A COMPLIANCE INDEX TO IMPROVE THE PERFORMANCE OF MAJOR STATE-OWNED COMPANIES IN SOUTH AFRICA THROUGH DIFFERENTIALS AND DRIVERS

by

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Submitted in accordance with the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in the subject

ACCOUNTING SCIENCES

at the

UNIVERSITY OF SOUTH AFRICA

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APRIL 2025

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A compliance index to improve the performance of major state-owned companies in South Africa through differentials and drivers

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DEDICATION

This thesis is dedicated to the Holy Trinity, God the Father, God the Son, Jesus Christ, and the fellowship of the Holy Spirit for leading me and providing me with strength, knowledge, and wisdom throughout the completion of this project.

I dedicate this project to my wife, Mrs Hleziphi; my daughter, Ms Bokang; my son, Mr Letago Galane; my mother, Ms Glad Seepane; my niece, Ms Tercia Seepane; and my brother, Mr Jacky Galane.

Further dedicating this projection to my grandmother, Ms Trekie Malopi; my mother-in-law, Mrs B.A. Mathebula, as well as to the rest of my family.

Thank you for your unwavering support on this journey and for encouraging me to pursue this degree.

KEA LEBOGA

ACKNOWLEDGEMENTS

First and foremost, I wish to express my deepest gratitude to Professor Patricia Lindelwa Makoni, my main supervisor, for your willingness to accept me and guide me through the completion of this project. Your invaluable feedback and support have been instrumental in shaping this work. Thank you for your unwavering commitment to my success.

I would also like to express my heartfelt appreciation to Dr. Chisinga Ngonidzashe Chikutuma, my co-supervisor, for your invaluable assistance and thorough review of my work. Your unwavering encouragement and ability to restore hope have been deeply motivating. Thank you, Dr. Chikutuma.

Moreover, I wish to express my sincere gratitude to Prof. Cosmas Ambe, my former supervisor, for accepting me as a PhD student and laying the groundwork for this study. His ongoing support and guidance have been instrumental in my progress. I would not have come this far without your direction and contributions. Thank you. I would also like to express my profound appreciation to the professional editor, Ms Barbara Shaw, as well as the statistician, Prof. Wilbert Chagwiza, for their expert and technical contributions to this research project.

I further thank the following scholars who contributed their insights and expertise in peer reviewing my thesis: Dr Nicky Tjano, Dr Mampilo Phahlane, Dr Tshepo Maota, Dr Vuyo Sigaqa, and Dr Xolani Khohliso. To my peers and friends: Mr George Mogaladi, Dr Jethro Godi, Prof Joseph Chisasa, Dr Bonginkosi Zwane, Mr Mxolisi Sikhosana, Dr Sedzani Musundwa, Dr Zimasa Mabandla, Mr Neo Leshabane, Mr Sakhile Mlauzi, Ms Karabo Mashiloane, and Mr Herman Lekwane - thank you for providing invaluable emotional support during the challenging times on this journey. Your willingness to listen and offer encouragement meant a lot to me when I needed it most.

Finally, I would like to extend my gratitude to my employer, UNISA, for funding this project and for granting me Research and Development sabbatical leave to complete my studies.

ABSTRACT

South Africa lacks a comprehensive performance compliance index (PCI) to assess and improve the performance of state-owned companies (SOCs). The existing performance frameworks predominantly focus on two indicators, financial and non-financial, and barely use the developmental performance indicator. Considering this, the primary aim of this study was to develop a comprehensive PCI aimed at assessing and improving the performance of major SOCs in South Africa. In addition, the performance levels of major SOCs were assessed herein. This study further compared and analysed the performance differentials of wholly and partially owned SOCs, as well as SOCs that fell under the Department of Public Enterprises (DPE) and those that did not.

A pragmatic philosophy was adopted as the research paradigm for this study. In addition, an explanatory sequential mixed research method was used and conducted in two phases. In the first phase, the qualitative approach, consisting of a Delphi technique, was employed to develop a PCI by administering structured questionnaires. Experts assessed the comprehensiveness of the performance checklist. This method entailed soliciting expert opinions regarding the comprehensiveness and completeness of the performance checklist. The second phase consisted of a content analysis of annual reports from Schedule 2 major SOCs for a period of 10 years, from 2013 to 2022. In the same phase, the t-test method was applied to the quantitative data to determine the performance level and performance differentials of the 18 SOCs under study.

The application of the PCI revealed that the Z-score index and developmental performance index (DPI) had a negative effect on the performance level of SOCs. In contrast, the Public Financial Management Act Index (PFMAi), the Corporate Governance Index (CGI), and the Human Capital Index (HCI) were found to have a positive effect on the performance level of SOCs. The analysis indicated that the vast majority of results (95%) showed no significant differences in performance between wholly owned and partially owned SOCs. Only a small proportion (5%) suggested the presence of performance variation between these two ownership structures.

Further analysis revealed that, in the majority of results (75%), there were no

performance differentials between the SOCs under the DPE and those not under the DPE, although some results (25%) reported that there was a performance differential between the two sets of clusters. Lastly, the analysis suggests that political interference, corruption (PIC), CEO remuneration, and transparency were not statistically significant drivers of SOC performance in South Africa. Thus, this study contributes to the body of knowledge in three multiple dimensions: empirical, theoretical, and methodological. From an empirical perspective, this study provides empirical evidence related to the development and application of PCI as a tool for assessing and improving the performance of SOCs.

