in small-sized businesses. Overall, the results showed a connection between capital structure and company success in the chosen proxies.

Contrary to theoretical predictions, Iddirisu (2011) found that there was a negative correlation between leverage and size as well as between leverage and profitability. While businesses with tangible fixed assets will use high levels of leverage because these assets have high collateral values and businesses with growth opportunities will use debt to finance growth, large, successful businesses will use less debt or none at all in their capital structures.

Muritala (2012) used annual data from 10 businesses over a five-year period to analyze the ideal degree of capital structure in which a corporation might improve its financial performance. Results of the Im-Pesaran-Shin unit root test findings, which is also the unit root test used in this study, revealed that all variables were level non-stationary. The study proposed a negative link between operational company performance and capital structure. However, the Panel Least Square results showed that asset turnover, size, age, and asset tangibility are all positively correlated with business performance. Results show a weak and substantial correlation between asset tangibility and ROA as a performance indicator in the model. This suggests that the sampled companies were unable to effectively use the fixed asset composition of their total assets to affect their firms' performance. Because organizations with more tangible assets are less likely to be financially limited, this study suggests that asset tangibility should be a driving force in capital structure.

Salim and Yadav (2012) used panel data analysis to examine the relationships between capital structure and firm performance for 237 Malaysian companies that were listed

on the Bursa Malaysia Stock Exchange between 1995 and 2011. Tobin's Q, earnings per share, return on equity and return on assets were used as the study's dependent variables. The five factors that make up the capital structure are total debt, short-term debt, long-term debt, ratios, and growth as an independent variable. According to the empirical testing's findings, a firm's performance and capital structure are strongly correlated.

Pouraghajan, Malekian, Emamgholipour, Lotfollahpour, and Bagheri investigated the impact of capital structure on the financial performance of companies listed on the Tehran Stock Exchange (2012). They looked at and analyzed a sample of 400 companies from the Companies Listed on the Tehran Stock Exchange divided into 12 industrial categories using data from 2006 to 2010. The ROE and ROA ratios were used in this study to assess the financial health of businesses. These profitability metrics are also employed in this study to examine the connection between capital structure and profitability.

The findings indicated that asset turnover, company size, asset tangibility ratio, and growth prospects had a substantial positive link with financial performance metrics and a significant negative relationship with debt ratio. However, there is no statistically significant correlation between ROA and ROE measurements and company age. Some of the researched sectors also have an impact on how well businesses function. Additionally, study findings demonstrated that management may raise shareholder wealth by increasing the company's profitability and, therefore, the quantity of the company's financial performance indicators, by lowering the debt ratio.

Akhtar and Javed (2012) looked into the relationship between the capital structure and financial performance using data from 21 industries listed on the Karachi Stock Exchange in Pakistan. The study examined capital structure and its effects on financial performance from 2004 to 2008 and included 21 KSE sectors. The relationship between the capital structure and financial performance was experimentally assessed using

correlation and regression tests on financial data that was collected from KSE analysis reports, balance sheet analysis, and financial statements of 21 sectors. The results have a number of significant repercussions. The study's data showed a positive correlation between leverage, financial performance, growth, and firm size when the alternative hypothesis H1 was accepted and Ho was rejected.

Shubita and Alsawalhah (2012) examined the impact of capital structure on profitability of industrial businesses listed on the Amman Stock Exchange over a six-year period (2004-2009) to draw conclusions on the relationship between the two. Correlation and multiple regression analysis were used in the study, which sampled 39 businesses. The findings showed a strong inverse relationship between debt and profitability. According to these studies, a corporation's profitability decreases as its debt position increases. Consequently, the more the debt, the less profitable the organization is. Additionally, the data demonstrate that profitability rises with control factors like company size and sales growth.

Awunyo and Badu (2012) conducted an empirical investigation on the association that exists between capital structure or leverage and the operating results of Ghana's listed banks from 2000 to 2010. Information was gathered from annual reports of the listed banks and the Ghana Stock Exchange. The data analysis approach employed was panel regression. The findings showed that the high gearing of banks that are listed on the Ghana Stock Exchange had a detrimental impact on how the banks perform. According to the survey, listed banks have significant levels of gearing. This can be linked to their excessive reliance on short-term debt as a result of the Bank of Ghana's relatively high lending rate and the lack of activity on the bond market. The regression analysis also showed that the capital structure has an adverse effect on the listed bank's performance when it comes to ROE and Tobin's q.

Arabahmadi and Arabahmadi (2013) used data from 252 non-financial firms listed on the Tehran (Iran) Stock Exchange from 1999 to 2008 to study the association between

capital structure and profitability. It discovered a favourable correlation between the return on equity and short-term debt. According to this, increasing a company's short-term debt at a low interest rate will boost profitability, but increasing a company's long-term debt would decrease profitability.

The capital structure and financial performance of listed trading companies in Sri Lanka during the 2006 to 2010 fiscal years were analysed by Nirajini and Priya (2013). The information used in this study was taken from the annual reports of the sample firms. Multiple regression analysis and correlation were both employed for the analysis. The findings showed that capital structure and financial performance are positively correlated. Since the debt asset ratio, debt equity ratio, and long-term debt are significantly correlated with the gross profit margin, net profit margin, return on capital employed, ROA and ROE at 0.05 and 0.1 levels of significance, capital structure has a significant impact on the financial performance of a company as well.

Multiple regression analysis was used to estimate the correlation between the level of leverage and company performance in Ebrati, Emadi, Balasang, and Safari's (2013) empirical study of the impact of capital structure on company performance. The study utilised data from 85 companies listed on the Tehran Stock Exchange between 2006 and 2011, and four accounting-based financial performance indicators namely ROE, ROA, MBVR, and Tobin's Q. The results demonstrated a strong and favorable correlation between capital structure and company performance as measured by ROE, MBVR, and Tobin's Q, but also a negative correlation between capital structure and (ROA, EPS). Overall, the research shows that there is a connection between capital structure and company performance, whether it is positive or negative.

Indhumathi and Pallanivelu (2013) made an effort to examine how capital structure affected the financial results of particular textile enterprises. Data was gathered from the yearly reports for 10 years in order to achieve the goal. A variety of ratios, correlations, and compounded growth rates were used in this study to assess and

compute the data acquired in order to fit it for inference-drawing. The findings showed that the capital structure and financial performances had a negative relationship. It is a reflection of the small scale of business enterprises in Sri Lanka. Due to their reliance on debt financing, businesses often have to pay higher interest rates.

Arulvel and Tharmila (2013) investigated the relationship between capital structure and financial performance of companies listed on the Colombo stock exchange (CSE). Examining the link between capital structure and financial performance has been the typical strategy in empirical investigations. The goal of this study was to determine whether the capital structure had a good or negative impact on how the firm's success was signalled. Thirty firms that were listed on the Colombo Stock Exchange between 2007 and 2011 made up the sample for this study. From 2007 to 2011, the study's necessary data and information were acquired from websites of listed firms on the CSE, Facebook, and published annual reports. Correlation analysis was used to examine the association between independent variable capital structure and dependent variable financial performance. It focused on the link between the capital structure and financial performance from an all-encompassing standpoint. According to the study, there is a negative correlation between financial performance and capital structure.

Using a sample of Tunisian businesses, Ghazouani (2013) investigated the validity of the static trade-off theory and the dynamical adjustment model. According to the findings of the static model, the key factors influencing capital structure in Tunisian enterprises are profitability and tangibility. However, the dynamical model's findings indicate that the speed and cost of correction are both high.

In their (2013) study, Ajlouni and Shawer sought to determine the direction of the relationship between capital structure and profitability as measured by ROI, ROE, and NPR for the targeted petrochemical industry companies in the Kingdom of Saudi Arabia between 2008 and 2011. Because it is appropriate for the data's nature to assess the relationship between the independent variable (Debt Ratio) and the measures of the

dependent variable (Profitability ratios), the researchers used the Cross Section - Time Series (Panel Data). The findings showed that while ROI and ROE have a significant correlation, NPM and capital structure have a relatively weak correlation. This indicates that there are other factors that impact the profitability of these businesses and that the profitability performance of the petrochemical industry enterprises in KSA is not connected to capital structure.

Dehnavi and Hosseinzade (2013) investigated the effect of capital structure on Tehran Stock Exchange listed companies' performance. This study's central premise is as follows: The firm's capital structure and performance are significantly correlated. The particular hypothesis of this study is that there is a correlation between the performance of the enterprises and the capital structure proxies (total debt to total asset, debt to the book value of the owner's equity, and debt to the market value of the owner's equity). The efficiency score for the sample firms is calculated using data envelopment analysis (DEA), which is used to measure performance. In the statistical sample from 2004 to 2009, there were sixty (60) businesses. The approach used to evaluate the hypotheses was multivariate regression with panel data. The results showed that the ratios of debt to total assets and debt to the market value of the owner's equity are significantly correlated. The efficiency and the debt to book value ratio of the enterprises do not significantly correlate with one another. Efficiency and the degree of managerial ownership are substantially correlated, however there is no meaningful relationship between institutional ownership and efficiency.

A study by Amara and Aziz (2014) focused on examining the link between capital structure and a company's performance. Pakistan's food industry was represented in the sample by 33 listed enterprises. In addition to return on assets and profits per share, debt ratios such as debt to equity, short-term debt to total assets, and long term debt to total assets have been utilized as explanatory factors. Following tests for contemporaneous correlation, autocorrelation, contemporaneous multicollinearity, and heteroskedasticity, PCSE and Prais-Winsten regression were applied. According to the

results of the regression study, only the debt to equity ratio has a meaningful impact on the success of the firm. The other capital structure ratios have a negative relationship with performance. The food industry was not effectively using debt in its capital structure, according to the negative correlation of capital structure ratios, and financial research was required to identify the best ratio of debt to equity to maximize corporate earnings.

Chechet and Olayiwola (2014) used a sample of 70 firms listed on the Nigerian Stock Exchange (NSE) for a ten year period (2000 to 2009) to study the capital structure and profitability of Nigerian listed companies from the perspective of the Agency Cost Theory. They achieved this with the help of the NSE Fact Book for the period under study. Fixed-effects, random-effects, and Hausman Chi Square estimates were used to create and evaluate panel data for the firms. The only dependent variable was Profitability (PROF), whereas debt ratio (DR) and EQT functioned as two independent factors that substituted for capital structure. The findings indicated that whereas EQT has a direct correlation with PROF, the only dependent variable, DR has a negative correlation with PROF. These research's findings show coherence with earlier empirical investigations and offer proof against the Agency Cost Theory.

Wahba (2014) looked at Egyptian company ownership, capital structure, and performance. Due to the Egyptian revolution, data from 2011 and later was removed from the study. Instead, a sample of the 50 companies that are most active from 2008 to 2010 were used. The study's findings imply that, in addition to business characteristics, stakeholder qualities do matter. The study's main objective is to determine the link between capital structure and company performance while taking other factors into account. The results also imply that there is no efficient ownership or capital structure arrangement, but that alternative arrangements are not all equally desirable. In conclusion, there is a favourable relationship between performance and capital structure.

Using a sample of Kenyan banks, Yegon, Cheruiyot, Sang and Cheruiyo (2014) investigated the impact of capital structure on companies' profitability. In contrast to long-term debt, which was shown to be negatively correlated with profitability, short-term debt was found to be positively correlated with profitability. Finally, the research revealed no connection between profitability and overall debt. The link between short-term debt and financial success, in contrast, attests to the static trade-off theory, according to the authors' interpretation of these data. Although certain features of the theories are somewhat disputed, the study acknowledged that, in the context of the entire argument, it is proposed that current capital structure theories influence some extant in decision-making processes. The choice of capital structure is a complicated, multi-dimensional topic, and as a result, it is likely to be the result of several group activities. This is the clear explanation. To put it simply, at least in the present situation, it is difficult, if not impossible, to consider all relevant elements with restricted rationality. Investigating this variability would benefit greatly from in-depth case study observations of specific organizations' financing choices throughout time.

According to Aghajari and Espireh (2014), choosing a capital structure is one of the contentious topics that businesses must decide on and is crucial to their existence. The study's goal was to find out how capital structure affects a company's financial performance. 340 enterprises registered on the Tehran Stock Exchange (TSE) across two 5-year periods (2002-2006) and (2007-2011) made up the study's population. The data analysis method employed was multivariate regression. Debt to Asset Ratio (DA), Short-Term Debt to Asset Ratio (SDA), Long Term Debt to Asset Ratio (LDA), Debt to Common Equity Ratio (DCE), Long Term Debt to Common Equity (LDCE), and Short-Term Debt to Common Equity (SDCE) Ratio (SDCE) was considered as the independent variable, and Financial Performance (Capital Returns (ROC), Return on Equities (ROE), Return on Assets and earnings per share (EPS) were dependent variables. The findings showed that the variables capital structure and financial performance did not correlate during the first time period (2002–2006), but that they

did correlate negatively and significantly during the second time period (2007–2011) between the variables ROA and DA as well as between the variables ROE and LDCE.

The capital structure and profitability of a sample of 53 businesses listed on the Bucharest Stock Exchange between 2010 and 2012 were the subjects of Moscu's (2014) investigation. The findings showed that the degree of capital structure has a considerable impact on a firm's performance as assessed by ROA, ROE, RCA, and MBR. Overall, Moscu's analysis shows that the degree of capital structure has a positive effect on a firm's economic return, which is indicated by financial ratios like ROE, net sales margin rate, RCA Earnings per share - EPS, and market to book ratio, but MBR is negatively impacted by capital structure.

Himani and Kumar (2014) examined a few Indian construction companies' capital structures between 2009 and 2013. Particular focus has been placed on the impact of capital structure on the financial performance of Indian construction companies listed on the Bombay Stock Exchange. For the purposes of the study, information was gathered from secondary sources, particularly the annual reports of the sample companies that were selected. Multiple regression and correlation were used to analyze the data. In this study, the independent variables are debt equity ratio, long-term debt, and debt asset ratio, while the dependent variables are gross profit margin, net profit margin, return on capital employed, ROA, and ROE. The findings demonstrated a favourable correlation between the selected firms' financial performance and capital structure.

In Sub-Saharan Africa, using data between 2001 and 2012, Mbo (2017) carried out research to examine the factors influencing the performance of 23 SOEs in 10 countries, with an emphasis on the power utilities, using the fixed effects estimator. In order to test the resource-based, agency-based, stakeholder-based, and public choice theories they used financial performance as the dependent variable and liquidity, board strength, stakeholder representation on the board, and government involvement in

pricing as the independent variables. The results demonstrated that a strong board and the availability of resources were related to good performance, thereby supporting the agency- and resource-based hypotheses. The study also found that heavy government interference contributes to poor performance.

Whether financial support from government affects the financial performance of commercial state-owned firms in South Africa was the focus of Marimuthu's (2020) investigation. Government guarantees were monitored using a dummy variable, and the accounting metric return on assets was used to gauge financial success (ROA). Data analysis on an imbalanced panel was done using the two-step technique GMM, and endogeneity concerns were taken care of. According to the empirical data, government guarantees and subsidies have a major detrimental impact on the financial performance of state-owned businesses. This shows that frequent government bailouts of underperforming state-owned companies worsen their financial situation and encourage them to depend too much on aid from the government, draining the country's treasury.

Mbahijona (2016) examined the effect of company's capital structure that were listed on the Namibia Stock Exchange (NSX). Utilizing secondary data from financial statements published on the websites of 21 companies listed on the Namibian Stock Exchange, a quantitative analysis was conducted. The study produced 84 observations over the course of its four-year duration (2010 to 2013). The study employed panel data regression with pooled, fixed, and random effects regression. The findings showed that the firm's capital structure has a significant, unfavorable impact on its performance.

Marotholi's (2018) study focused on the association between capital structure and financial performance of schedule 2 SOE's in South Africa. It was performed using the annual reports of the SOE's from 2005 to 2015. It was performed using the General Method of Moments model and the study produced mixed results.

Abutawahina (2015) looked at the association between capital structure and financial performance in Palestine. The study revealed that for the financial and banking sector, the capital structure plays a major role in their financial performance. For industrial firms, the relationship is insignificant. On the other hand, Arulvel and Ajanthan (2013) conducted a study in Sri Lanka and their results shows a negative correlation between debt ratio and profitability measures. These are the same results that Nassar (2016) found when he focused on the impact of the capital structure on profitability of Turkish industrial companies. It used multiple indicators such as ROA and the results revealed that the relationship is negative. Chandra, *et.al.*, (2019) examined capital structure and profitability as the factors that influence a firm's stock returns and profitability. The results discovered that capital structure has a significantly negative impact on profitability.