The research employed a complementary approach, utilising an integrated framework from multiple theoretical perspectives to elucidate the hypothesised relationships between the variables. However, despite this multidimensional approach, the legitimacy theory has emerged as the predominant theoretical lens for analysing and explaining the performance dynamics of SOCs. This is one of the first studies that constructs a PCI using the Delphi technique, thereby contributing to the refinement of performance measurement frameworks in this discipline.

The findings of this study may be useful to the national treasury, government institutions, policymakers, researchers, and citizens by creating better governance, governmental policies, and performance management approaches in SOCs. A key recommendation emanating from this research is for SOCs to formally adopt and institutionalise the PCI to enhance SOC performance.

KEYWORDS: Corporate Governance Index; Developmental Performance Index; Delphi Technique; Human Capital Index; Legitimacy Theory; Performance Compliance Index; Public Finance Management Act Index; State-Owned Companies.

NKOMISO

Afrika-Dzonga yi pfumala Xikombo lexi heleleke xa Nandzelelo wa Matirhelo (PCI) ku hlela na ku antswisa matirhelo ya tikhamphani ta mfumo (SOCs). Marimba ya matirhelo lama nga kona ya nkongomisa ngopfu eka swikombo swimbirhi, swa mali

na leswi nga riki swa mali, na ku tirhisa katsongo xikombo xa matirhelo ya nhluvukiso. Hi ku anakanya leswi, xikongomelokulu xa dyondzo leyi a ku ri ku tumbuluxa PCI leyi heleleke leyi kongomisiweke eka ku hlela na ku antswisa matirhelo ya tiSOC letikulu eAfrika Dzonga. Hi ku tlhandlekela, swiyenge swa matirhelo ya tiSOC letikulu swi hleriwile laha. Dyondzo leyi yi tlhele yi ya emahlweni yi pimanisa no xopaxopa ku hambana ka matirhelo ya ti-SOC hi ku helela na hi swiphemu xikan'we na ti-SOC leti a ti wela ehansi ka Ndzawulo ya Mabindzu ya Mfumo (DPE) na leti nga weleku.

Filosofi ya xiviri yi tirhisiwile tanihi xikombiso xa ndzavisiso wa dyondzo leyi. Hi ku tlhandlekela, ku tirhisiwile endlelo ra ndzavisiso wa nhlamuselo lowu hlanganisiweke wo landzelelana naswona wu endliwile hi swiyenge swimbirhi. Eka xiyenge xosungula, endlelo ra xiyimo, leri vumbiwaka hi thekiniki ya Delphi, ri tirhisiwile ku hluvukisa PCI hi ku tirhisa nongoloko wa swivutiso leswi lulamisiweke. Vativikulu va hlerile ku hetiseka ka nxaxamelo wa nkambelo wa matirhelo. Maendlelo lawa ya katsile ku kuma mavonelo ya vativikulu hi mayelana na ku hetiseka na ku helela ka nxaxamelo wa nkambelo wa matirhelo Xiyenge xa vumbirhi a xi vumbiwa hi nxopanxopo wa leswi nga endzeni ka swiviko swa lembe ku suka eka Xedulu ya 2 ya tiSOC letikulu ku ringana nkarhi wa khume ra malembe ku sukela 2013 ku fikela 2022. Eka xiyenge xofana, maendlelo ya t-test ya tirhisiwile eka datara ya nhlayo ku kumisisa xiyenge xa matirhelo na ku hambana ka matirhelo ya tiSOC ta 18 leti nga eku dyondziweni.

Ku tirhisiwa ka PCI ku paluxile leswaku xikombo xa Z-score na xikombo xa matirhelo ya nhluvukiso (DPI) swi ve na mbuyelo wo ka wu nga ri kahle eka xiyenge xa matirhelo ya tiSOC. Hi ku hambana, Xikombo xa Nawu wa Mafambiselo ya swa Timali ta Mfumo (PFMAi), Xikombo xa Vulawuri bya Mabindzu (CGI) na Xikombo xa Vatirhi (HCI) swi kumiwile swi ri na mbuyelo lowunene eka xiyenge xa matirhelo ya ti-SOC. Nxopanxopo wu kombisile leswaku mivuyelo yotala (95%) yi kombisile ku pfumaleka ka ku hambana lokukulu eka matirhelo exikarhi ka ti SOC leti lawuriwaka hinkwato na

leti lawuriwaka xiphemu. I xiphemu lexitsongo ntsena xa (5%) lexi ringanyeteke vukona bya ku hambana ka matirhelo exikarhi ka swivumbeko leswi swimbirhi swa vulawuri.

Nxopanxopo wo yisa emahlweni wu paluxile leswaku, eka vunyingi bya mivuyelo (75%),a ku ri hava ku hambana ka matirhelo exikarhi ka ti SOC leti nga ehansi ka DPE na leti nga riki ehansi ka DPE, hambileswi mivuyelo yin'wana (25%) yi vikeke leswaku a ku ri na ku hambana ka matirhelo exikarhi ka tisete timbirhi ta mitlawa. Xohetelela, nxopanxopo wu ringanyetile leswaku nkavanyeto wa swa tipolitiki, vukungundzwana (PIC), miholo ya tiCEO na nkavuciva a swi nga ri swihlohleteri swa nkoka swa matirhelo ya SOC eAfrika Dzonga. Hikwalaho, dyondzo leyi yi nghenisa xiave eka tlawa wa vutivi hi swiphemu swinharhu swotala; swa ntokoto, thiyori na maendlelo Ku suka eka vonelo ra ntokoto, dyondzo leyi yi nyika vumbhoni bya nkoka lebyi fambelanaku na nhluvukiso na ntirhiso wa PCI tanihi xitirho xo hlela na ku antswisa matirhelo ya tiSOC.

Ndzavisiso wu tirhisile endlelo ro tatisela, hi ku tirhisa rimba leri hlanganisiweke ku suka eka mavonelo yo tala ya thiyori ku hlamusela vuxaka lebyi ehleketiweke exikarhi ka swilo leswi cinca-cincaka. Hambiswiritano, handlelka endlelo leri ra swiyenge swo tala, thiyori ya ku va enawini yi humelerile tanihi thiyori ya mavonelo yo xopaxopa na ku hlamusela ku cinca ka matirhelo ya ti-SOC. Leyi i yin'wana ya tidyondzo to sungula leti akaka PCI hi ku tirhisa thekiniki ya Delphi, hi ndlela yoleyo yi hoxa xandla eka ku antswisiwa ka marimba ya mpimo wa matirhelo eka dyondzo leyi.

Swikumiwa swa ndzavisiso lowu swi nga pfuna eka nkwama wa tiko, mavandla ya mfumo, vaendli va tipholisi, valavisisi na vaaki hi ku tumbuluxa vulawuri byo antswa, tipholisi ta mfumo, na maendlelo ya vulawuri bya matirhelo eka ti-SOC. Xibumabumelo xa nkoka lexi humaka eka ndzavisiso lowu i ku va ti-SOC ti amukela ximfumo na ku veka PCI eka nhlangano ku ndlandlamuxa matirhelo ya SOC.

MARITOYANKOKA: Xikombo xa Vulawuri bya Mabindzu; Xikombo xa Matirhelo ya Nhluvukiso,; Thekiniki ya Delphi; Xikombo xa Vatirhi; Thiyori leyi nga enawini; Xikombo xa Nandzelelo wa Matirhelo, Xikombo xa Nawu wa Mafambiselo ya Timali ta Tiko; Tikhamphani leti Lawuriwaku hi Mfumo.

KAKARETŠO YA SENGWALWA

Afrika Borwa e hloka Tšhupane ya Kobamelo ya Tiragatšo (PCI) ya go kwešišega go lekola le go kaonafatša tiragatšo dikhamphaning tšeo di laolwago ke mmušo (SOCs). Ditlhako tšeo di lego gona di nepiša kudu go mabaka a mabedi, a matlotlo le a go sebe a matlotlo, le go šomiša ga nnyane lebaka la tlhabollo ya tiragatšo. Go lebeletšwe se, maikemišetšo kgolo a nyakišišo ye ke go hlama PCI ya go kwešišega yeo e tla lekolago le go kaonafatša tiragatšo ya diSOC tše kgolo ka Afrika Borwa. Ka tlaleletšo, maemo a tiragatšo go diSOC tše kgolo a lekotšwe. Nyakišišo ye e bapeditše le go sekaseka go fapafapana ga tiragatšo go diSOC tšeo di laolwa ke mmušo ka botlalo le tšeo di sa laolwego ke mmušo ka botlalo, ga mmogo le diSOC tšeo di lego ka tlase ga Kgoro ya Dikgwebo tša Mmušo (DPE) le tšeo di sego ka tlase ga kgoro yeo.

Filosofi ya maitemogelo e šomišitšwe bjalo ka mokgwa wa nyakišišo ye. Ka tlaleletšo, mokgwa wa go hlakanya wa tlhalošo ya tatelano o šomišitšwe le go dirišwa ka dikgato tše pedi. Kgatong ya mathomo, tsela ya dingwalwa yeo e nago le thekniki ya Delphi, e šomišitšwego go hlama PCI ka go dira dipampiripotšišo tša nyakišišo tšeo di beakantšwego. Ditsebi di lekotše kwešišego ya lenaneotekolo la tiragatšo. Mokgwa wo o be o na le dinhla tša go diriša mmono wa ditsebi ka ga kwešišego le go felela ga lenaneotekolo la tiragatšo. Kgato ya bobedi e be e na le tshekatsheko ya dipego gotšwa go Šetšulo 2 ya diSOC tše kgolo tša lebaka la mengwaga ye lesome, go tloga ka 2013 go fihla ka 2022. Kgatong yona yeo, mokgwa wa teko-t o šomišitšwego go datha ya dinomoro go bona maemo le go fapafapana ga tiragatšo ya diSOC tše 18 tšeo di lego ka tlase ga nyakišišo.

Tirišo ya PCI e bontšhitše gore tšhupane ya Z-score le tšhupane ya tlhamo ya tiragatšo (DPI) di bile le seabe se se mpe go maemo a tiragatšo ya diSOC. Ka phapano, Tšhupane ya Molao wa Taolo ya Matlotlo a Mmušo (PFMAi), Tšhupane ya Taolo ya Tlemanego (CGI) le Tšhupane ya Matlotlo a Botho (HCI) di hweditšwe go ba le seabe se se botse go maemo a tiragatšo ya diSOC. Tshekatsheko e laeditše gore bontši bja dipoelo (95%) ga bo bontšhe go fapafapana go go golo go tiragatšo ya diSOC tšeo dilaolwago ke mmušo ka botlalo le tšeo di sa laolwego ke mmušo ka botlalo. Ke fela nomoro ye nnyane (5%) yeo e laeditšego go ba gona ga phapano magareng ga dihlopha tše tše pedi tša taolo.