The review on the empirical analysis above shows that an analysis on the connection between capital structure and profitability does not always lead to the same conclusion. Although globally numerous studies have been done on the subject of capital structure and profitability, only one has been done in Namibia but again not on SOEs but rather on firms listed on the Namibian stock exchange. Also, there exists gaps on the conceptual, contextual, methodological and time spheres which this study sought to address. There is a time gap of about 5 years and a lot could have happened or changed therefore, there could be new information or knowledge that this study will address. The methodology used in this research is also more superior and takes care of issues which the model of Mbahijona's study might have suffered.

According to the researcher's study of the empirical analysis discussed above, there are variations in the findings when looking at the connection between capital structure and financial success. It is clear from the aforementioned debates based on the empirical literature that further empirical research is necessary in order to draw firm conclusions from investigations into the link between capital structure and profitability. According

on the economy, industry, business size, and time period, the outcomes appear to vary. Therefore, more study on this subject is necessary.

3.5.2. Empirical literature on the determinants of capital structure

A number of studies were conducted in an effort to identify the factors that influence capital structure choice after Modigliani and Miller's seminal introduction to capital structure. Initially, the focus of research on capital structure factors was primarily on American businesses. Titman and Wessels (1988) conducted one of the most well-known studies in which they empirically examined the theoretical factors that influence capital structure. The impact of the theoretical factors such as firm size, earnings volatility, the debt-equity decision of the firm, profitability, asset structure, growth, non-debt tax shields, uniqueness, industry classification, firm size and profitability was examined. The findings showed consistency with capital structure theories for the variables influencing firms' capital structure decisions. One of the few intriguing findings from US studies is the adverse correlation between debt and the "uniqueness" of a firm's line of business. The short-term debt ratio and firm size were inversely correlated. In addition, there was a clear negative correlation between past profitability and debt ratios. On factors like volatility, the value of collateral, non-debt tax shields and the firms future growth, the Titman and Wessels (1988) study did not, however, offer a strong empirical foundation.

Gropp and Heider (2007) used banks from developed nations (the US and 15 EU members, for 14 years) to study the issue of bank capital structure. They specifically examined the impact of bank leverage on factors such as asset tangibility, size, profitability, market-to-book ratio and the status of dividend pay-outs. Their findings offered compelling evidence for the applicability of common capital structure determinants to bank capital. This study also looks at some of these determinants such as size, tangibility and profitability. According to the studies reviewed it was also evident that different scholars use different measures of profitability.

To determine if the capital structure theory could also be applicable in developing economies, despite the different institutional structures, Booth *et al.*, (2001) have conducted an intriguing study. Researchers from the International Finance Corporations (IFC) gathered the easily accessible balance sheets and income statements for the biggest firms in ten developing nations, including Korea, Jordan, Zimbabwe, Turkey, India, Mexico, Pakistan, Thailand, Malaysia, and Brazil. By taking into account the impact of agency conflicts, financial distress, taxes and the influence of information asymmetries, a number of variables were tested and analysed to explain capital structure determinants.

Some of the factors mentioned include business risk, taxes, asset tangibility, market to book ratio, sales and ROA. Three different measures of the firm's debt ratio were compared against those variables using a straightforward cross regression model. Based on their research, the authors came to the conclusion that, despite institutional differences among these developing countries, the variables that explained capital structures in developed countries were also relevant in developing countries. The same factors that have an impact on developed nations also had a big impact on developing nations.

This study supports the argument of asset tangibility in firms financing decisions, indicating that as the asset mix becomes more tangible, the firm's long-term debt ratio rises while the total-debt ratio falls. It is worth noting that the estimated empirical average tax rate has no effect on financing decisions other than acting as a proxy for profitability. The study finds that for both the total and long-term book debt ratios, knowledge of the firm's nationality is at least as significant as knowledge of the size of independent variables. The authors have provided recommendations for future research in this field, including an improvement in the caliber of the global database. They also suggested creating a theoretical framework to look into how capital structure decisions directly affect profitability.

By gathering secondary data from the World Bank for 11,125 firms in 25 developing countries, Bas, Gulnur, and Kate (2009) investigated the factors that influence the capital structure decisions made by businesses in developing nations. They talked about the capital structure choices made by businesses in emerging markets from various geographical areas. They looked into whether the factors affecting capital structure varied for small, medium, and large businesses. According to the findings, capital structure theory supports the significance of firm level variables like tangibility and profitability regardless of how the firm defines itself.

The results show that when it comes to choosing debt financing, private, small, medium, and large businesses follow the pecking order. Listed companies, however, favor short-term debt financing over long-term debt financing. Additionally, internal funds have no influence on choices regarding debt financing. The size effect was yet another significant finding. They noticed various responses from both small and large businesses to debt financing. A company can use more leverage as it gets bigger because its risk of failure goes down. They found that debt policies differ between small and large companies. Because of information asymmetries, small businesses pay higher interest rates as they have limited access to finance. Furthermore, small businesses are generally more financially risky than big corporations. As a result, small businesses have less access to debt financing which could have an impact on their development.

Mintesinot (2010) investigated the capital structure determinants of selected manufacturing private limited companies in Ethiopia's Tigray Region. Mintesinot (2010) regressed eight explanatory variables against dependent variables. He also used secondary data gathered from audited financial statements of 14 firms over a five-year period (2004-2008). After analyzing the data, he concluded that non-debt tax shield, asset tangibility, firm age, growth, size and earnings volatility are significant determinants of capital structure in at least one of the three capital structure models used in the study.

3.6. Methods Used in Capital Structure Research

In an effort to determine what aspects are necessary in choosing capital structure, empirical data on capital structure has followed the development of statistical methodologies. The Tobit model and Ordinary Least Squares (OLS) were utilized in early empirical research. Panel data models then gained popularity, and since then, the majority of research have employed them. To address the issues with capital structure theories, improved approaches have, nevertheless, long been sought for.

3.6.1. Ordinary Least Squares (OLS)

The OLS was the first method employed in the capital structure study, and it could be used with either time-series or cross-sectional data. The first one focuses on researching how new debt or equity issuance affects company stock prices and with the second one the dependent variable is regressed on the factors that affect capital structure.

The OLS's use in early capital structure studies has recently come under harsh criticism. Ordinary least squares were used by Friend and Lang (1988), but they ran into a problem with heteroscedastic probability that they were able to solve by logarithmically converting the dependent variable. Lemmon, Roberts, and Zender (2008) also harshly criticized the use of the static OLS, asserting that it is insufficient for addressing the unobserved heterogeneity in capital structure research. They suggest using fixed effect estimates, instrumental variables, and structural estimations to solve this issue.

3.6.2. Tobit Model (TBM)

Tobin (1958) initially established the Tobit estimate as a limited dependent variable. Its initial use of the test was done in a research by Rajan and Zingales (1995), who

claimed that doing so was necessary because the changes they made to the dependent variable led to negative leverage values that had to be terminated using a Tobit model at -1. Additionally, Wald (1999) utilized a heteroskedastic Tobit estimator rather than the OLS since the dependent variable was the ratio of debt to assets, which was censored at zero. However, some empirical research, including those by Huang and Song (2006), did not detect a difference between the outcomes they acquire from the OLS and the Tobit.

3.6.3. Panel Data models (PDM)

Borsch-Supan and Kake (2002) assert that endogeneity issues in the OLS and Tobit models used in earlier methodologies may arise when cross-sectional data are present. The OLS is biased in this circumstance and cannot be used in this manner as a result of these issues. Contrary to Baker and Martin (2011), it is important to note that this does not render obsolete all earlier studies that employed the OLS model. Researchers like Baker and Martin (2011) and Borsch-Supan and Kake (2002) have demonstrated that panel data models are more successful at addressing heterogeneity and endogeneity challenges in the capital structure literature.

3.6.4. Dynamical Panel Model (DPD)

The modelling of one of the key capital structure issues is the foundation for the dynamical panel data models. The optimal capital structure theory or the goal capital structure is the foundation for this inquiry. According to a poll of 3982 CFOs conducted by Graham and Harvey (2001), 19% of the respondents said there was no target ratio range. While 37% have a flexible objective and 34% have a fairly tight target, 10% have a very rigorous target. This provides solid evidence in favour of the capital structure trade-off theory, according to which businesses weigh the advantages of a tax shield against the costs of a higher risk of financial insolvency. As a result, businesses would temporarily stray from their aim before beginning to return to it.

Furthermore, a trailblazing study of the pecking order theory by Shyam-Sunder and Myers (1999) claims that changes in debt ratios are caused by the need for outside capital rather than an effort to change the capital structure as claimed by the dynamic trade-off theory. Shyam-Sunder and Myers' fascinating study from 1999 shows that mean-reverting debt can still happen even when operational revenue and capital expenditure time patterns match the pecking order theory.

According to Drobetz and Fix (2003), this finding may be explained by the serial link between debt and capital investment or by the fact that internal funds do fluctuate throughout multiple economic cycles. Additionally, Fama and French (2002) discover that leverage is mean-reverting and that the trade-off theory is supported by the partial adjustment model.

3.6.5. Structural Equation Modelling (SEM)

The first attempt to apply structural equation modeling to capital structure analysis was made by Titman and Wessels in 1988. According to them, the main advantage of doing so is that it enables accurate measurement of the relationship between the dependent observable factor and the independent unobservable factor. The fundamental approach to capital structure research, which relies on proxies to estimate the unobservable features, is also flawed, according to Titman and Wessels (1988). They provided examples of the drawbacks of this tactic, including:

- Since no one variable serves as a proxy, researchers may choose to employ the one that produces the best findings.
- It is challenging to identify a variable that represents a proxy and is not connected to other proxies; as a result, a researcher may select a variable to measure a proxy, but this variable will impact a number of other relevant proxies.

- Using the variables would result in an error-in-variable issue since they are insufficient measurements of the proxies they should measure.
- The correlation between the dependent variable's measurement errors and the independent variables may result in incorrect correlations even though the independent variable and dependent variable are unrelated.

Titman and Wessels (1988), based on these concerns, suggested using structural equation modelling (SEM) to resolve them.

3.6.6. Artificial Neural Networks

Artificial neural networks (ANNs) are a recent innovation in capital structure. Although ANN models are not entirely new in science and engineering, they have just recently begun to be employed extensively in finance literature. According to Hawley, Johnson and Raina (1990), they were utilized, for instance, in corporate finance for the following applications:

- Financial Simulator For controlling cash flow, risk management, and capital investment decisions, a network might be developed.
- Financial data forecasting is an extremely challenging endeavour. Therefore, compared to using conventional forecasting software, using ANN might boost efficiency. The ANN might also be used to forecast how investors will respond to company announcements or changes in financial policy.
- Analysis. For example, a neural network system may be created to identify undervalued businesses for merger or acquisition purposes.
- The ANN was employed in several research for a variety of credit approval applications. These included, for instance, the selection of credit card applicants or the approval of loans for both people and businesses.

This methodology was applied by a small group of researchers, including Pao (2008) and Abdou, Kuzmic, Pointon, and Lister (2012) in their capital structure studies. Pao's

(2008) research concentrated on comparing multiple regression analysis and the (ANN). He came to the conclusion that (ANN) models are better at fitting data than multiple regression analysis, and they can recognize and handle complex non-linear relationships between debt and independent variables.

Abdou *et. Al.*, (2012) also used the Generalized Regression Neural Network (GRNN), a distinct neural network, to contrast the capital structure of UK retail enterprises with the multiple regression models. They conclude that when considering both the root-mean-square errors and the mean absolute errors, the (GRNN) network performs better. These results concur with those of Pao (2008).

3.6.7. Survey Evidence

It is important to utilize the survey evidence technique to look at this in more depth since it might be difficult to quantify capital structure hypotheses and the intersection between various metrics. Since the early development of the capital structure literature, important studies such as Bancel and Mittoo (2004), Donaldson (1961) and Graham and Harvey (2001) have been carried out.

In order to develop a hypothesis of the pecking order in defining the capital structure of enterprises, Myers (1977) and Myers (1984) used data from Donaldson's (1961) study of 25 businesses from five different industries. 392 Chief Financial Officers (CFOs) were surveyed by Graham and Harvey (2001) on their preferences for capital structures and other topics. Their results indicate that the manager's need for financial flexibility is one of the most important consideration in corporate loan decisions. In a research that was comparable to Graham and Harvey's (2001), Bancel and Mittoo (2004) focused on cross-national comparisons. Their findings are necessary because they show that the sampled organizations' funding practices vary depending on institutional traits and global operations. Additionally, they discover that organizations

evaluate costs and advantages while determining their ideal capital structure, which is in line with the trade-off theory.

3.7. Chapter summary

The choice of an entity's financing mix is central to the tasks of finance managers and potential investors. Since the Modigliani and Miller capital structure irrelevancy proposition in 1958, the search for an optimal capital structure has been at the forefront of research. According to the empirical literature reviewed, a plethora of studies have yielded contradictory findings about the relationship between capital structure and financial performance, with some researchers reporting mixed findings.

While the capital structure-financial performance relationship has received considerable attention in developed economies, empirical research in emerging economies remains limited. In Namibia, empirical research has yet to address the capital structure-financial performance relationship of SOEs. The majority of empirical research has concentrated on publicly traded firms in developed economies. Because of their unique characteristics, as well as some SOEs' lack of financial reporting, SOEs have received little attention, particularly in emerging economies. As a result, there is a knowledge gap on empirical evidence on the relationship between capital structure and profitability in the SOE sector.

Despite numerous studies on the capital structure-financial performance relationship, the research findings remain contradictory and inconsistent. This could be attributed to a lack of methodological consistency and the use of models that do not account for hidden variable biases. Failure to include moderation and mediation variables in business research models continues to produce results that are not only contradictory, but also do not address the practical realities of business practice. Furthermore, while studies emphasize the role of control variables in studies examining relationships, it is rare to find capital structure-financial performance studies that address control variables, and even those that do rarely report on their effect in the relationship. The

determinants of capital structure have also been the subject of numerous empirical studies, almost all of which were in conflict with one another. Additionally, the majority of those studies focused solely on studying internal factors that affect firms' capital structures, omitting external factors that may be important to consider in future research.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1. Introduction

This chapter describes the methods used to carry out this study. The research philosophy and design are discussed, as well as the study population and sampling design. The procedure and methods for collecting data are presented and discussed. The process of data analysis and presentation, as well as data quality control measures, are described. The chapter also goes over the diagnostic tests that were deemed relevant in this study.

4.2. Research design

Trochim (2006) described a research design as the glue that holds the research project together. It is used to structure the research, demonstrating how all of the major components of the research project interact to attempt to answer the central research questions. On the other hand, Kothari (2014) defines research design as “the blueprint for collecting, measuring, and analyzing the data required for a study”. Because it is quantitative, pre-planned, and structured in design, the causal design research approach was used in this study. Utilizing this design is advantageous because it clarifies the cause-and-effect relationship between variables, helps identify which variable is the cause and which variable is the effect, and illuminates the nature of the connection between the causal variables and the predicted effect.

This approach is also thought to be suitable for achieving the research goals of the study because the data and study heavily rely on secondary data gathered from audited annual reports and accounts of commercial SOEs in Namibia and explore the causal relationship between the study’s pertinent variables. This strategy is advantageous for this kind of research because it enables deductive reasoning because the conclusions

drawn from statistical hypothesis testing can be generalized to population characteristics (Harwell, 2011).

4.3. Sample and data

The objective of this study is to further knowledge of the capital structure, an important component of corporate financial management, with particular reference to Namibia's commercial SOEs. The focus of this study is on how capital structure affects Namibia's commercial SOE's profitability. Data was obtained from available annual reports from the websites of the respective commercial SOEs for the period 2011-2020. There are 21 commercial SOEs in Namibia however the researcher could only get hold of the annual reports of 8 commercial SOEs for the period under review.

Given the time period of the study (10 years), the data was designed in a panel format for import onto Eviews12. For this study, the panel data analysis method has been taken into consideration because it increases the model's effectiveness and flexibility by allowing for a large number of observations (Le and Phan, 2017). The use of panel data, as opposed to cross-sectional data, allows the management of unobserved variables that may exist across different firms and/or cultures of individuals and it is simple to utilize instrument variables to remove endogeneity when using panel data (Le and Phan, 2017).