Tshekatsheko ya tlaleletšo e bontšhitše gore, go be go sena go fapafapana go go ntši go dipoelo tša tiragatšo go (75%) magareng ga diSOC tšeo di lego ka tlase ga DPE le tšeo se sego ka tlase ga DPE, le ge ele gore dipoelo tše dingwe (25%) di bontšhitše go fapafapana magareng ga dihlopha tše tše pedi. Sa mafelelo, tshekatsheko e akanya gore tsenelelo ya dipolotiki, bomenetša (PIC), meputso ya CEO, le go ba pepeneneng ga go be le kamo ye kgolo go tiragatšo ya diSOC ka Afrika Borwa. Se sera gore, nyakišišo ye e kgathatema go sebopego sa tsebo mafapheng a mararo: maitemogelo le boitekolo, theorethikhale le mokgwa wa nyakišišo. Go tšwa go mmono wa maitemogelo le boitekelo, nyakišišo ye e fana ka bohlatse bja maitemogelo le boitekelo bjo bo amanago le tlhamo le tirišo ya PCI bjalo ka setlabakelo sa go lekola le go kaonafatša tiragatšo ya diSOC.

Nyakišišo e šomišitše tsela ya kamogelo, e diriša tlhako ye e kopantšwego go tšwa diponegong tše mmalwa tša theorithikhale go hlalosa dikamo tše di šišintšwego magareng ga diphetogo. Efela, ntle le tsela ye ya mafaphantši, theori ya bonnete e tšweletše bjalo ka mmono wa theori yeo e laolago tshekatshekong le tlhalosong ya mabaka a tirgatšo ya diSOC. Ye ke ye nngwe ya dinyakišišo tša mothomo tšeo di hlamago PCI go šomišwa thekneki ya Delphi, ka fao e tšea karolo go hlabollo ya ditlhako tša tekanyo ya tiragatšo lefapheng le.

Tšeo di hweditšwego nyakišišong ye di ka ba mohola go matlotlo a naga, ditheo tša mmušo, badira dipholisi, banyakišiši le badudi ka go hlola taolo ye kaone, dipholisi tša mmušo le mekgwa ya taolo ya tiragatšo go diSOC. Tšhišinyo ye bohlokwa go tšwa nyakišišong ye ke gore diSOC di amogele le go šomiša ka mehla PCI go kaonafatša tiragatšo ya diSOC.

MANTŠU A BOHLOKWA: Tšhupane ya Taolo ya Tlemanego; Tšhupane ya Tlhamo ya Tiragatšo; Thekniki ya Delphi; Tšhupane ya Matlotlo a Botho; theori ya bonnete; Tšhupane ya Kobamelo ya Tiragatšo; Tšhupane ya Molao wa Taolo ya Matlotlo a Mmušo; Dikhamphani tša go Laolwa ke Mmušo.

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AGSA	Auditor General of South Africa
BRICS	Brazil, Russia, India, China and South Africa
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CGI	Corporate Governance Index
CRR	Corporate Responsibility Reporting
CSR	Corporate Social Reporting
DPME	Department of Planning, Monitoring, and Evaluation
DPE	Department of Public Enterprises
DPI	Developmental Performance Index
ESG	Environmental, Social and Governance
GDP	Gross Domestic Product
HCI	Human Capital Index
IODSA	Institute of Directors of Southern Africa
JSE	Johannesburg Stock Exchange
NDP	National Development Programme
NT	National Treasury
OECD	Organisation for Economic Co-operation and Development
PCI	Performance Compliance Index
PFMA	Public Finance Management Act
PIC	Political interference and corruption
PWC	Price Waterhouse Coopers
R&D	Research and Development
ROA	Return on Assets
ROE	Return on Equity
SA	South Africa

SAA	South African Airways
SABC	South African Broadcasting Corporation
SDGs	Sustainability Developmental Goals
SOCs	State-owned Companies
SOEs	State-owned Enterprises
Stats SA	Statistics South Africa
UNDP	United Nations Development Programme
UNSDG	United Nations Sustainable Development Goals
US	United States

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Introduction

The United Nations (UN) Sustainable Development Goals (SDGs) for 2030 comprise 17 goals that provide a holistic framework for a more prosperous, equitable, and sustainable future. These goals are based on eradicating poverty and inequality, environmental protection, health and justice, and the well-being of global citizens (Hendrickse, 2023: 364). The SDGs of the United Nations Development Programme (Department of Planning, Monitoring, and Evaluation [DPME] & United Nations Development Programme [UNDP], 2019: 1) were designed to tackle the most pressing environmental, political, and economic challenges facing people everywhere. They are a clarion call for collective global action to address sustainability (Vyas-Doorgapersad, 2022: 626). All UN member states, including South Africa, have agreed to the implementation of these goals.

According to Hendrickse (2023: 365), the SDGs, the African Union's Agenda 2063, and the National Development Plan (NDP) 2030 share common goals and are aligned in their objectives. As a result, these goals serve as a strategic blueprint for the country's response to developmental challenges and form the foundation for the implementation of national strategic development frameworks. The NDP 2030 takes a multi-faceted approach, with a focus on employment, improved productivity-driven income growth, a social wage, and high-quality public services to address poverty and inequality (NDP 2030, 2012: 76).

The NDP aligns with the imperatives of the SDGs through targeted poverty eradication, inequality reduction, broader economic participation, better living conditions and low-carbon economy initiatives (NDP, 2012: 14). Research from the DPME and the UNDP (2019) shows that the NDP includes 74% of the SDGs (Statistics South Africa [Stats SA], 2019: 8), while a supplementary 19% are addressed in sectoral programmes. The NDP is a framework to eliminate poverty and reduce inequality by 2030, recognising that this can only be achieved by supporting the population's potential to carry out economic functions (NDP, 2012: 24).

In order to achieve the SDGs and the NDP imperatives, coordinated effort is required

between government, the private sector, foreign investors and SOCs. This collaboration succeeds only if these institutions, especially SOCs, are efficiently managed. SOCs thus emerged as strategic players in sectors crucial to development in the 21st century and indicate a return to social goals that are relative to economic goals that include: structural adjustment, innovation, internationalisation and industrialisation (Cardinale, Landoni & Mi, 2024: 468). In addition, the SOCs fulfil a critical role in driving the SDG and NDP agenda by facilitating national development and addressing key social and economic challenges (Dlulane, 2022: 1).

1.2 Background

SOCs are essential in the global economy by providing and contributing to national development, strategic resource allocation and facilitating social welfare. SOCs are companies that are wholly or partially owned and operated by the government. Their roles go beyond generating profits to include the fulfilment of important public policy objectives that include essential services (health, and education), job security and stabilising the economy, especially in times of market failure or crisis (International Monetary Fund [IMF], 2020: 54). In many countries, SOCs are set up to respond to market failures or to address mandates of public interest. They are particularly important in sectors, such as energy, transportation and telecommunications, that entail large-scale infrastructure and long-term investment (Robb & Mondliwa, 2018: 2).

SOCs are essential in addressing issues for sustainable development and advancing SDGs and national development objectives, as outlined in frameworks such as the NDP. In this context, SOCs serve three main functions: (1) addressing market failure, where private sector investment and production are insufficient despite societal benefits; (2) managing natural monopolies, where government control is needed to mitigate the negative impacts of monopolistic power, particularly in industries such as electricity, water, airports, and seaports, which are often deemed “strategic” and are critical for national stability; and (3) providing equitable access to essential infrastructure and services, ensuring that residents, particularly in underserved areas, benefit from public goods (Sithomola, 2019: 98; Kikeri, 2018: 1; NDP, 2012: 191).

In emerging and developing economies, SOCs are deliberately established to achieve

social and economic developmental goals, with the hope of improving socio-economic conditions (Richmond et al., 2019, as cited in Nkambule, 2024: 2). In 2022, the public sector owned about 11% of the global market capitalisation of SOCs, approximately $10.6 trillion, with public sector ownership rising above 30% of listed shares in some economies (Organisation for Economic Co-operation and Development [OECD], 2023: 2). According to Simone and Wang (2022: 19), SOCs play a significant role in real gross capital formation, making up on average 13% of the total for the past five years, demonstrating their importance in improving economic productivity and competitiveness. In South Africa, SOCs also contribute to enabling socio-economic imperatives.

In addition, even with their pivotal role, many SOCs struggle to address their service delivery and overarching mandates. Moreover, these issues are aggravated by governance failures and financial instability. Corruption, political influence and the ineffectiveness of counter-corruption measures are the primary reasons SOCs impede economic progress (Chitiga-Mabungu, Mabungu, Henseker & Masionnave, 2021: 736). For example, Baum, Hacknay, Medas and Sy (2019) provide empirical evidence that corruption negatively impacts the financial performance of SOCs. For an SOC, corruption may have devastating consequences, resulting in poor financial performance and eventual indebtedness that require government rescue through monetary policy adjustments and bailouts (Chen, Li & Tillmann, 2019: 28).

In South Africa, corruption inside Eskom, the state-owned electricity supplier, has badly eroded its ability to supply enough power to the citizens. This has led to persistent power cuts and ongoing load shedding, worsening the country’s energy crisis and holding back its economic and social development. The ongoing power crisis greatly affects people's daily lives, industrial production, and the economy's output (National Treasury, 2023). South African Airways (SAA) is in a similar situation and struggling financially, that led to a controversial business restructuring process. This included, inter alia, the controversial disposal of 51% of its shares for a nominal fee to Takatso Consortium in 2021 (Kgarose, 2023: 544). This raised questions regarding state asset valuations and highlighted the volatile and uncertain state of SOCs’ contribution to gross domestic product (GDP).

In 2024, the Department of Public Enterprises (DPE) cancelled its agreement with the

Takatso Consortium, citing uncertainties around the future of SAA (Stats SA, 2023). The crisis at key SOEs, such as Eskom, SAA, Denel, and Transnet, has devastated the South African economy. For example, South African SOCs made a loss of R34 billion in 2019, with individual companies, such as SA Express and Transnet, reporting losses of R590 million and R12 billion, respectively (Stats SA, 2023). These problems have generated public outrage and calls for changes to both governance and financial management systems.

Against these perennial challenges, the South African government has undertaken initiatives to improve SOCs. For example, it launched the National Treasury's (2011) Performance Information Handbook, which was meant to guide SOCs and departments to focus on improving performance and accountability. Moreover, in 2014, the Presidential Review Commission (PRC) was established to assess the performance of SOCs and determine whether they contributed to the country's developmental state agenda (Kikeri, 2018).

Public-private partnerships (PPPs) have financed and delivered public-purpose infrastructure in other contexts. Among others, these projects include the construction and operation of prisons, the Albert Luthuli Hospital, and the Department of Trade and Industry (DTI) campus (Chitiga-Mabungu et al., 2021: 735). Such partnerships match the public sector objectives with private sector expertise and resources aimed at improving service delivery and the construction and management of infrastructure. However, there are still systemic barriers that undermine the purpose of SOCs. Governance and management issues have been widely reported, indicating the difficulty of ensuring SOCs meet public, as well as economic expectations. According to Lampropoulou (2021:1209), one of the reasons for the restructurings in the SOC sector was to improve the delivery of national development goals and priorities.