4.4. Model specification

As stated, the objective of the research is three folds. Firstly, the study investigates the relationship between capital structure and profitability of commercial SOEs in Namibia. Secondly, the study evaluates whether there is causal relationship between capital structure and profitability of commercial SOEs in Namibia and lastly, the study investigates the determinants of capital structure of commercial SOEs in Namibia. As a result, regression models are designed on the basis of the study objectives.

The panel model for the study will be specified as below.

$$Y_{it} = \beta_0 + \beta_1 D_{it} + e_{it} \quad \dots(4.1)$$

Where:

Y = Dependent variable

D = Independent variable

β_0 = Intercept

β_1 = Coefficient of the explanatory variable

e = Error-term

i = Cross-sectional variable

t = Time-series variable

The Ordinary Least Square (OLS) estimation approach is used to confirm the correlations. For the panel data set, many researchers also used the OLS estimation technique (Barclay & Smith (1995), Demirguc-Kent & Maksimovic, (1998), and Scherr & Hulburt (2001). A VECM Granger causality approach that will be used to examine the direction of causality.

The regression models are presented below:

4.4.1. Regression model to measure the relationship between capital structure and profitability of commercial SOEs in Namibia

The following equations is a statistical approach used to assess the degree of correlation between dependent variables Return on assets and Return on equity (ROA and ROE) and independent variables, total liabilities to total assets, total equity to total assets,

tangibility, tax, business risk, liquidity and inflation rate (TLTA, TETA, TANG, TAX, BR, LIQ, and IR) of available commercial SOEs in Namibia. Singh & Bagga (2019) used the same approach.

General equation:

Profitability = f (total liability, total equity, tangibility, tax, business risk, liquidity, inflation) (4.2)

Specific model:

$$ROA_{it} = \alpha_{it} + \beta_1 TLTA_{it} + \beta_2 TANG_{it} + \beta_3 TAX_{it} + \beta_4 BR_{it} + \beta_5 LIQ_{it} + \beta_6 IR_{it} + \varepsilon_{it} \dots (4.3)$$

$$ROA_{it} = \alpha_{it} + \beta_1 TETA_{it} + \beta_2 TANG_{it} + \beta_3 TAX_{it} + \beta_4 BR_{it} + \beta_5 LIQ_{it} + \beta_6 IR_{it} + \varepsilon_{it} \dots (4.4)$$

$$ROE_{it} = \alpha_{it} + \beta_1 TLTA_{it} + \beta_2 TANG_{it} + \beta_3 TAX_{it} + \beta_4 BR_{it} + \beta_5 LIQ_{it} + \beta_6 IR_{it} + \varepsilon_{it} \dots (4.5)$$

$$ROE_{it} = \alpha_{it} + \beta_1 TETA_{it} + \beta_2 TANG_{it} + \beta_3 TAX_{it} + \beta_4 BR_{it} + \beta_5 LIQ_{it} + \beta_6 IR_{it} + \varepsilon_{it} \dots (4.6)$$

where α_{it} , is the unknown intercept for every company, $t = 2011, \dots, 2020$, represents the year analysed, β s are the coefficients for every independent variable and ε_{it} is the error term. The null hypothesis for the dependent variable ROA is that TLTA has no impact on ROA, that is, $\beta_1 = 0$. (A similar set of hypothesis can be stated for other independent variables for ROA and ROE).

Table 4.1.: Variables and measures

Variable	Notation	Measure
Return on assets	ROA	EBIT/Total assets
Return on equity	ROE	Net income/shareholders' equity
Asset tangibility	TANG	Fixed assets/Total assets
Tax	TAX	Tax/EBIT
Liquidity	LIQ	Current assets/Current Liabilities
Business risk	BR	% change in EBIT/% change in net sales
Total liabilities to total assets	TLTA	Total liabilities/Total assets
Total equity to total assets	TETA	Total equity/Total assets
Consumer price index	IR	Used as the Inflation rate

Source: Authors construction

4.4.2. Regression model to measure the determinants capital structure of commercial SOEs in Namibia

The majority of the empirical research on capital structure that are now available employ linear regression techniques with proxies for the determinant factors that are used to account for variance in leverage ratios between firms. The link between financial leverage and its determining factors in the chosen commercial SOEs in Namibia is examined using the multivariate ordinary least square (OLS) regression model, which is detailed below.

General equation:

$$\text{Leverage} = \text{Function of (Profitability, Liquidity, Size, Tangibility, Growth, Tax, GDP, ... (4.7.)}$$

Specific model:

$$L_{it} = \alpha + \beta_1(Prof)_{it} + \beta_2(Liqui)_{it} + \beta_3(Tang)_{it} + \beta_4(Size)_{it} + \beta_5(GDP)_{it} + \beta_6(Tax)_{it} + \varepsilon_{it} \quad \dots (4.8.)$$

In which, L_{it} is company i 's leverage measured at time t , which is the dependent variable and ε_{it} is the error term.

Three models, the Ordinary Least Squares (OLS) Model, the Fixed Effects Model, and the Random Effects Model were used to compare these hypotheses by estimating the impact of each explanatory variable on the dependent variable, debt ratio, as well as the statistical significance of each one in each model. The following equations for the three models OLS, fixed effects, and random effects are shown below:

$$\begin{aligned} &DER \\ &= \beta_0 + \beta_1(PR)_{it} + \beta_2(LIQ)_{it} + \beta_3(TN)_{it} + \beta_4(SZ)_{it} + \beta_5(GDP)_{it} \\ &+ \beta_6(TAX)_{it} \\ &+ \varepsilon_{it} \end{aligned} \quad \dots (4.9)$$

$$\begin{aligned} DER &= \beta_{0t} + \beta_1(PR)_{it} + \beta_2(LIQ)_{it} + \beta_3(TN)_{it} + \beta_4(SZ)_{it} + \beta_5(GDP)_{it} \\ &+ \beta_6(TAX)_{it} \\ &+ \mu_{it} \end{aligned} \quad \dots (4.10)$$

$$\begin{aligned} &DER \\ &= \beta_o + \beta_1(PR)_{it} + \beta_2(LIQ)_{it} + \beta_3(TN)_{it} + \beta_4(SZ)_{it} + \beta_5(GDP)_{it} \\ &+ \beta_6(TAX)_{it} + \mu_{it} \\ &+ \varepsilon_{it} \end{aligned} \quad \dots (4.11)$$

Where i is the commercial SOE, t is the year, ε_{it} is the stochastic error of commercial SOE i in time t , and μ_{it} is the error term of commercial SOE i in time t .

Table 4.2. Summary of Variables and their measures

Variable	Notation	Measure
Leverage (Dependent variable)	DER	Debt to equity ratio= Total liability/Total shareholders' equity
Profitability	PR	Profit before tax/ total assets
Liquidity	LIQ	Current assets/Current Liabilities
Tangibility	TN	Fixed assets/Total assets
Size	SZ	Natural logarithm of total assets
GDP Growth	GDP	GDP growth (annual %)
Tax	TAX	Tax/EBIT

Source: Authors construction

Based on the literature in chapter 3, section 3.3.2, the hypotheses to be constructed are as follows:

Hypothesis 1: Profitability will be negatively related to company's leverage

Hypothesis 2: Liquidity will be negatively related to the company's leverage

Hypothesis 3: Tangibility will be positively related to the company's leverage

Hypothesis 4: Company size will be positively related to leverage ratio

Hypothesis 5: GDP growth will be negatively related to leverage ratio

Hypothesis 6: Effective tax rate will be positively related to debt

As stated in Chapter 1, the sub-hypotheses that could not be mentioned there are now included in the list above.

4.5. Data analysis

4.5.1. Unit root test

The panel data includes a time series component, so testing for unit roots to determine the series' stationarity is prudent to prevent inaccurate results. This study presents the findings of the Im, Pesaran, and Shin (IPS) unit root test, which is based on the well-known Dickey-Fuller method. A stochastic trend in a series prevents it from being stationary and from being predicted far into the future. Regardless of the starting point, a stationary series will always return to a specific value, and it is anticipated that it will eventually reach that value (Sargan, 1958).

Im, Pesaran, and Shin (1997) proposed a test for the presence of unit roots in panels that combines data from the time series dimension with data from the cross-section dimension and requires fewer time observations to be valid (Hurlin and Mignon, 2007). This study will also employ the IPS test, which has been demonstrated by economists to have superior test power for examining long-run relationships in panel data.

4.5.2. Descriptive statistics

The mean, median, mode, standard deviation, variance, kurtosis, and skewness of the variables are provided by descriptive statistics. The mean merely displays each variable's average value. After sorting the observations, the median represents the midway value. The highest and lowest values for each of the variables are shown by the maximum and minimum, respectively. The standard deviation displays the variation between each variable's sample means. Kurtosis and skewness are indicators of normalcy. They each offer helpful details regarding the symmetry of the probability distributions of the various series and the thickness of these distribution's tails (Oyedele & Adebayo, 2015). For a normal distribution, skewness and kurtosis should both be

equal to zero. Additionally, the OLS residuals-based Jarque-Bera test of normality is applied. The assumption at zero is that residuals have a normal distribution.

4.5.3. Trend Analysis of the Mean Distributions of Variables

The dependent and independent variable'' means for each year during the investigation period are examined. For a clear explanation and understanding, graphs are used in this process. This was done in order to clearly show the patterns of mean movement of the various variables between 2011 and 2020.

4.5.4. Correlation Matrix

The relationship between two variables is referred to as correlation. Two things are shown by the correlation: first, the relationship between the two variables is shown, and second, the degree of interdependence between the variables is shown. A number between -1 and 1 represents the relationship, with a coefficient of 1 denoting perfect correlation and a coefficient of 0 denoting no correlation at all between the variables.

4.5.5. VIF

The existence of multicollinearity, which occurs when two or more independent variables are correlated with one another, is another presumption that needs to be tested. This is significant because multiple variable'' interactions weaken the validity of the findings (Stock and Watson, 2007). According to Pallant (2010) and 'brien (2007), a common test for evaluating how closely two variables are related is the Variance Inflation Factor (VIF). Low VIF values are preferred, according to Wooldridge (2012), as VIF values greater than 5 indicate multicollinearity (Gujarati and Porter, 2009). All of the independent variable'' VIF values are under four, which shows that multicollinearity is not a problem in this sample.

4.5.6. Heteroskedasticity

Heteroscedasticity is a systematic pattern in errors in which the error variances are not constant (Gujarati, 2003). The researcher used the Breusch-Pagan test to detect heteroscedasticity.

4.5.7. Granger causality test

The Dumitrescu-Hurlin panel causality methods, which were developed by Dumitrescu and Hurlin (2012), are used in this study to examine the panel causality between variables.

4.5.8. Regression analysis- Pooled OLS, Random effects, Fixed effects

Panel data can also be estimated using three distinct estimation models, according to Saadam (2014): pooled cross section estimation, fixed effect estimation, and random effect estimation.

The random effects model is more suitable, in accordance with Brooks (2008), when the sample's cross sections are randomly selected from the population. When cross-sectional units in the sample accurately represent the entire population, a fixed effect model performs better. Additionally, the random effects model should produce more accurate estimation than the fixed effects model because it has less parameters to estimate (because dummy variables are not present). Additionally, the random effects model is appropriate if the number of cross sections is higher and the time period observations are fewer, and if the assumptions underlying the random effects model are true, random effect estimators are more effective than fixed effect estimators Gujarati and Porter (2004).

Contrarily, the Random effects approach has a significant flaw in that it can only be used when the composite error term is not correlated with all of the independent variables. This assumption is stricter in the case of random effects than in the case of fixed effects because random effects demand that both the cross-sectional error term and the new individual observation error term be uncorrelated with all explanatory variables. This can also be seen as a verification that the selected explanatory variables are not correlated with any unobserved omitted variables (that were permitted to have different intercepts for each cross section). A random effects model may be preferred if the error terms and independent variables are uncorrelated; otherwise, a fixed effects model is appropriate Brooks (2008).

The researcher used a Hausmann test to test the validity of the above assumption and thus select an appropriate model for the study. The Hausmann test, as presented in the subsequent chapter, compares the null hypothesis of the random effects model to the fixed effects model. Therefore, the researcher could use the fixed effects model if the probability of Hausmann chi-square is less than 0.05, and the researcher could use the random effects model if the probability is greater than 0.05.

CHAPTER FIVE: RESULTD AND DISCUSSION

5.1. Introduction

The empirical findings and discussion in light of the literature are described in the current chapter. Based on the three objectives of this study, the results will be presented according to each objective, with each having its own data analysis and interpretation. For each objective, the unit root test, descriptive statistics, correlation analysis and regression analysis will be performed.

5.2. Relationship between capital structure and profitability

5.2.1. Panel unit root tests

Panel unit root test was applied for all variables used in the analysis in order to avoid spurious regression results. The study applied the Im, Pesaran, and Shin (IPS) unit root test.

Table 5.1. Panel unit root test (IPS)

Variable	IPS Test	P Value	Order of Integration
ROA	-1.79	0.03	I(0)
ROE	-2.69	0.00	I(0)
TLTA	-2.37	0.00	I(1)
TETA	-2.33	0.00	I(1)
TANG	-2.00	0.02	I(1)
TAX	-5.20	0.00	I(0)
BR	-7.18	0.00	I(0)

IR	-4.66	0.00	I(1)
LIQ	-2.77	0.00	I(1)

Source: Authors computation

The results of the Im, Pesaran, and Shin (IPS) are displayed in Table 5.1. The IPS tests the alternative hypothesis that the series is stationary while rejecting the null hypothesis that all of the included series have unit roots or are non-stationary. Table 5.1 shows that TLTA, TETA, TANG, IR and LIQ are stationary after first difference, while ROA, ROE, TAX and BR are integrated in order I(0). Since all the variables are integrated at either level or after first difference, the researcher proceeded.

5.2.2. Descriptive statistics

This section includes descriptive statistics for all of the variables considered in the analysis, that is, return on assets (ROA), return on equity (ROE), total liabilities to total assets (TLTA), total equity to total assets (TETA), tangibility (TANG), tax (TAX), business risk (BR), liquidity (LIQ) and inflation rate (IR). According to Kothari (2014), descriptive statistics is concerned with the development of some significant statistical measures or indices that are used to summarize research data, such as measures of dispersion, central tendency or statistical averages, asymmetry (skewness), relationship, and other measures derived from raw data.

Table 5.2: Descriptive statistics

Variable	Obs.	Mean	St.Dev	Min	Max
ROA	72	0.067	0.136	-0.222	0.428
ROE	72	0.175	1.397	-5.717	6.571
TLTA	72	0.592	0.251	0.151	0.984

TETA	72	0.408	0.251	0.015	0.848
TANG	72	0.586	0.209	0.172	0.950
TAX	72	-0.509	2.300	-17.148	1.400
BR	72	-11.455	162.252	-908.660	430.025
LIQ	72	2.472	2.943	0.335	17.947
IR	72	4.838	1.470	2.210	6.730

Source: Authors construction

The mean ROA value for 72 observations was 0.067040, as shown in Table 5.2 above, with a standard deviation of 0.136455 and minimum and maximum values of -0.222110 and 0.428705, respectively. Even if some businesses were running at a loss, as evidenced by the negative minimum observed value of ROA, the positive return on ROA shows that the enterprises were generally profitable. The mean ROE for the 72 observations was 0.175162; the minimum and maximum values were -5.717246 and 6.571844, respectively, with a standard deviation of 1.397834. The negative minimum value of the ROE observation indicates that some businesses in the sample were losing money.

The mean value of the debt ratio (TLTA) for 72 observations was 0.592056 with a standard deviation of 0.251435 and a minimum and maximum value of 0.151185 and 0.984298, respectively. This results reveal that most of the companies assets are financed through debt. The maximum value of 0.984298 reveal that some companies are highly leveraged.

The mean value of total equity to total assets (TETA) for 72 observations was 0.408 with a minimum and maximum value of 0.015 and 0.848 respectively. A high equity to asset ratio means that a company is more likely to be able to pay back its debtors. A

low equity to asset ratio means that a company is more likely to go bankrupt. The minimum value of 0.015 shows that some SOEs are on the verge of going bankrupt.

The mean value for TAX was -0.509 with minimum and maximum values of -17.148 and 1.400, respectively. This could be attributed to the fact that some companies that were analysed were exempted from paying taxes. BR also reported a negative mean value of -11.455 with maximum and minimum values of -908.660 and 430.025, respectively.

The majority of the variables have standard deviations that are reasonably low, indicating that the actual data deviates only slightly from the mean or expected values. Due to the fact that all of the variables' mean values and standard deviations fall within the lowest and maximum, they all show a high level of consistency.