Despite the significant roles played by state-owned companies (SOCs) in South Africa's national development agenda and the extensive legislative and governance frameworks guiding their operations, a critical gap remains in effectively measuring and evaluating their holistic performance. Existing assessment mechanisms primarily emphasise financial and limited non-financial indicators, often overlooking developmental and societal performance dimensions integral to the mandates of SOCs. Furthermore, there is no comprehensive, integrated index that consolidates

financial, non-financial, and developmental indicators into a single, practical performance measurement tool. This gap underscores the urgent need for the development of a Performance Compliance Index (PCI) to enhance governance, improve accountability, and drive the strategic contributions of SOCs towards achieving broader national development objectives. Against this backdrop, the current study seeks to address this deficiency through the conceptualisation and development of a PCI for major SOCs in South Africa.

1.3 Problem statement

The background of this research protocol, along with the literature reviewed in Chapter 3, sections 3.2 and 3.3, highlight the significant role that SOCs play in the socio-economic development of countries. Despite their critical importance, the performance of SOCs remains a subject of debate among scholars, with no clear consensus (Abang'a, Tauringana, Wang'ombe & Achiro 2022; Phi, Taghizadeh-Hesary, Tu, Yoshino & Kim, 2021; Singh & Chen, 2020; Sithomola, 2019; Kikeri, 2018; Soejono & Heriyanto, 2018; Ahmed & Alam, 2018; PricewaterhouseCoopers [PWC], 2015; NDP, 2012). In efforts to assess and determine SOC performance, previous research employed financial and/or non-financial indicators (Kaunda & Pelser, 2023; Marimuthu, 2021; Sithomola, 2019; Nchabeleng, 2019; Kikeri, 2018; Jin, Shang & Xu, 2018; Mbo, 2017; Bussin & Ncube, 2017).

Factors that influence the performance of SOCs include board structures; director tenure; reduced government ownership; leverage (Kaunda & Pelser, 2023; Abang'a et al., 2022); long-term debt; growth opportunities; liquidity; and the non-debt tax shield (Marimuthu, 2021). Additionally, key challenges include unstable and ineffective leadership arrangements; bankruptcy; corruption; treasury bailouts; a lack of accountability; political interference and cronyism; a lack of transparency; accountability; productivity inefficiencies; and a culture of impunity (Sithomola, 2019). Other studies emphasise the lack of a clearly defined state ownership framework, combined with a decentralised and heavy oversight structure and multiple competing objectives (Kikeri, 2018).

The research problem for the study was: There is an absence of a comprehensive PCI that integrates the overall performance indicators in SOCs in South Africa.

Previous literature primarily focused on financial and non-financial performance or a combination of both to measure the performance of SOCs, while neglecting developmental performance. Therefore, the primary aim and objective of this study were to develop a comprehensive PCI that includes financial, non-financial, and developmental performance indicators to assess and improve the performance of SOCs in South Africa.

1.4 Thesis statement

A conceptual Performance Compliance Index (PCI) that integrates financial, non-financial, and developmental indicators provides an effective framework for evaluating the performance of state-owned companies (SOCs) in South Africa.

1.5 Research aim, objectives, and questions

1.5.1 Aim of the study

This research aimed to develop a PCI to assess and improve the performance of SOCs in South Africa by evaluating performance levels, differentials, and key performance drivers using a newly developed PCI. This PCI includes a range of performance indicators, both financial and non-financial, as well as developmental performance indicators such as the Public Finance Management Act (PFMA), the Corporate Governance Index (CGI), the HCI, and the development performance index (DPI).

1.5.2 Research objectives

The study used major SOCs listed on Schedule 2 of the PFMA as the unit of analysis for the period 2013 to 2022.

Primary objective

To develop a Performance Compliance Index (PCI) for assessing and enhancing the performance of state-owned companies (SOCs) in South Africa.

Secondary objectives

1. To evaluate the performance levels of major state-owned companies in South Africa.

2. To assess and compare the performance differences between fully owned and partially owned state-owned companies in South Africa.

3. To compare the performance differences between major state-owned companies that were part of the Department of Public Enterprises and those that were not.

4. To identify the key drivers that influence the performance of major state-owned companies in South Africa.

1.5.3 Research questions

1. How can a Performance Compliance Index be utilised to effectively assess, analyse, and improve the performance of South African state-owned companies?

2. What are the performance levels of South Africa's major state-owned companies?

3. What are the performance differences between fully owned and partially owned state-owned companies in South Africa?

4. What are the performance differences between major South African state-owned companies that were part of the Department of Public Enterprises and those that are not?

5. What are the key drivers that influence the performance of major state-owned companies in South Africa?

1.5.4 Research hypotheses

Hypothesis 1.

H_0: There are no performance differentials between major state-owned companies that are wholly owned by the state and those that are partially controlled by the state.

H_1: There are performance differentials between major state-owned companies

that are wholly owned by the state and those that are partially controlled by the state.

Hypotheses 2

H_0: There are no performance differentials between state-owned companies under the Department of Public Enterprises and those that are not.

H_1: There are performance differentials between state-owned companies under the Department of Public Enterprises and those that are not.

1.6 Contribution to the body of knowledge

South Africa lacks a universally applicable performance compliance tool to measure and improve the performance of its SOCs (OECD, 2021b). Current frameworks fall short of being sufficiently holistic and often present conflicting information on the overall SOCs' performance. These tools usually measure separate performance elements and do not provide a view of the performance in its totality. In addition, the existing literature in this regard is mainly concerned with the two dimensions of information: financial and non-financial.