Table 5.3 below summarizes the means of the dependent and independent variables per year for the time periods under consideration. This was done in order to clearly show the trends in mean movement of the individual variables between 2011 and 2020. These trends were further expressed using graphs for meaningful explanations and proper comprehension.

Table 5.3: Mean summary of the variables from 2011 to 2020

	ROA	ROE	TLTA	TETA	TANG	TAX	BR	LIQ	IR
2011	0,078	0,223	0,566	0,434	0,601	0,108	9,827	1,888	5,010
2012	0,129	0,079	0,589	0,476	0,526	-0,143	9,390	2,032	6,720
2013	0,045	0,210	0,599	0,401	0,573	-0,065	-0,862	1,658	5,600

2014	0,063	0,067	0,612	0,388	0,511	-0,087	-4,750	3,556	5,350
2015	0,056	0,253	0,616	0,383	0,537	-0,165	1,558	2,620	3,390
2016	0,073	0,088	0,600	0,400	0,586	-1,311	-115,430	2,413	6,730
2017	0,065	-0,386	0,584	0,416	0,591	-0,032	-23,565	3,005	6,150
2018	0,054	-0,669	0,573	0,430	0,590	-2,391	-0,267	3,940	4,290
2019	0,039	0,840	0,587	0,413	0,618	-0,370	28,282	3,000	3,720
2020	0,049	0,859	0,596	0,404	0,638	-0,191	-1,788	1,801	2,210
	0,067	0,175	0,592	0,408	0,586	-0,509	-11,455	2,472	4,838

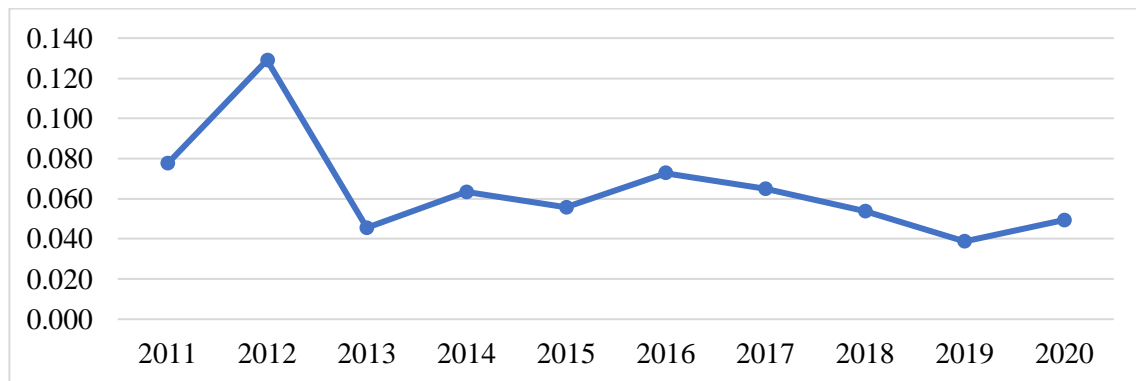
Source: Authors construction

5.2.3. Trend Analysis of the Mean Distributions of Variables

5.2.3.1. Mean distribution of ROA

Return on assets (ROA) measures how effectively a company can manage its assets to generate profits over a given time period, Sigh and Bagga (2019). As presented in Figure 5.1 below, the mean distribution of this ratio shows an increase of ROA from 2011 to 2012. It then declined sharply between 2012 and 2013 and remained relatively constant between 2013 to 2020.

Figure 5.1. Mean distribution of ROA

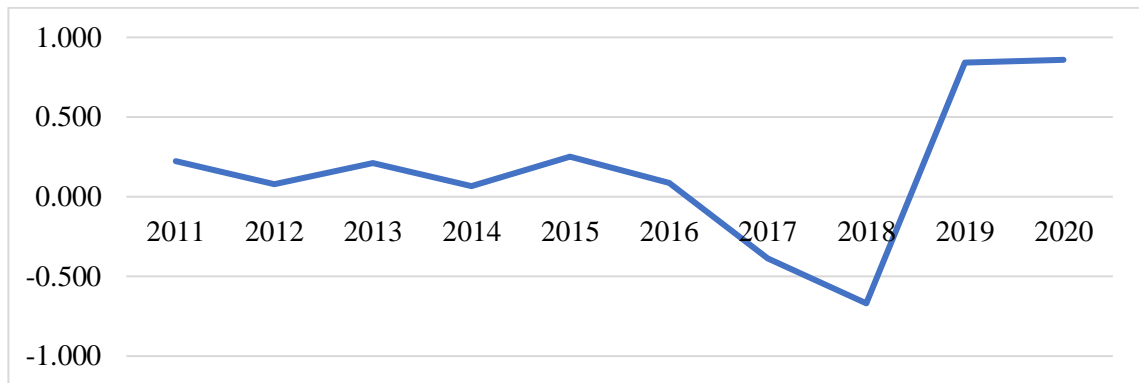


Source: Authors construction

5.2.3.2. Mean distribution of ROE

The amount of net income returned as a percentage of shareholders' equity is referred to as return on equity (ROE). It assesses a company's profitability by revealing how much profit it generates with the money invested by shareholders, Sigh and Bagga (2019). During the period under review and as presented in Figure 5.2 below, ROE remained constant between 2011 and 2016 before falling sharply towards 2017. It then increased between 2018 and 2019.

Figure 5.2. Mean distribution of ROE

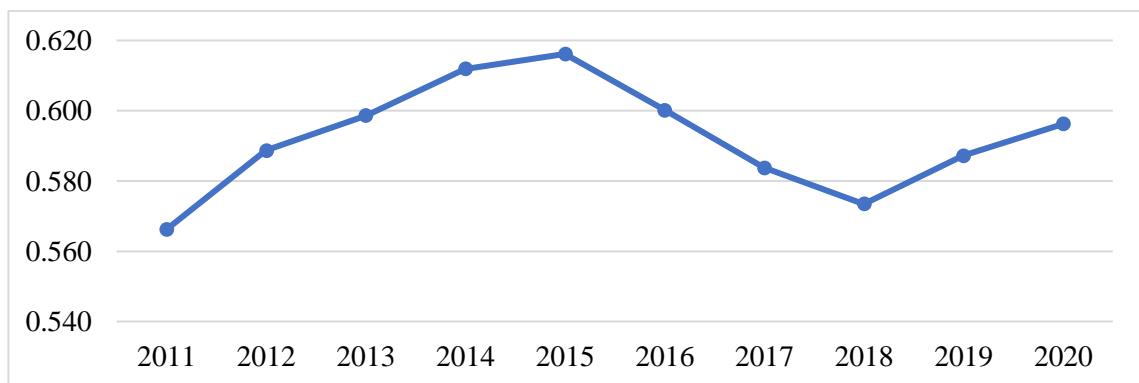


Source: Authors construction

5.2.3.3. Mean distribution of TLTA

This variable is defined as the ratio of total assets to total liabilities. As shown in Figure 5.3 below, TLTA has been increasing sharply between 2011 and 2015. This means that most of the companies assets were being financed through debt as the ratio was getting further and further away from 0.05 during that period. It then declined between 2015 and 2018 showing that the companies started to take on less debt to finance their assets before picking up again between 2018 and 2020.

Figure 5.3. Mean distribution of TLTA

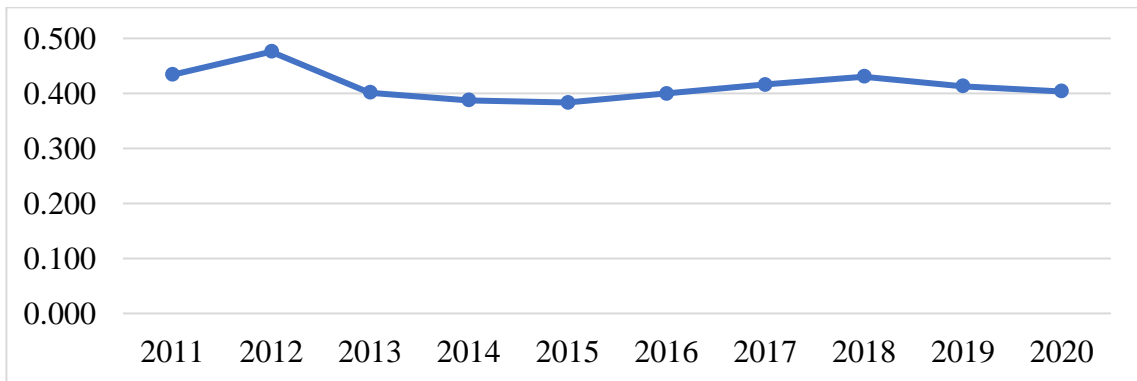


Source: Authors construction

5.2.3.4. Mean distribution of TETA

This variable is defined as the ratio of total equity to total assets which is the company's financial leverage. the mean value of TETA has been constant during the period under review although it remained relatively low. A high equity to asset ratio means that a company is more likely to be able to pay back its debtors. A low equity to asset ratio means that a company is more likely to go bankrupt.

Figure 5.4. Mean distribution of TETA

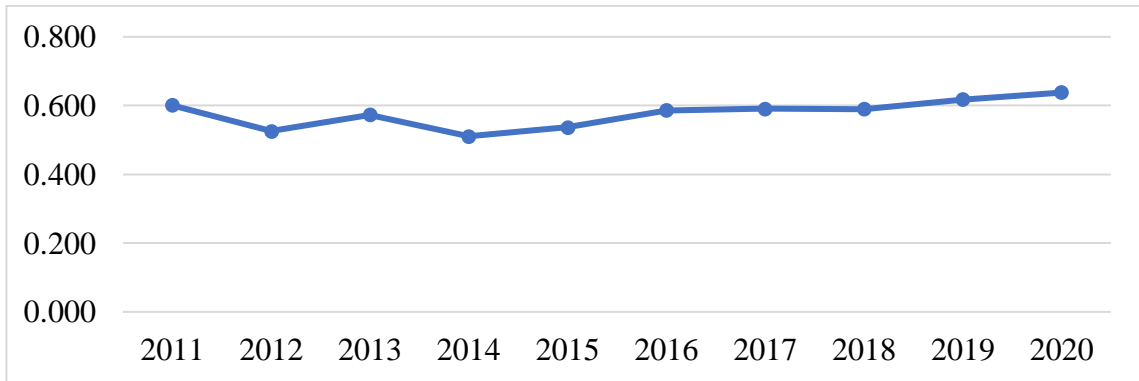


Source: Authors construction

5.2.3.5. Mean distribution of TANG

Asset tangibility is defined as the ratio of fixed assets to total assets. It shows the extent to which the company funds are frozen in the form of fixed assets, such as property, plant and equipment. According to Figure 5.5 below, the mean value of TANG has been fairly constant during the period under review.

Figure 5.5. Mean distribution of TANG

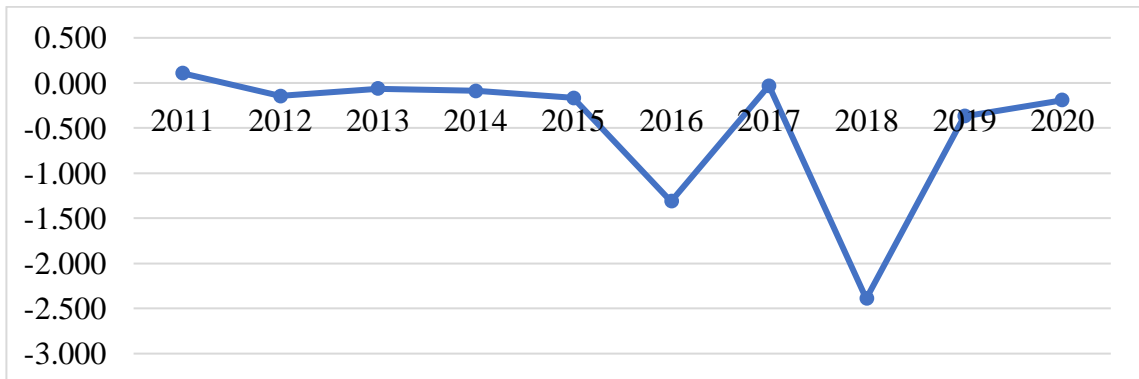


Source: Authors construction

5.2.3.6. Mean distribution of TAX

Tax is described by the ratio of tax to earnings before interest and tax. As shown in Figure 5.6 below, TAX has been constant between 2011 and 2015, the started to fluctuate between 2015 and 2020. The relatively low mean of TAX could be attributed to the fact that some companies that were analysed where exempted from paying taxes.

Figure 5.6. Mean distribution of TAX

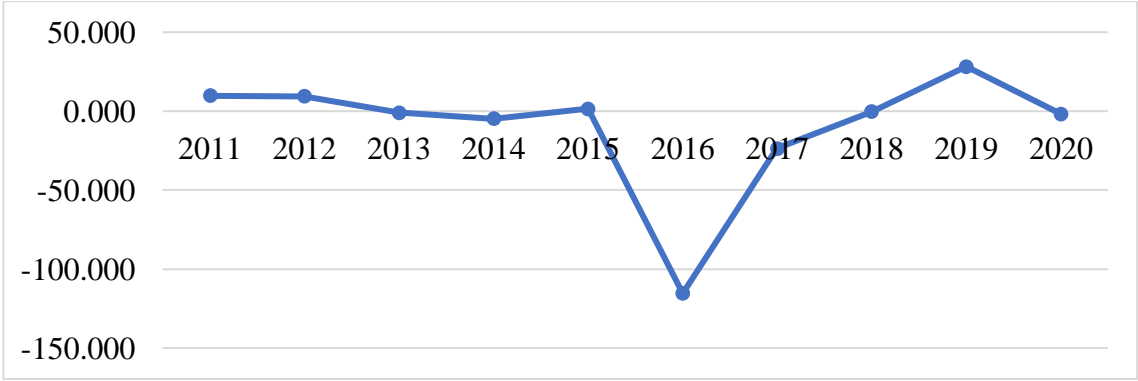


Source: Authors construction

5.2.3.7. Mean distribution of BR

The degree of operating leverage, which is calculated as the ratio of the percentage change in EBIT to the percentage change in net sales, is used to assess business risk. The mean of BR as shown in Figure 5.7 below has been close to zero throughout the period under review, dropping sharply into the negative territories between 2015 and 2016 before climbing into the positive territories in 2017.

Figure 5.7. Mean distribution of BR

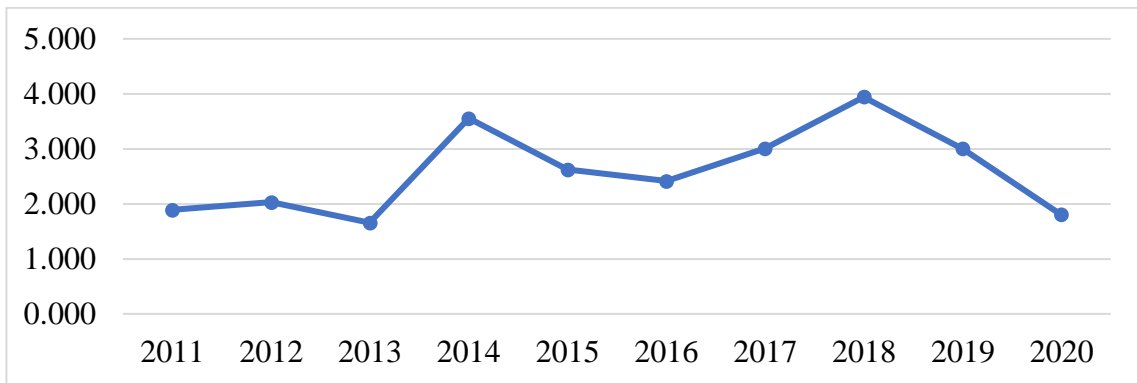


Source: Authors construction

5.2.3.8. Mean distribution of LIQ

Liquidity (LIQ) is the ratio of current assets to current liabilities. This is used to measure a companies ability to pay off short-term debts. As shown in Figure 5.8 below, the mean ratio has always been above 1 during the period under review showing that current assets are greater than current liabilities. This situation is desirable as the SOEs are able to pay back their short-term debt.

Figure 5.8. Mean distribution of LIQ

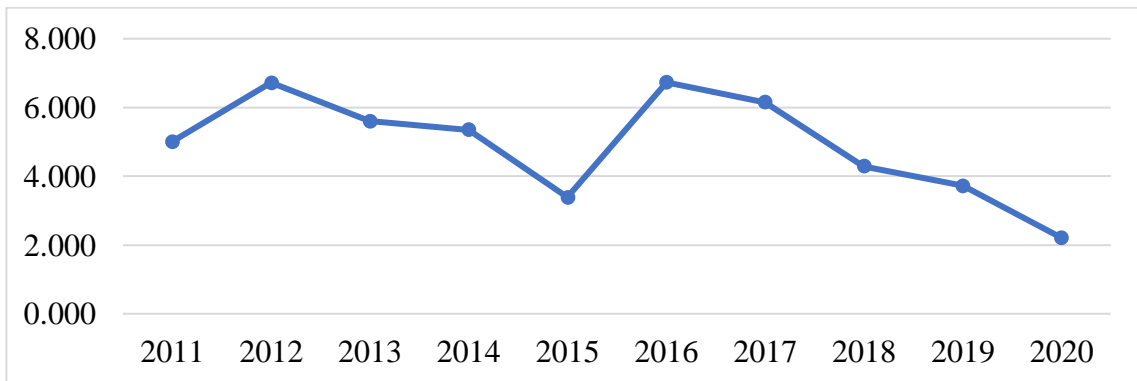


Source: Authors construction

5.2.3.9. Mean distribution of IR

Consumer Price Index is used as the inflation rate (IR). Figure 5.9 below shows that the average mean inflation during the period under review was 4.8 with a maximum value of 6.7 and a minimum value of 2.2. These values are slightly in line with the Bank of Namibia's inflation target which is to keep it between 3-6 % to help anchor interest rate and inflation rate expectations of South Africa so as to maintain the peg.

Figure 5.9. Mean distribution of IR



Source: Authors construction

5.2.4. Correlation matrix

The current work uses both conventional and new methodologies for collinearity diagnostics to test the stability of the regression models. Variance inflation factor (VIF) analysis is used to examine multicollinearity issues in the modern sense. VIF was also used extensively in studies of corporate finance literature to pinpoint the collinearity problem (Belsley *et. al.*, 1980; Jermias, 2008; Garson, 2012).

Table 5.4. Correlation matrix

	ROA	ROE	TLT A	TET A	TAN G	TAX	BR	LIQ	IR
ROA	1.000								
ROE	0.238	1.000							
TLT A	-0.381	0.066	1.000						
TET A	0.380	-0.066	-0.999	1.000					
TAN G	0.085	-0.072	-0.305	0.304	1.000				
TAX	0.163	0.028	-0.250	0.250	0.011	1.000			
BR	0.035	-0.132	-0.208	0.208	0.067	0.296	1.000		
LIQ	-0.161	-0.050	-0.496	0.496	-0.328	0.123	0.082	1.000	
IR	0.113	-0.163	-0.030	0.028	-0.049	-0.011	-0.126	-0.021	1.000

Source: Authors construction

The correlation analysis shows the relationships between the study variables, and it is useful in identifying multicollinearity between the explanatory factors. The results of the study's chosen explanatory and control variables' correlation analysis are shown in Table 5.3. The findings show that there is no multicollinearity among the variables because all of the reported correlation coefficients are below the threshold value of

0.60, with the exception of the correlation between the ratios of total liability to total assets (TLTA) and total equity to total assets (TETA), which is approximately 0.9998. This however, does not create multicollinearity as both independent variables TLTA and TETA will regress separately in different regression models and will not be considered in a single regression model. As per the results, it is evident that the multicollinearity issue does not exist along with other variables.

The Variance Inflation Factor (VIF), on the other hand, was asserted in a number of studies to be a method that is equally accurate and trustworthy for determining the multicollinearity between independent variables. According to reports, severe multicollinearity exists when the value of VIF is equal to or higher than 10, whereas values closer to 1 suggest the lack of multicollinearity (Hartmann & Moers, 1999; Pallant, 2005). To guarantee that there is no multicollinearity, VIF is also computed for each independent and control variable in the current study. The result demonstrates that there is no multicollinearity because all VIF scores are below 3 (see Appendix A). Therefore, it can be concluded that there is no evidence of multicollinearity issues among the selected variables of the study.

5.2.5. Regression analysis

Numerous scholars have stressed the importance of a firm's capital structure in determining the performance of the companies (see, for instance, Huberman, 1984; Opler & Titman, 1994; Gonzalez, 2013; Cohn *et al.*, 2014). The result of fixed effect, random effect and OLS estimation techniques are given in Table 5.5 and 5.6 below.

Table 5.5. Fixed effect models, Random Effect Models and Ordinary Least Square Models of the Predictors of Return on Equity (ROA)

Variables	Fixed		Random		OLS	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Constant	0.1407 (1.7753)*	0.1876 (2.2879)**	0.1918 (2.2684)*	0.1019 (1.3529)	0.5693 (5.32)***	0.0970 (1.4931)
TLTA	0.0442 (0.4083)	-	-0.0910 (-1.0283)	-	-0.4706 (-6.3089)	-
TETA		-0.0495 (-0.4548)	-	0.0883 (0.9936)	-	0.4695 (6.29)***
TANG	-0.1414 (-1.6888)*	-0.1424 (-1.7050)*	-0.0963 (-1.2975)	-0.0971 (-1.3094)	-0.2692 (-3.37)***	-0.2677 (-3.35)***
TAX	-0.0001 (-0.0362)	-0.0001 (-0.0417)	0.0007 (0.2192)	0.0007 (0.2203)	0.0036 (0.6167)	0.0037 (0.6261)
BR	-4.21E-06 (-0.0962)	-4.10E-06 (-0.0937)	-4.83E-06 (-0.1106)	-4.81E-06 (-0.1100)	-5.89E-05 (-0.6976)	-5.90E-05 (-0.6974)
LIQ	-0.0189 (-4.44)***	-0.0188 (-4.41)***	-0.0202 (-4.82)***	-0.0202 (-4.80)***	-0.0338 (-5.44)***	-0.0337 (-5.42)***

IR	0.0061 (1.3524)	0.0061 (1.3481)	0.0065 (1.4428)	0.0066 (1.4495)	0.0039 (0.4464)	0.0041 (0.4671)
F-Value	29.2103	29.2336	4.5644	4.5493	8.0267	7.9875
Adjusted R²	0.8378	0.8379	0.2314	0.2307	0.3725	0.3712
Hausman Test	-	-	0.1136 (10.2745)	0.1093 (10.3850)	-	-
Breusch-Pagan Test	-	-	-	-	0.0000 (112.5695)	0.0000 (113.4138)

Source: Authors construction

Note: “t-values are in parentheses (t-statistics) while ***, **, and * designate the level of significance at 1%, 5% and 10% respectively. Model 1 includes the explanatory variable TLTA whereas model 2 contain the explanatory variables TETA. Values of VIF of each variable were tested and are less than 3; this ensures the absence of Multicollinearity in the regression models.

Table 5.5. exhibits the estimated outcomes of the regression analysis using ROA as the measurement of profitability. TLTA is used as the explanatory variable for model 1 and TETA as the explanatory variable for model 2. TANG, TAX, BR, LIQ and IR are used as control variables in both models. Table 5.5's Hausman test findings demonstrate that the random effect model is more suitable for illuminating the link between the data in the first and second models. That is, the p-value of the Hausman test was 0.1093 and 0.1136 for model 1 and 2 respectively (both more than 0.05) meaning we accept the null hypothesis that the random effect model is appropriate than the fixed effect mode. As a result, the researcher only explored in-depth the random effect model's outcomes.

The results of model 1 in Table 5.5 indicates that when using TLTA as a proxy for leverage, firm performance which as measured by ROA is negatively related to capital structure and statistically insignificant. The negative results are consistent with Rajan and Zingales (1995), Zeitun and Tian (2007) and Abor (2007) who indicate firm performance is negatively related to capital structure.

In contrast, the results of model 2 in Table 5.5 indicates that when using TETA as a proxy for leverage, firm performance which is measured by ROA is positively related to capital structure and statistically insignificant. The positive results are consistent with Champion (1999), Gosh *et al.*, (2000), Hadlock and James (2002), Frank and Goyal (2003) and Berger and Bonaccors di Patti (2006) who revealed a positive relation between firm performance and capital structure.

Moreover, Model 1 and 2 reveals that LIQ has a negative impact on ROA at a 1% level of significance. All other variable do not have an effect on ROA.

Table 5.6: Fixed effect models, Random Effect Models and Ordinary Least Square Models of the Predictors of Return on Equity (ROE)

Variables	Fixed		Random		OLS	
	Model 3	Model 4	Model 3	Model 4	Model 3	Model 4
Constant	1.8999 (0.8987)	2.2499 (1.0288)	1.8870 (1.3014)	1.5908 (1.807)*	1.8870 (1.3523)	1.5908 (1.8777)*
TLTA	0.3318 (0.1148)	-	-0.2940 (-0.2907)	-	-0.2940 (-0.3021)	-
TETA	-	-0.3688 (-0.1270)	-	0.2854 (0.2824)	-	0.2854 (0.2934)
TANG	-1.3653 (-0.6116)	-1.3721 (-0.6160)	-0.8454 (-0.7807)	-0.8396 (-0.7763)	-0.8454 (-0.8112)	-0.8396 (-0.8066)
TAX	0.0153 (0.1755)	0.0152 (0.1740)	0.0487 (0.6005)	0.0488 (0.6026)	0.0487 (0.6240)	0.0488 (0.6261)
BR	-0.0015 (-1.3018)	-0.0015 (-1.3010)	-0.0014 (-1.3025)	-0.0014 (-1.3016)	-0.0014 (-1.3534)	-0.0014 (-1.3523)
LIQ	-0.0857 (-0.7532)	-0.0851 (-0.7466)	-0.0562 (-0.6682)	-0.0557 (-0.6630)	-0.05628 (-0.6943)	-0.0557 (-0.6888)

IR	-0.1896 (-1.5565)	-0.1897 (-1.5575)	-0.1849 (-1.5379)	-0.1846 (-1.5366)	-0.1849 (-1.5980)	-0.1846 (-1.5965)
F-Value	0.5105	0.5107	0.7974	0.7965	0.7974	0.7965
Adjusted R²	-0.0984	-0.0983	-0.017412	-0.0174	-0.0174	-0.0174
Hausman Test	-	-	0.9086 (2.1172)	0.9078 (2.1250)	-	-
Breusch-Pagan Test	-	-	-	-	0.0725 (3.2263)	0.0727 (3.2199)

Source: Authors construction

*Note: “t-values are in parentheses (t-statistics) while ***, **, and * designate the level of significance at 1%, 5% and 10% respectively. Model 3 includes the explanatory variable TLTA whereas model 4 contain the explanatory variables TETA. Values of VIF of each variable were tested and are less than 3; this ensures the absence of Multicollinearity in the regression models.*

Table 5.6 displays the estimated results of the regression analysis using ROE as the profitability metric. Model 3's explanatory variable is TLTA, while Model 4's explanatory variable is TETA. Both models employ TANG, TAX, BR, LIQ, and IR as control variables. The Hausman test results in Table 5.6 show that the random effect model is better suited for illuminating the link between the data in the first and second models. That is, the p-value of the Hausman test for models 3 and 4 was 0.9086 and 0.9087, respectively (both greater than 0.05), indicating that we do not reject the null hypothesis that the random effect model is superior to the fixed effect mode. As a result, the researcher focused solely on the outcomes of the random effect model.

According to the results of model 3 in Table 5.5, when TLTA is used as a proxy for leverage, firm performance as measured by ROA is negatively related to capital structure and statistically insignificant. The negative findings support Rajan and Zingales' (1995), Zeitun and Tian's (2007), and Abor's (2007) findings that firm performance is negatively related to capital structure.

The results of model 4 in Table 5.5, on the other hand, show that when TETA is used as a proxy for leverage, firm performance as measured by ROA is positively related to capital structure and statistically insignificant. Champion (1999), Gosh *et al.*, (2000), Hadlock and James (2002), Frank and Goyal (2003), and Berger and Bonaccors di Patti (2006) all found a positive relationship between firm performance and capital structure.

5.2.6. Granger causality test

Granger causality, also known as precedence, occurs when one time series variable consistently and predictably changes before another variable (Granger, 1969). Granger causality is significant because it allows us to determine which variable comes first or "leads" the other. Table 5.7 and 5.8 shows the Granger causality test results for the estimated models for this study.

Table 5.7 Granger causality test between financial performance variables and Capital structure (ROA)

Null Hypothesis:	F-Statistics	Prob.	Result
TLTA does not Granger Cause ROA	2.55768	0.0870	Reject
ROA does not Granger Cause TLTA	0.26800	0.7659	Fail to Reject
TETA does not Granger Cause ROA	2.80817	0.0693	Reject
ROA does not Granger Cause TETA	0.28180	0.7555	Fail to Reject
TANG does not Granger Cause ROA	1.70287	0.1920	Fail to Reject
ROA does not Granger Cause TANG	1.72759	0.1876	Fail to Reject
TAX does not Granger Cause ROA	0.24072	0.7869	Fail to Reject
ROA does not Granger Cause TAX	0.40718	0.6676	Fail to Reject
BR does not Granger Cause ROA	0.08886	0.9151	Fail to Reject
ROA does not Granger Cause BR	0.17582	0.8393	Fail to Reject
LIQ does not Granger Cause ROA	4.61855	0.0142	Reject
ROA does not Granger Cause LIQ	1.12604	0.3319	Fail to Reject
IR does not Granger Cause ROA	0.15992	0.8526	Fail to Reject
ROA does not Granger Cause IR	0.25438	0.7763	Fail to Reject

Source: Authors construction

The summary of the Granger causality test results at lag 2 in Table 5.7 above suggests that TETA and ROA have a unidirectional relationship. TETA does granger cause ROA, but ROA does not granger cause TETA. LIQ and ROA also have a one-way relationship. To put it another way, LIQ causes ROA, but ROA does not cause LIQ. A

causal relationship between ROA and any other explanatory variable could not be established.

Table 5.8. Granger causality test between financial performance variables and Capital structure (ROE)

Null Hypothesis:	F- Statistics	Prob.	Result
TLTA does not Granger Cause ROE	1.46137	0.2411	Fail to Reject
ROE does not Granger Cause TLTA	0.03362	0.9670	Fail to Reject
TETA does not Granger Cause ROE	1.45479	0.2426	Fail to Reject
ROE does not Granger Cause TETA	0.03449	0.9661	Fail to Reject
TANG does not Granger Cause ROE	3.18446	0.0494	Reject
ROE does not Granger Cause TANG	0.58004	0.5634	Fail to Reject
TAX does not Granger Cause ROE	0.04829	0.9529	Fail to Reject
ROE does not Granger Cause TAX	0.00497	0.9950	Fail to Reject
BR does not Granger Cause ROE	0.07453	0.9283	Fail to Reject
ROE does not Granger Cause BR	1.75059	0.1844	Fail to Reject
LIQ does not Granger Cause ROE	0.05818	0.9435	Fail to Reject
ROE does not Granger Cause LIQ	0.06961	0.9328	Fail to Reject
IR does not Granger Cause ROE	0.32870	0.7213	Fail to Reject
ROE does not Granger Cause IR	0.86020	0.4289	Fail to Reject

Source: Authors construction

The summary of the Granger causality test results at lag 2 in Table 5.8 above suggests that TANG and ROE have a unidirectional relationship. That is, TANG granger causes ROE, but ROE do not granger cause TANG. A causal relationship between ROE and any other explanatory variable could not be established.

5.2.7. Robustness tests

This section depicts the study's robustness test. The test is performed to improve the validity and reliability of the main findings discussed in the previous section. The analysis employs lagged independent and control variables. Appendix B contains the results of these robustness tests. The independent and control variables are separated by one period to avoid the well-known causality conflict between capital structure and firm performance. Non-lag variables are used in regular regression models. If the findings of the lagged variables match those of the non-lagged variables, the results obtained may be considered consistent. Table 5.9 and 5.10 below shows the impact of lagged measurements of capital structure on firm performance (ROE and ROA).