As a result, this narrow approach does not cover the full view of performance, producing a muddled performance report for SOCs. The PCI that we propose in this study has the potential to fill this knowledge gap by providing an integrative outlook of SOCs as the actual performance. It contributes to new and existing knowledge in three areas: the empirical, the theoretical, and the methodological, as follows:

This study provides a novel and more reliable PCI instrument to assess and improve the performance of SOCs.

It is one of the first studies to provide empirical evidence regarding the application of the PCI.

This study is the first to offer empirical evidence on the performance differences between Schedule 2 major SOCs, comparing SOCs under the DPE and those that are not.

This study contributes to the existing literature by identifying key drivers of

organisational performance and assessing the performance level of SOCs, marking the first in-depth analysis of SOCs in South Africa.

1.7 Significance of the study

The research fills the gaps identified in the performance management studies of SOCs by constructing a PCI to monitor and enhance the performance of SOCs, which includes financial, non-financial, and developmental performance indicators. Most of the existing literature centres on measuring SOCs' performance as financial performance, non-financial performance, or a combination of both. This also triggers a debate on the performance difference of SOCs, confirming performance management theory.

This research deepens the understanding of the role SOCs play within the economy, the development agenda, and the National Development Plan 2030 (NDP, 2012). Government agencies, policymakers, and SOCs in South Africa could adopt the developed PCI as a standardised performance metric and management tool. Also, these results could improve consumer targeting with further research in the sector.

1.8 Structure of the thesis

The following sections outline the structure of this study, detailing the key components and their respective purposes to guide the reader through the research.

Chapter 1: Introduction and background

The chapter presents the introduction and background of this study. It further defines the problem statement, thesis statement, research aim, and objectives, and research question. Following this is the summarised introduction to the research design and methodology adopted for this research, contribution to new knowledge, significance of the study, validity and reliability, anonymity and confidentiality, ethical considerations, and structure of the thesis.

Chapter 2: Legislative, conceptual, and theoretical framework

This chapter provides an overview of legislation that is applicable to SOCs. Next, the chapter delves into the evolution of the King Report Principles of Good Governance

and their relevance to SOCs. Lastly, it discusses the conceptual and theoretical framework underpinning the study.

Chapter 3: Empirical literature review

This chapter commences with a discussion on the role of SOCs in the BRICS (Brazil, Russia, India, China, and South Africa) nations, followed by a comparative analysis in the context of South Africa. The next section of the chapter discusses the performance of SOCs in BRICs with an emphasis on South Africa. It concludes by discussing the literature on the drivers of performance pertaining to companies and presents a brief summary of the chapter.

Chapter 4: Research design and methodology

This chapter begins with a summary of the research design and method adopted in this study. This includes the adoption of the research onion and the reasons for adopting the layers from the onion. This chapter concludes with sample selection, data collection, data analysis, significance of the regression, validity and reliability, anonymity and confidentiality, validity and conclusion.

Chapter 5: Data analysis and interpretation of qualitative results

This chapter presents the analysis and interpretation of the qualitative results from the Delphi technique. It is followed by a presentation of the developed PCI to be applied in the next chapter.

Chapter 6: Data analysis and interpretation of quantitative results

This chapter presents additional results based on the analysis and interpretation of the quantitative data. It discusses the results from objective 2 based on the application of the PCI, the results of research objectives 3 to 4 based on the application of the t-test formula and the results of research objective 5 using the simple linear regression model and concludes with a summary of the findings.

Chapter 7: Summary of key findings, conclusions and recommendations for future research

The last chapter presents the summary of the key findings, contribution to new and

existing knowledge, limitations of the study, recommendations of the study, and recommendations for future research.

CHAPTER 2: LEGISLATIVE, CONCEPTUAL FRAMEWORK, AND THEORETICAL REVIEW

2.1 Introduction

This chapter discusses the key legislative, theoretical, and conceptual frameworks underpinning SOCs. It describes the legislative and governance provisions in South Africa that measure the performance of SOCs. The chapter presents the following legislative frameworks that govern and guide SOCs in South Africa: the Constitution of the Republic of South Africa Act No. 101 of 1996; Public Administration Management Act No. 11 of 2014; the Public Finance Management Act No. 1 of 1999; National Treasury Regulations; King Code IV Report of 2016; the Companies Act No. 71 of 2008; and other laws governing SOCs.

The chapter acknowledges the existence of theories that provide context for company performance worldwide. It focuses on only four of them: legitimacy, stewardship, stakeholder, and agency theories. Finally, the chapter discusses the conceptual framework that underpins the study, which includes the Public Finance Management Act Index (PFMAi), the Corporate Governance Index (CGI), the Human Capital Index (HCI), and the Developmental Performance Index (DPI).

2.2 Legislative framework

This section reviews key legislative frameworks that govern state-owned companies (SOCs) in South Africa, with a specific focus on how these laws and regulations influence the assessment of SOC performance. By examining these legal instruments, the study highlights the regulatory environment that shapes financial accountability, operational efficiency, and developmental obligations of SOCs, thereby providing a foundation for the development of a comprehensive Performance Compliance Index (PCI).

The legislative framework outlines the laws, Acts, and regulations that guide SOCs in South Africa. These laws, Acts, and regulations are mainly derived from the Constitution of South Africa (RSA, 1996), which is the highest form of law, and no statute or rule may override it.