Table 5.9: Fixed effect models, Random Effect Models and Ordinary Least Square Models of the Predictors of Return on Equity (ROA) (Lagged values)

Variables	Fixed		Random		OLS	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Constant	0.9093 (0.1145)	0.2806 (3.7506)***	0.0728 (0.72146)	0.2052 (2.439)**	0.6186 (4.7086)***	0.1398 (1.7144)
TLTA_{t-1}	0.0419 (2.0895)	-	0.1258 (1.1444)	-	-0.4762 (-5.4370)***	-
TETA_{t-1}	-	-0.2836 (-2.2661)**	-	2.2052 (-1.3068)	-	0.4739 (5.4058)
TANG_{t-1}	0.1248 (0.1248)	-0.1159 (-1.6032)	-0.730 (-1.0622)	-0.0745 (-1.0950)	-0.2487 (-2.7583)***	-0.2464 (-2.7312)
TAX_{t-1}	0.7790 (0.2821)	0.0007 (0.2597)	0.0014 (0.5239)	0.0013 (0.5108)	0.0043 (0.6979)	0.004410 (0.0706)
BR_{t-1}	0.5651 (-0.5792)	-2.00E-05 (-0.5591)	-2.27E-05 (-0.6305)	-2.20E-05 (-0.6147)	-9.03E-05 (-1.0296)	-9.01E-05 (-1.0246)
LIQ_{t-1}	0.0074 (-2.7946)	-0.0125 (-2.6680)***	-0.0156 (-3.4650)***	-0.0151 (-3.3757)***	-0.0319 (-4.7857)***	-0.0317 (-4.7575)

IR_{t-1}	0.8301 (0.2157)	0.0010 (0.2154)	0.0003 (0.0656)	0.0003 (0.0759)	-0.0073 (-0.6069)	-0.0070 (-0.5783)
F-Value	40.5726	0.0000	5.4409	0.0001	6.1521	6.0907
Adjusted R²	0.8924	0.8939	0.3005	0.3056	0.3327	0.3300
Hausman Test	-	-	7.9167 (0.2443)	8.2633 (0.2194)	-	-
Breusch-Pagan	-	-	-	-	111.09 (0.0000)	111.67 (0.0000)

Source: Authors construction

*Note: “t-values are in parentheses (t-statistics) while ***, **, and * designate the level of significance at 1%, 5% and 10% respectively. Model 1 includes the explanatory variable TLTA whereas model 2 contain the explanatory variables TETA. Values of VIF of each variable were tested and are less than 3; this ensures the absence of Multicollinearity in the regression models.*

Table 5.10: Fixed effect models, Random Effect Models and Ordinary Least Square Models of the Predictors of Return on Equity (ROE) (Lagged values)

Variables	Fixed		Random		OLS	
	Model 3	Model 4	Model 3	Model 4	Model 3	Model 4
Constant	4.0971 (1.3295)	2.7450 (1.061)	2.9581 (1.6347)	2.4526 (2.1877)**	2.9581 (1.7166)*	2.4526 (2.2973)**
TLTA_{t-1}	-1.3833 (-0.3217)	-	-0.5004 (-0.4148)	-	-0.5004 (-0.4356)	-
TETA_{t-1}	-	1.3179 (0.3047)	-	0.4861 (0.4033)	-	0.4861 (0.4235)
TANG_{t-1}	-1.5179 (-0.6043)	-1.5434 (-0.6173)	-0.8201 (-0.6601)	-0.8100 (-0.6529)	-0.8201 (-0.6932)	-0.8100 (-0.6856)
TAX_{t-1}	0.0372 (0.4000)	0.0371 (0.3985)	0.0677 (0.7912)	0.0680 (0.7942)	0.0677 (0.8308)	0.0680 (0.8340)
BR_{t-1}	-0.0023 (-1.9370)**	-0.0023 -1.9355)**	-0.0022 (-1.8668)**	-0.0022 (-1.8648)*	-0.0022 (-1.9603)*	-0.0022 (-1.9583)**

LIQ_{t-1}	-0.1387 (-0.8626)	-0.1371 (-0.8500)**	-0.0691 (-0.7520)	-0.0683 (-0.7443)	-0.0691 (-0.7897)**	-0.0683 (-0.7817)
IR_{t-1}	-0.3637 (-2.1462)**	-0.3625 (-2.1437)	-0.3540 (-2.1228)*	-0.3534 (-2.1205)**	-0.3540 (-2.2292)	-0.3534 (-2.2267)**
F-Value	0.7447	0.7456	0.2436	0.2444	1.3677	1.3657
Adjusted R²	-0.0648	-0.0650	0.034366	0.0341	0.0343	0.0341
Hausman Test	-	-	1.5442 (0.9565)	1.5430 (0.9566)	-	-
Breusch-Pagan Test	-	-	-	-	3.027856 (0.0818)	3.033094 (0.0816)

Source: Authors construction

Note: “t-values are in parentheses (t-statistics) while ***, **, and * designate the level of significance at 1%, 5% and 10% respectively. Model 3 includes the explanatory variable TLTA whereas model 4 contain the explanatory variables TETA. Values of VIF of each variable were tested and are less than 3; this ensures the absence of Multicollinearity in the regression model

As shown in Table 5.9 and 5.10, the impact of TLTA AND TETA are insignificant. Overall, the results of the impact of the lagged independent variables on ROE and ROA are in line with the results of the impact of non-lagged independent variables on ROE and ROA. This indicates that the robustness test confirm the main findings that are discussed in the previous section.

5.3. Determinants of capital structure

5.3.1. Panel unit root tests

The panel data includes a time series component, so testing for unit roots to determine the series' stationarity is prudent to prevent inaccurate results. This essay presents the findings of the Im, Pesaran, and Shin (IPS) unit root test, which is based on the well-known Dickey-Fuller method. A stochastic trend in a series prevents it from being stationary and from being predicted far into the future. Regardless of the starting point, a stationary series will always return to a specific value, and it is anticipated that it will eventually reach that value (Sargan, 1958).

Im, Pesaran, and Shin (1997) introduced a test for the presence of unit roots in panels that combines data from the time series dimension with data from the cross-section dimension and requires fewer time observations to be valid (Hurlin and Mignon, 2007). This study will also employ the IPS test, which has been demonstrated by economists to have superior test power for examining long-run relationships in panel data.

Table 5.11 : Unit root test (Determinants of capital structure)

Variable	IPS Test	P Value	Order of Integration
DER	-3.35	0.00	I(0)
PR	-6.16	0.00	I(1)

LIQ	-2.77	0.00	I(1)
TN	-2.00	0.02	I(1)
SZ	-1.71	0.04	I(1)
GDP	-4.41	0.00	I(1)
TAX	-5.20	0.00	I(0)

Source: Authors construction

Table 5.11 displays the Im, Pesaran, and Shin (IPS) results. The IPS rejects the null hypothesis that all of the included series have unit roots or are non-stationary while testing the alternative hypothesis that the series is stationary. Table 5.11 shows that after first difference, PR, LIQ, TN, SZ, and GDP are stationary, whereas DER and TAX are integrated in order I (0). We proceed because all of the variables are integrated at either level or after the first difference.

5.3.2. Descriptive statistics

This section summarizes descriptive statistics for the data that was utilised in this study which are as follows: Dependent variable (leverage), which is measured by the debt to equity ratio (DER) and the independent variables, which are profitability (PR), liquidity (LIQ), tangibility (TANG), size (SZ), gross domestic product (GDP) and TAX. This information was derived from audited annual reports of Namibian commercial SOEs and the Namibian statistics agency (for GDP) for the period 2011 to 2020. The numerical descriptive measures of the panel data across the variables, which include the mean (average), standard deviation, minimum and maximum (range), provide a better understanding of the nature of the data.

Table 5.12. Descriptive statistics (Determinants of capital structure)

	DER	PR	LIQ	TN	SZ	GDP	TAX
Mean	8.865	0.062	2.618	0.577	21.570	0.015	-0.488
Median	1.147	0.012	1.5733 52	0.606	21.61	0.010	-0.042
Max	62.68	0.444	17.947	0.950	24.262	0.060	1.400
Min	0.178	-0.242	0.335	0.150	18.721	-0.078	-17.148
Std. Dev.	15.76	0.143	3.333	0.217	1.325	0.042	2.240
Skewnes s	2.109	1.313	3.032	-0.318	0.296	-0.904	-6.297
Kurtosis	6.589	4.063	12.648	1.995	2.581	3.060	44.433
J-Bera	97.161	25.418	411.24 4	4.476	1.669	10.378	5938.8 3
Prob.	0.000	0.000	0.000	0.106	0.434	0.005	0.000

Source: Authors construction

From Table 5.12 above, the mean total leverage represented by DER was 8.865 which indicates that Namibian commercial SOEs are financed (leveraged) with debt at approximately 8.8 times greater than equity option. The high standard deviation however reveals that there is a lot of variance in the observed data around the mean. This indicates that the data is quite spread out.

The average annual profitability (PR) of commercial SOEs under investigation is found to be 0.062 % with a minimum value of -0.24 and a maximum value of 0.44. This shows that the commercial SOEs have been less profitable during the period under review.

The mean value of TANG, which is measured by fixed assets/total assets is 0.57 with a minimum and maximum value of 0.15 and 0.95 respectively. The mean value reveals that approximately 57% of commercial SOEs assets are tangible or fixed assets. This could indicate that commercial SOEs can offer more of its tangible assets as collateral for debt financing.

In terms of size, the mean value is 21.5 with a minimum and maximum value of 18.7 and 24.2, respectively. This shows that the commercial SOEs in Namibia are not far from each other in terms of size which is measured by the natural logarithm of total assets.

Table 5.13. : Mean summary of the variables from 2011 to 2020 (Determinants of capital structure)

	DER	PR	LIQ	TN	SZ	GDP	TAX
2011	5,083	0,079	1,888	0,601	21,208	0,051	0,108
2012	6,871	0,105	1,915	0,524	21,078	0,051	-0,138
2013	7,163	0,068	1,658	0,573	21,539	0,056	-0,065
2014	7,014	0,062	3,556	0,511	21,442	0,061	-0,087
2015	7,792	0,051	2,620	0,537	21,511	0,043	-0,165
2016	9,897	0,071	2,413	0,586	21,663	0,000	-1,311
2017	10,348	0,065	3,005	0,591	21,700	-0,010	-0,032
2018	11,293	0,039	3,940	0,590	21,761	0,011	-2,391
2019	11,061	0,047	3,000	0,618	21,782	-0,009	-0,370
2020	10,726	0,048	1,801	0,638	21,861	-0,079	-0,191
	8,865	0,062	2,618	0,577	21,270	0,015	-0,488

Source: Authors construction

The means of the dependent and independent variables per year for the time periods under consideration are summarized in Table 5.13. This was done to clearly demonstrate the trends in mean movement of the individual variables between 2011

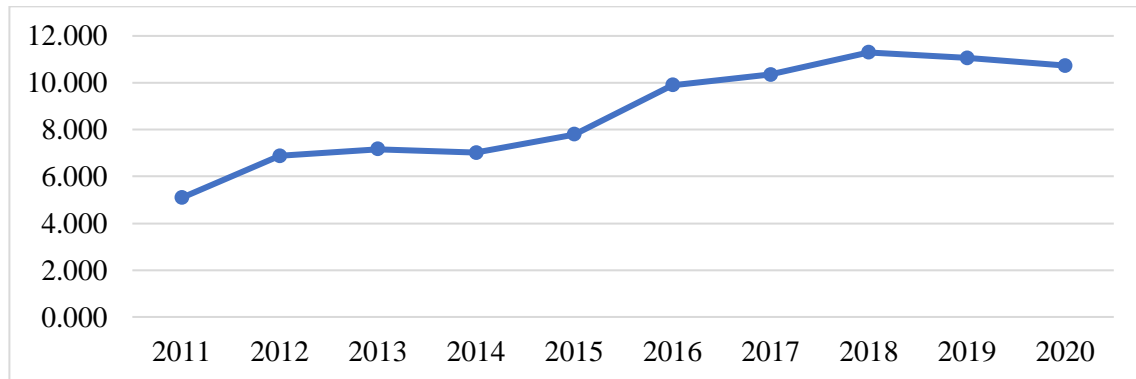
and 2020. For meaningful explanations and proper comprehension, these trends were further expressed using graphs.

5.3.3. Trend Analysis of the Mean Distributions of Variables

5.3.3.1. Mean distribution of DER

The debt-to-equity ratio (D/E) is a financial ratio that indicates the proportion of a company's assets financed by shareholders' equity and debt. A high debt to equity ratio, in general, indicates that a company may not be able to generate enough cash to meet its debt obligations (Onaolapo, Kajola & Nwidobie, 2015).

Figure 5.10. Mean distribution of DER



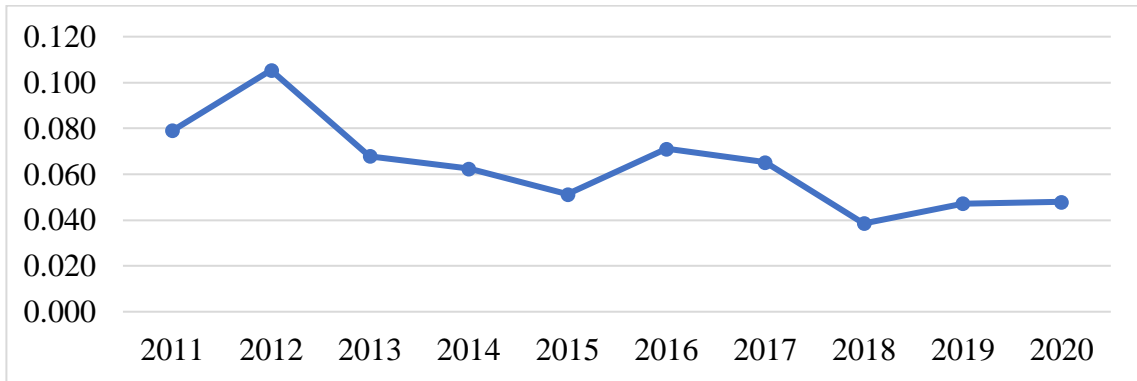
Source: Authors construction

From Figure 5.10 above, the mean distribution from 2011 to 2020 indicates an increasing level of financial leverage above the owners equity. The implication is that the sampled commercial SOEs in Namibia during the period under review are very sensitive to financing their activities in relation to shareholders equity, likely employing more debt than equity because debt is deemed to be a cheaper source.

5.3.3.2. Mean distribution of PR

The average profitability for the commercial SOEs was found to be 0.062 %. Table 5.11 below shows that that the mean during the period was highest in 2012.

Figure 5.11. Mean distribution of PR

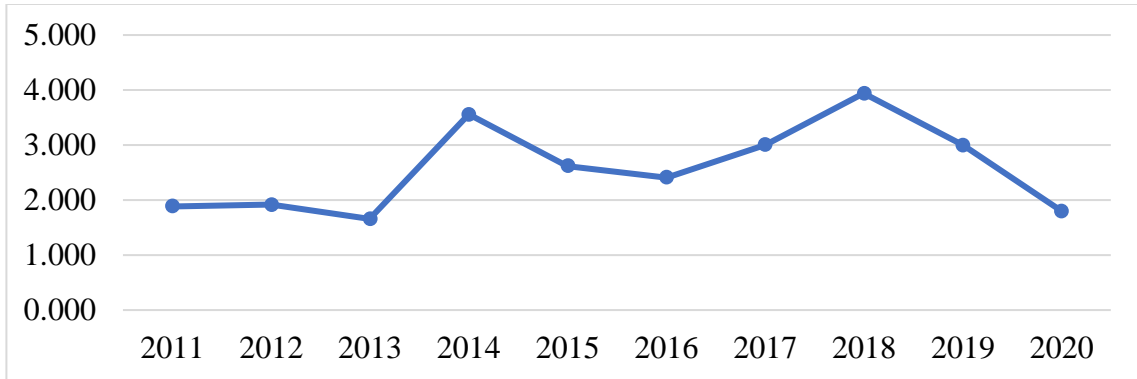


Source: Authors construction

5.3.3.3. Mean distribution of LIQ

The ratio of current assets to current liabilities is known as liquidity (LIQ). This metric is used to assess a company's ability to repay short-term debts. As shown in Figure 5.12, the mean ratio has always been greater than one during the period under review, indicating that current assets outnumber current liabilities. This situation is preferable because the SOEs can repay their short-term debt.

Figure 5.12. Mean distribution of LIQ

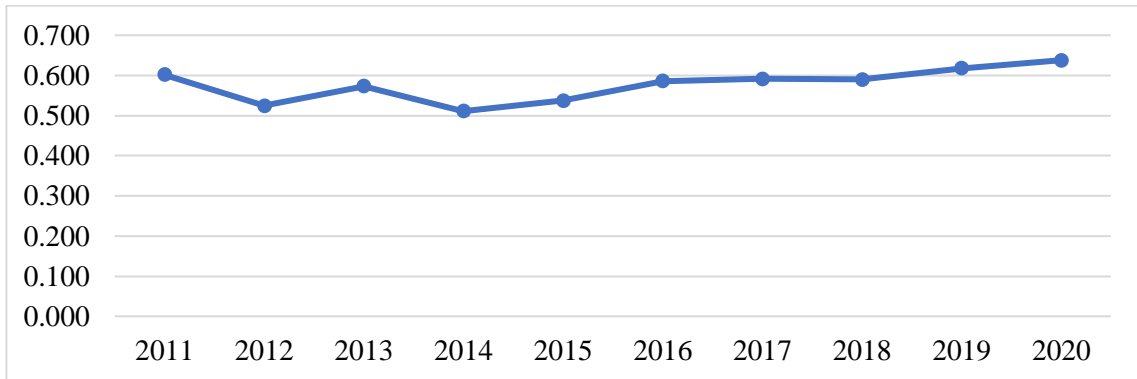


Source: Authors construction

5.3.3.4. Mean distribution of TN

The ratio of fixed assets to total assets is defined as asset tangibility. It demonstrates the extent to which the company's funds are frozen in fixed assets such as property, plant, and equipment. Figure 5.13 shows that the mean value of TANG has remained relatively constant over the time period under consideration.

Figure 5.13. Mean distribution of TN

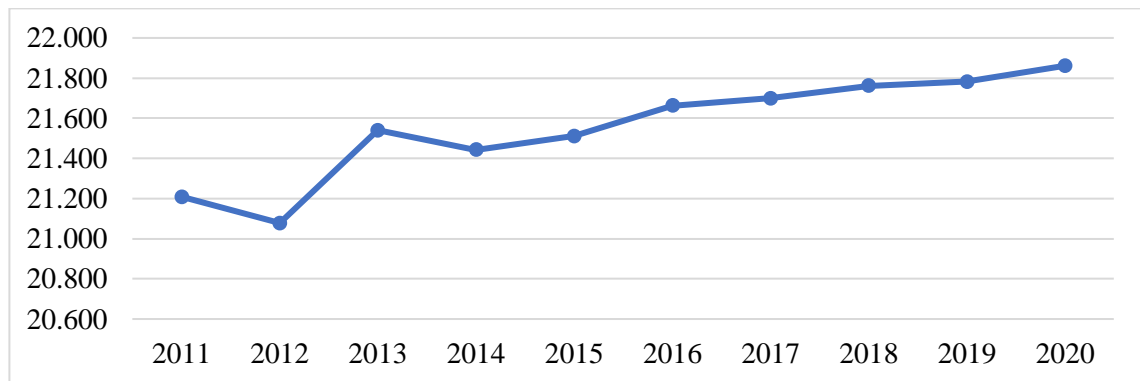


Source: Authors construction

5.3.3.5. Mean distribution of SZ

According to Nzeoha (2008), the size of a firm plays a significant role in determining the type of relationship the firm has within and outside of its operating environment. The greater a company's size, the greater its influence over its stakeholders.

Figure 5.14. Mean distribution of SZ



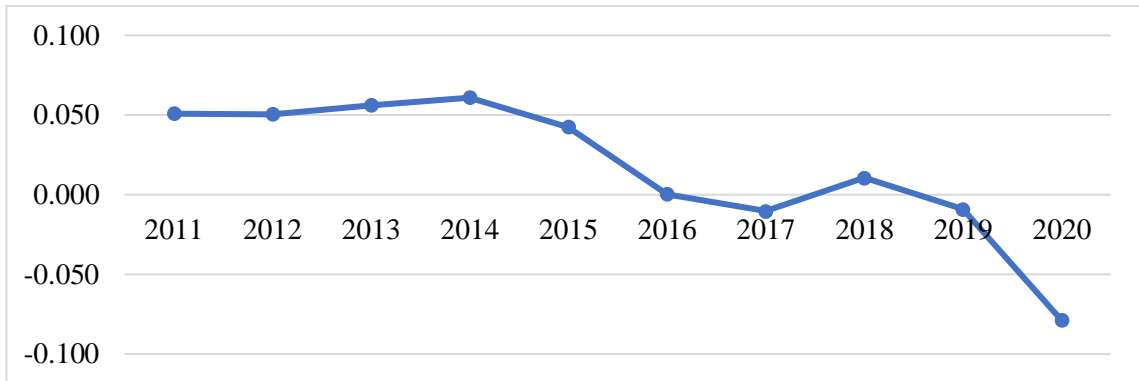
Source: Authors construction

According to Figure 5.14, the mean distribution of firm size increased gradually during the evaluation period. This implies that, despite all odds, the sampled commercial SOEs in Namibia have grown in size, as measured by the log of their respective total assets.

5.3.3.6. Mean distribution of GDP

The mean value of GDP during the period under review was 0.015 with a minimum and a maximum value of 0.06 and -0.078 respectively. The low standard deviation as shown in Table 5.10 above reveals that there is no much variance in the observed data around the mean. This indicates that the data is not largely spread out.

Figure 5.15. Mean distribution of GDP

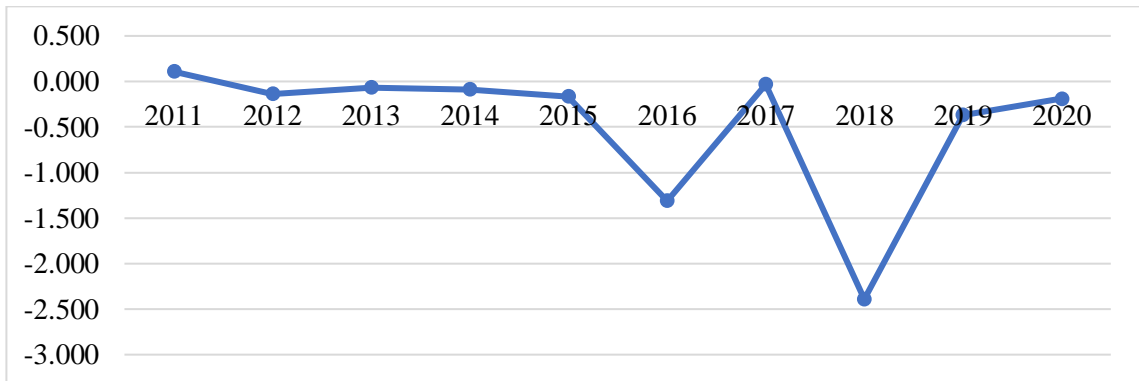


Source: Authors construction

5.3.3.7. Mean distribution of TAX

The ratio of tax to earnings before interest and tax serves as a measure of tax. Between 2011 and 2015, as shown in Figure 5.16 below, taxes remained constant; between 2015 and 2020, they began to fluctuate. The fact that some of the companies analyzed were tax-exempt may be the cause of the relatively low mean of tax.

Figure 5.16. Mean distribution of TAX



Source: Authors construction

5.3.4. Correlation matrix

The current work applies both conventional and novel methodologies for collinearity diagnostics to test the stability of the regression models. Variance inflation factor (VIF) analysis is used to look into multicollinearity issues in the modern sense. VIF was widely used in studies of corporate finance literature to identify the collinearity issue (Belsley *et al.*, 1980; Jermias, 2008; Garson, 2012).

Table 5.14. Correlation matrix (Determinants of capital structure)

	DER	PR	LIQ	TN	SZ	GDP	TAX
DE R	1.000						
PR	-0.196	1.000					
LIQ	-0.241	5.04E-05	1.000				
TN	-0.369	0.073	-0.372	1.000			
SZ	-0.289	-0.090	-0.103	0.609	1.000		
GD P	-0.101	0.058	0.016	-0.145	-0.136	1.000	
TA X	-0.103	0.152	0.117	0.001	-0.113	0.053	1.000

Source: Authors construction

The correlation analysis depicts the relationships between the variables in the study and is useful in identifying multicollinearity among the explanatory factors. Table 5.14 displays the correlation analysis results for the study's chosen explanatory and control variables. Because all of the reported correlation coefficients are less than 0.60, the findings indicate that there is no multicollinearity among the variables. According to the findings, the multicollinearity problem does not exist in conjunction with other variables.

In contrast, a number of studies have claimed that the Variance Inflation Factor (VIF) is an equally accurate and trustworthy method for determining the multicollinearity between independent variables. According to reports, severe multicollinearity exists when the VIF value equals or exceeds 10, whereas values closer to one indicate a lack of multicollinearity (Hartmann& Moers, 1999; Pallant, 2005; Gujarati, 2003). To ensure that there is no multicollinearity, VIF is computed for each independent and control variable in the current study.

Table 5.15. Variance inflation factor

	Coefficient	Centered
Variable	Variance	VIF
C	860.0022	NA
PR	118.2404	1.059103
LIQ	0.255700	1.228235
TN	97.28445	1.989484
SZ	2.281994	1.732827
GDP	1343.933	1.032494
TAX	0.490664	1.065210

Source: Authors construction

The result, as shown in table 5.15, demonstrates that there is no multicollinearity because all VIF scores are less than 2. This indicates that there is no evidence of multicollinearity issues among the variables chosen for the study.

5.3.5. Regression analysis and hypotheses testing

Table 5.16 below summarizes the factors that influence leverage. All variables in the equation are lagged one year and regressed on the dependent variable debt to equity ratio (DER), which is calculated by dividing total liability by shareholders equity.

Table 5.16 Fixed effect models, Random Effect Models and Ordinary Least Square Models (Determinants of capital structure)

Variables	Fixed	Random	OLS
Constant	-93.6268 (-1.8022)*	-69.7451 (-1.3966)	65.8770 (1.9718)*
PR_{t-1}	6.2441 (0.6947)	4.1964 (0.4729)	-19.9414 (-1.6860)*
LIQ_{t-1}	0.1068 (0.3396)	0.1127 (0.3614)	-2.0458 (-3.8430)***
TN_{t-1}	21.7903 (3.4654)***	20.4170 (3.2704)***	-36.0396 (-3.3270)***
SZ_{t-1}	4.1658 (1.7399)*	3.1308 (1.3768)	-1.2256 (-0.7126)
GDP_{t-1}	-2.6449 (-0.1056)	-11.3301 (-0.4649)	-109.90 (-1.8245)*
TAX_{t-1}	0.1861 (0.7791)	0.1703 (0.7136)	-0.0470 (-0.0642)
F-Value	80.4754	4.0822	6.1539
Adjusted R²	0.9399	0.2188	0.3190
Hausman Test		0.6539 (4.1687)	
Breusch-Pagan Test			0.0000 (128.10)

Source: Authors construction

*Note: “t-values are in parentheses (t-statistics) while ***, **, and * designate the level of significance at 1%, 5% and 10% respectively. Values of VIF of each variable were tested and are less than 3; this ensures the absence of Multicollinearity in the regression models*

The estimated results of the regression analysis with DER (leverage) as the dependent variable are shown in Table 5.16. The Hausman test results in Table 5.16 show that the random effect model is better suited for demonstrating the relationship between the data in the model. That is, the Hausman test p-value was 0.6539 (greater than 0.05), indicating that we do not reject the null hypothesis that the random effect model is superior to the fixed effect model. As a result, the researcher only investigated the outcomes of the random effect model in depth.

Table 5.17 below presents the overview of the tested hypotheses which will be explained in detail.

Table 5.17: Overview of tested hypotheses

Independent variable	Hypotheses	Theoretical signs of explanatory variables based on capital structure theories			Observed signs
		Static trade-off theory (STT)	Pecking order theory (POT)	Agency cost theory (ACT)	
Profitability (PR)	A significant negative relationship between profitability and leverage is expected among	+	-	?	+

	commercial SOEs in Namibia (-)				
Liquidity (LIQ)	A significant negative relationship between liquidity and leverage is expected among commercial SOEs in Namibia (-)	?	-	?	+
Tangibility (TN)	A significant positive relationship between tangibility and leverage is expected among commercial SOEs in Namibia (+)	+	+	+	+
Size (SZ)	A significant positive relationship between firm size and leverage is expected among commercial SOEs in Namibia (+)	+	-	+	+
GDP	A significant negative relationship between GDP growth and leverage is expected among commercial SOEs in Namibia (-)	-	?		-

TAX	A significant positive relationship between tax and leverage is expected among commercial SOEs in Namibia	+ (short-term) - (long term)	?	?	+
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Source: Authors construction

- **Leverage with profitability**

Based on pecking order theory, research hypothesis one was developed to assess the relationship between leverage and profitability. The first null hypothesis was rejected by the beta coefficient associated with profitability (PR). Profitability is estimated to be negatively related to the commercial SOEs leverage ratio in this study and statistically insignificant. The finding that profitability is insignificant and the negative relationship contradicts previous research findings (Shyam- Sunder & Myers (1999), Rajan and Zingales (1995) and Titman & Wessels (1988)). The observed sign also contradicts the predictions of the Pecking order theory (POT), which states that firms prefer to finance internally first before seeking external funding. It can be concluded that commercial SOEs in Namibia do not maintain low debt-to-equity ratios and do not use more equity as a source of capital than debt. Hence the null hypothesis was rejected that there is a negative relationship between profitability and leverage.

- **Leverage with liquidity**

Concerning the relationship between liquidity and leverage, a positive but insignificant relationship was found. This contradicts the POT which suggests that a corporation values internal funding more than external funding, hence one may anticipate that a company with great liquidity would borrow less.

- **Leverage with tangibility**

Based on static trade-off theory, research hypothesis three was developed to estimate the relationship between tangibility and leverage. Tangibility-related beta coefficient

(TN) accepted the third null hypothesis and demonstrated a positive relationship between tangibility and capital structure of commercial SOEs in Namibia. The sign of the tangibility variable coefficient is found to be positive and statistically significant at the 1% significance level in this study. This result, with tangibility as a significant variable, is consistent with previous research findings. Furthermore, the observed sign corresponds to static trade-off theory, pecking order theory, and agency cost theory (see Table 5.17), all of which theorize a positive relationship between leverage and tangibility. The observed sign indicates that firms with high tangibility prefer external financing for their investments and prefer debt over equity. In general, the observed positive significant relationship between tangibility and debt to equity ratio is consistent with the prediction and assumption that firms with higher fixed asset ratios serve as collateral for new loans, favouring debt. Furthermore, Agency cost theory suggests that tangibility and leverage have a positive relationship for two reasons: Fixed assets are easier for outsiders to value than intangible assets, so the expected cost of distress is lower. Similarly, tangible assets make it difficult for shareholders to swap high-risk assets for low-risk assets, resulting in fewer debt-related agency issues. Borrowers' close relationships with creditors provide an alternative to physical collateral and can help reduce agency costs while increasing leverage. Hence, the null hypothesis was not rejected that there is a positive relationship between tangibility and leverage.

- **Leverage with size**

Based on static trade-off theory, research hypothesis four was developed to estimate the relationship between size and leverage. The beta coefficient linked with size (SZ) result accepted the fourth null hypothesis and demonstrated that there is a positive relationship between commercial bank leverage and size. These results were however proved to be statistically insignificant. The positive results suggests that larger commercial SOEs in Namibia tend to have higher leverage ratios and borrow more capital than the smaller commercial SOEs do. The observed positive result is consistent with the predictions of the Static trade-off theory (see Table 5.17).

- **Leverage with GDP**

The GDP growth rate is the only macro-economic variable tested in firm leverage decisions. According to the findings of the analysis, an increase in GDP growth rate is associated with a decrease in debt financing, which is consistent with the Pecking Order Theory. These findings imply that when the economy is growing, SOEs issue more equity. Firm leverage is reduced as a result of this financing behavior. Rajan and Zingales (1985), Bokpin (2009), and Dincergok and Yalciner (2011) all discovered that GDP growth has a significant negative impact on leverage. However, the coefficient of GDP growth determinant is insignificant, indicating that there is no evidence that commercial SOEs in Namibia consider the country’s economic growth when making financing decisions.

- **Leverage with tax**

Concerning the relationship between tax and leverage, we find a positive but insignificant relationship. The positive relation confirms the TOT, which suggests that firms use more debt to finance their activities to increase the benefits of tax shields.

5.3.6. Granger causality

When one time series variable consistently and predictably changes before another variable, Granger causality is present (Granger, 1969). Granger causality is necessary because it reveals which variable "leads" or comes first in a chain. Table 5.18 displays the results of the Granger causality test for the estimated model using the Dumitrescu-Hurlin approach for panel data.

Table 5.18: Granger causality (Determinants of capital structure)

Null Hypothesis	F- Statistics	Prob.	Results
-----------------	---------------	-------	---------

PR does not Granger Cause DER	0.00762	0.9924	Fail to Reject
DER does not Granger Cause PR	3.13761	0.0530	Reject
LIQ does not Granger Cause DER	0.13505	0.8740	Fail to Reject
DER does not Granger Cause LIQ	0.19111	0.8267	Fail to Reject
TN does not Granger Cause DER	1.09996	0.3417	Fail to Reject
DER does not Granger Cause TN	0.32685	0.7229	Fail to Reject
SZ does not Granger Cause DER	0.31601	0.7307	Fail to Reject
DER does not Granger Cause SZ	4.41549	0.0177	Reject
GDP does not Granger Cause DER	0.81186	0.4500	Fail to Reject
DER does not Granger Cause GDP	0.06903	0.9334	Fail to Reject
TAX does not Granger Cause DER	0.75205	0.4772	Fail to Reject
DER does not Granger Cause TAX	0.15265	0.8589	Fail to Reject

Source: Authors construction

The summary of the Granger causality test results at lag 2 in Table 5.18 above suggests that PR and DER have a unidirectional relationship. DER does Granger cause PR, but PR does not granger cause DER. SZ and DER also have a one-way relationship. Meaning, DER causes SZ, but SZ does not cause DER. A causal relationship between DER and any other explanatory variable could not be established.

5.3.7. Robustness test

In order to check the robustness of our results, we considered an alternative measure of the dependent variable. The researcher used the definition of leverage provided by Deesomsak *et al.*, (2008) and Rajan and Zingales (1995), who defined leverage as the ratio of total debt to total assets.

The regression results when the researcher changes the leverage proxy from ratio of total liabilities to shareholders equity to the ratio of total liabilities to total assets are presented in Table 5.19 below. All variables used in this equation are lagged one year and are regressed on the dependent variable TLTA (leverage) which is defined as total

liabilities to total assets. The independent variables are profitability (PR), liquidity (LIQ), tangibility (TN), size (SZ), GDP and TAX. The definitions of these variables are provided in Table 4.2 presented in Chapter 4.

Table 5.19: Fixed effect models, Random Effect Models and Ordinary Least Square Models(Robustness)

Variables	Fixed	Random	OLS
Constant	-0.1973 (-0.2756)	0.3440 (0.5539)	1.1153 (2.9612)***
PR_{t-1}	0.2648 (2.1381)**	0.1717 (1.4374)	-0.6611 (-4.9583)***
LIQ_{t-1}	-0.0048 (-1.1138)	-0.0060 (-1.4218)	-0.0471 (-7.8568)***
TN_{t-1}	0.2505 (2.8911)***	0.1972 (2.3225)**	-0.5774 (-4.7282)***
SZ_{t-1}	0.0289 (0.8778)	0.0061 (0.2146)	-0.0009 (-0.0479)
GDP_{t-1}	0.7517 (2.1785)**	0.5363 (1.6669)	-0.4046 (-0.5957)
TAX_{t-1}	0.0018 (0.5584)	0.0011 (0.3376)	-0.0119 (-1.4511)
F-Value	101.22	2.5848	20.0725
Adjusted R²	0.9517	0.1259	0.6342
Hausman Test		0.0380 (13.3385)	
Breusch-Pagan Test			0.0000 (52.4031)

Source: Authors construction

*Note: “t-values are in parentheses (t-statistics) while ***, **, and * designate the level of significance at 1%, 5% and 10% respectively. Values of VIF of each variable were tested and are less than 3; this ensures the absence of Multicollinearity in the regression models. Total liabilities to total assets (TLTA) is used as the measurement of leverage.*

The first major change observed was that this model rejected the null hypothesis of the Hausman test which states that the REM is better compared to the FEM. Hence the researcher only concentrates on the results of the FEM. The results shows that TN, SZ and TAX remained stable with TN having a significant positive relationship with leverage while SZ and TAX maintained an insignificant positive relationship with leverage.

PR had a positive relationship with leverage which was insignificant in the first model however, with the new proxy of leverage it is observed to be positive and significant at a 5 % level. The positive sign contradicts the POT which states that a more profitable firm will utilize retained earnings to finance its investment before using bonds or stock. These results are however confirming the STT where it is believed that more successful businesses often enjoy more tax benefits (Petit & Singer, 1985).

LIQ had a positive insignificant relationship with leverage and with the new proxy of leverage the relationship is negative although still insignificant. This is in line with the POT theory which states that a corporation values internal funding more than external funding, hence one may anticipate that a company with great liquidity would borrow less. The results reported when the first proxy of liquidity used contradicted this.

GDP had a negative insignificant relationship with leverage and now the relationship between the two is positive and significant which contradicts the assumptions of the STT.

Given the results it can be concluded that this proxy of leverage is not a better proxy as the number of contradictions of the theories that were being tested increased.

CHAPTER 6: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1. Introduction

The study's conclusions are drawn in this chapter. It discusses the study's findings and contribution to the literature. It also emphasizes the summary of the hypotheses tested. The final sections discuss the study's limitations and make recommendations for future research.

6.2. Summary of findings

Due to the dynamic nature of the mix of corporate financing, which reflects the numerous events and exogenous shocks to firms' operations, capital structure continues to be one of the most contentious topics in finance literature. The study examined the impact of capital structure and profitability of commercial SOEs in Namibia. The study also evaluated whether there is causal relationship between capital structure and profitability of commercial SOEs in Namibia and investigated the determinants of capital structure of commercial SOEs in Namibia. The study employed descriptive econometric analytical tools in studying commercial SOEs in Namibia for the period 2011-2020. The analyses were performed using panel data.

The study attempted to fill the gap left by other studies in the field by investigating the effect of capital structure on commercial SOEs in Namibia by extending the performance measures and leverage measures that have been employed by other studies. The study employed two measure of leverage, total liabilities to total assets (TLTA) and total equity to total assets (TETA) in order to investigate the varying effects of these debt structures on corporate finance. In addition, two performance measures return on equity (ROE) and return on assets (ROA) were used. Investigating the effect of capital structure and performance of commercial SOEs in Namibia using accounting measures was valuable as it provides evidence whether commercial SOEs

in Namibia are efficient or not. The study employed OLS estimation techniques to study the relationship under review.

This study, as presented in Chapter 3 examined three capital structure theories: static trade-off theory, pecking order theory, and agency cost theory to determine which one best explained the financial decisions of the sampled commercial SOEs in Namibia. All of these theories have different characteristics that help to explain the corporate capital structure. According to static trade-off theory, optimal capital structure is a trade-off between the net tax benefit of debt financing and the costs of bankruptcy. Firms with a high level of tangible assets will be able to provide collateral for debts, allowing them to raise more debt. Firms with a high debt ratio are larger and more profitable, while firms with a high growth rate use less debt financing. Due to information asymmetries between insiders and outsiders of the firm, Pecking order theory states that firms prefer internal financing to external financing and risky debt to equity. Agency cost theory depicts the financial behaviour of firms in the context of an agent-principal relationship.

Results from section 5.2 reveals that there is no relationship between capital structure and profitability of commercial SOEs in Namibia. Hence the study results confirms that the Irrelevance theory is true. Furthermore, the summary of the Granger causality test results at lag 2 in Table 5.7 suggests that TETA and ROA have a unidirectional relationship. TETA does granger cause ROA, but ROA does not granger cause TETA. LIQ and ROA also have a one-way relationship. LIQ causes ROA, but ROA does not cause LIQ. When using the ROE as a measure of profitability, the granger causality results reveal that TANG and ROE have a unidirectional relationship. That is, TANG granger causes ROE, but ROE do not granger cause TANG.

Table 5.15 summarizes the hypothesized, expected, and observed theoretical signs of explanatory variables for the objective of determinants of capital structure in commercial SOEs in Namibia. As a result, the expected and observed signs of the

coefficients of the explanatory variables are used to test the consistency of capital structure relevancy theories in Namibian commercial SOEs. As a result, the following conclusions are reached:

- Profitability is said to be positively but insignificantly related to Namibian commercial SOEs leverage. These results are inconsistent with the predictions of the POT which states that a more profitable firm will utilize retained earnings to finance its investment before using bonds or stock.
- Liquidity is said to be positively but insignificantly related to the leverage of Namibian commercial SOEs. These results are not consistent with the predictions of the POT which predicts that a corporation values internal funding more than external funding, hence one may anticipate that a company with great liquidity would borrow less. As a result, a negative link between a company's leverage and liquidity is anticipated.
- Tangibility is said to be positively and significantly related to the leverage of commercial SOEs in Namibia. These results are consistent with the predictions of the STT theory that tangibility has an impact on a firm's leverage because when debt is granted, a corporation may migrate to riskier investments.
- Size is said to be positively but insignificantly related to the leverage of commercial SOEs in Namibia. In theory, STT and ACT suggested that larger firms have greater borrowing capacity than smaller firms. As a result, the analyzed result is consistent with the application of STT and ACT to commercial SOEs in Namibia.
- GDP is said to be positively but insignificantly relate to the leverage of commercial SOEs in Namibia. This is in line with the predictions of the POT which asserts that increased GDP is linked to better profitability for businesses since they are able to employ more internal capital rather than debt financing.
- Tax is said to be positively but insignificantly related to the leverage of commercial SOEs in Namibia. These results are consistent with the STT for short-term but contradicts with STT for long-term loans.

- The summary of the Granger causality test results at lag 2 in Table 5.16 suggests that PR and DER have a unidirectional relationship. DER does granger cause PR, but PR does not granger cause DER. SZ and DER also have a one-way relationship. DER causes SZ, but SZ does not cause DER. A causal relationship between DER and any other explanatory variable could not be established.

Table 6.1. Summary of test hypotheses

Research Objective	Research Hypothesis	Decision
Objective one: To investigate the relationship between capital structure and profitability of commercial SOEs in Namibia	H ₀₁ : There is no relationship between capital structure and profitability (Irrelevance theory is true).	Fail to reject
Objective two: To evaluate whether there is causal relationship between capital structure and profitability of commercial SOEs in Namibia	H ₀₂ : There is no causal relationship between capital structure and profitability	Reject
Objective three: To investigate the determinants of	H ₀₃ : There is no significant negative relationship between profitability and leverage	Fail to Reject

commercial SOEs in Namibia.	among commercial SOEs in Namibia (Pecking order theory is true)	
	Ho4: There is no significant negative relationship between liquidity and leverage among commercial SOEs in Namibia (Static trade-off theory is true)	Fail to Reject
	Ho5: There is no significant positive relationship between Tangibility and leverage among commercial SOEs in Namibia (Static trade-off theory, Pecking order theory and the Agency cost theories are true)	Reject
	Ho6: There is no significant positive relationship between Size and leverage among commercial SOEs in Namibia (Static trade-off	Fail to Reject

	theory and Agency cost theories are true)	
	Ho7: There is no significant negative relationship between GDP and leverage among commercial SOEs in Namibia (Static trade-off theory is true)	Fail to Reject
	Ho8: There is no significant positive relationship between Tax and leverage among commercial SOEs in Namibia (Static trade-off theory is true for short-term debt)	Fail to Reject

Source: Authors construction

6.2. Conclusions

A number of logical conclusions were drawn based on the empirical findings of this study, as Firstly, there is no relationship between capital structure and profitability of commercial SOEs in Namibia. Hence the irrelevance theory is true. It was however established that firm's liquidity significantly affect capital structure decisions in commercial SOEs in Namibia. Availability of liquid assets in most firms meant that

they could easily be converted into cash or its equivalent, and this could easily affect the level of leverage.

In addition, the results reveals that Tangibility has a high effect of the firms leverage at a 1% level of significance. In general, the observed positive significant relationship between tangibility and liquidity is consistent with the prediction and assumption that firms with higher fixed asset ratios serve as collateral for new loans, favouring debt.

The researcher also found a unidirectional causality between capital structure and profitability measures.

6.3. Limitations of the study and further research

There are numerous issues related to the study topic, but not all of them are addressed. This thesis is solely concerned with the issues raised by the research questions. As a result, the limitations are listed below.

1. The positive and significant relationship between leverage (DER) and tangibility could imply that the asset side of the commercial SOEs balance sheet explains the capital structure decision for commercial SOEs in Namibia. Further research could look into the specific composition of the SOEs tangible assets to determine which tangible assets have a significant impact on debt levels. It would be interesting to see if debt-secured tangible assets have a larger impact on debt level. This type of further investigation would be interesting because theory suggests that leverage is primarily affected by the secured tangible asset.
2. Other performance indicators such as growth opportunities, maturity, sustainability, shareholder wealth maximization, and profitability are not addressed in the analysis. The analysis is only limited to accounting performance metrics such as return on asset and return on equity.

3. This study does not address the immediate effect of changes in corporate governance structure on corporate performance, but rather focuses on the relationship between capital structure and corporate performance.
4. Given the increased support for these theories in the literature, the study fits within the agency, static trade-off, and pecking order frameworks. As a result, no other perspectives on interpreting the interrelationships among corporate variables are considered. However, all theories are examined.
5. The effects of the ongoing global economic downturn on capital structure decisions and corporate performance of Namibian SOEs are not studied because this merits a separate study.

6.4. Policy recommendations

The study has laid the groundwork for further investigation into the effect of capital structure on the performance of commercial SOEs in Namibia, which could serve as the foundation for a more in-depth assessment. New hypotheses must be developed, and new variables must be created to account for institutional influence. Additionally, a more in-depth investigation into the impact of Namibia's other SOE categories and the ongoing global economic crisis on Namibian SOE capital structure decisions and corporate performance may be able to address some of the theoretical issues underlying the study's findings.

The negative relationship although insignificant between capital structure and profitability of commercial SOEs in Namibia can be attributed to the lack of proper monitoring of SOEs debt levels. These findings serve as a confirmation to government, policy makers and regulatory bodies that public sector reforms need to be reviewed.

It is also recommended that the extensively high debt levels should be reduced until the marginal cost of debt equal marginal benefits of debt, at which point the agency theory proposes that debt can motivate efficiency. Policies should be put in place to

have proper monitoring and reporting for SOEs, and they should be encouraged to enhance their performance by introducing innovation and best practices.

The study also found that asset tangibility is a determinant of capital structure of commercial SOEs in Namibia. Therefore, the researcher recommends that the policy makers, specifically the department of Public Enterprises under the Ministry of Finance to embrace asset tangibility on their strategic decision-making. This indicator will further guide in expanding the interpretation of the financial dynamics in commercial SOEs in Namibia. The policy makers will also find the findings beneficial in interpreting the performance of commercial SOEs in Namibia based on the firm level factors.

Based on the finding that liquidity has a significantly negative impact on profitability and to ensure continuous survival and success, the entities must maintain an optimal liquidity level capable of performing the "twin" role of meeting their financial obligations while also maximizing the wealth of their shareholders. This optimal liquidity level is possible if the establishments meet the standards set by the Ministry of Finance. Adhering to these standards will assist firms in reducing cases of financial drought. In other words, the firms should maintain an adequate level of liquidity that does not jeopardize their going concern status while still allowing them to earn adequate returns on their investments. As a result, firms must strike a balance (trade-off) between liquidity and profitability.

The study also suggests that firms implement effective internal control systems to strengthen their firms' liquidity fundamentals. More specifically, tighter cash management systems or controls should be prioritized.

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APPENDICES

Appendix A: Variance Inflation Factor (VIF)

Equation 1

	Coefficient	Centered
Variable	Variance	VIF
C	0.011443	NA
TLTA	0.005566	2.138425
TANG	0.006383	1.699145
TAX	3.58E-05	1.152305
BR	7.14E-09	1.141950
LIQ	3.86E-05	2.033170
IR	7.87E-05	1.034221

Equation 2

	Coefficient	Centered
Variable	Variance	VIF
C	0.004227	NA
TETA	0.005569	2.131473
TANG	0.006381	1.695061
TAX	3.59E-05	1.151762
BR	7.15E-09	1.142034
LIQ	3.86E-05	2.028678
IR	7.88E-05	1.033460

Equation 3

	Coefficient	Centered
Variable	Variance	VIF
C	1.947153	NA
TLTA	0.947094	2.138425
TANG	1.086197	1.699145

TAX	0.006095	1.152305
BR	1.21E-06	1.141950
LIQ	0.006572	2.033170
IR	0.013389	1.034221

Equation 4

	Coefficient	Centered
Variable	Variance	VIF
C	0.717762	NA
TETA	0.945794	2.131473
TANG	1.083672	1.695061
TAX	0.006092	1.151762
BR	1.21E-06	1.142034
LIQ	0.006558	2.028678
IR	0.013381	1.033460