2.2.1 The Constitution of the Republic of South Africa, 1996

The Constitution of South Africa is the highest form of law in the country; the provisions of the Constitution cannot be superseded by any other legislation or government action. Mashamaite and Raseala (2019: 125) assert that sections 1(c) and (d) of the Constitution of South Africa establish that South Africa is based on the fundamental principles and values of the rule of law, responsiveness, accountability, and transparency. Furthermore, as stated in Section 41(1)(c) of the Constitution, all levels of government and all state entities within each level of government must deliver services that ensure efficient, open, responsible, and consistent governance for the republic. Hence, the National Treasury (2023: 1) mentions that, to accomplish the government's development goals, it is necessary to enhance service delivery continually.

Similar to the other nations of BRICS, whose economies are also driven by SOCs, South Africa has created SOCs to provide service delivery and social obligations on its behalf. This is the product of an expansion and development strategy based on diversifying the economy and using SOCs to provide high-quality services and infrastructure that promotes private sector growth (OECD, 2015: 13). Tjano (2021: 11) states that SOCs are established on an economic and developmental mandate. The success of SOCs enables the state to accomplish its social objectives. However, capacity constraints within state departments mean that SOCs are often given varying degrees of autonomy, depending on how they were formed, and the principals and agents hired to oversee and manage them.

As a reflection of their diversity, SOCs are held accountable in two ways: through the ministry under which they fall and/or through the Standing Committee on Public Accounts (SCOPA) (Matebese-Notshulwana, 2019: 4). Sections 56(a) and (b) of the Constitution of the Republic of South Africa empower Parliament or its committees to hold those responsible for SOCs accountable and to report on the state and performance of SOCs (Sadiki, 2015: 53). Also, these sections are aligned with the principles of accountability, oversight and good governance reflected in the other acts, regulations and reports that underpin SOCs (like the Companies Acts, the PFMA and the King Report on Corporate Governance). In terms of section 181(1)(e) of the Constitution, the role of the Auditor- General of South Africa (AGSA) was

established to strengthen the country's democracy thereby promoting oversight, accountability and governance in the public sector and SOCs through the medium of audit results, thereby improving public trust.

Section 216(1) of the South African Constitution implemented the PFMA, which aims to supervise financial management procedures in the national and provincial governments. This study aims to develop a theoretical framework to improve the operational efficiency of important SOCs in South Africa, focusing on performance variances and variables that influence them. The analysis includes all 21 main SOCs mentioned in Schedule 2 of the PFMA within its scope. Therefore, the following sections examine the legislative Acts and regulatory frameworks that regulate SOCs and their mandates.

2.2.2 Acts Governing State-Owned Companies (SOCs) in South Africa

The term “act” is a noun derived from the Latin word for "to do" but it has a specific legal meaning. Tjano (2021: 34) defines an Act as "statutory requirements instituted and passed into law by the parliaments." According to the Republic of South Africa's Constitution, SOCs comply with particular acts as a state organ depending on their establishment and mandate. Nzimakwe (2023: 5) estimates that South Africa has around 700 SOCs at all levels of government, including commercial and non-commercial SOCs and their subsidiaries. Thus, the state, at municipal, provincial, or national levels, either partially or totally, owns a wide range of entities, including enterprises, boards, tribunals, and commissions (Stevens, 2020: 26).

According to the PFMA of 1999 (Act No. 1 of 1999), South African SOCs are classified into three schedules: Schedules 1, 2, 3A, 3B, 3C, and 3D. Schedule 1 refers to constitutional institutions that are provided for in the Constitution and operate autonomously. Schedule 2 relates to major state-owned enterprises, which are large strategic entities central to the economy. The third schedule contains: National public enterprises (Schedule 3A); national government business enterprises (Schedule 3B); provincial public enterprises (Schedule 3C); and provincial government business enterprises (Schedule 3D) (Tjano, 2021:12).

Table 2.1 describes companies listed in Schedule 2 and the legislative Acts governing their establishment and mandates. This classification establishes the legal and

operational frameworks defining the nature of SOCs in this domain, providing insights into the responsibilities and roles of these SOCs within the larger public sector landscape.

Table 2.1: Acts governing major state-owned companies

Name of SOC	Act of the State-Owned Enterprise	Mandate
1. Alexkor Limited	Act 29 of 2001	Incorporate the Alexander Bay Development Corporation as a public business and address related problems.
2. Eskom	Act 13 of 2001	Convert Eskom into a public company with share capital under the Companies Act and address related problems.
3. South African Airways	Act 5 of 2007	Convert South African Airways (Proprietary) Limited to a public company with a share capital under the Companies Act, 1973 and address related problems.
4. Transnet Limited	Act 52 of 1991	Plan, provide, maintain, and enhance port infrastructure. Offer or organise marine-related services. Provide port services, including administration and regulatory functions, at all South African ports. Provide navigation aids and assistance for vessels inside port boundaries and along the coast.
5. SA Forestry Company Limited	Act 128 of 1992	Establish a business to manage and oversee state woods and address related issues.
6. Denel SOC Ltd	Companies Act 71 of 2008	Provide key technology, goods, services, and support to South Africa's defence and security sector, while also using indigenous capabilities to target specific export markets.
7. Air Traffic and Navigation Services Company	Act 45 of 1993	Facilitate the transfer of specific assets and duties from the state to a newly constituted public company, and to address related problems.
8. Airports Company South Africa	Act 44 of 1993	Facilitate the transfer of specific assets and duties from the state to a newly constituted public company and address related problems.

9. Armaments Corporation of South Africa	Act 51 of 2003	Ensure the continuation of the Armaments Corporation of South Africa, Limited. Govern the Corporation's functions, accountability, and finances, and to address related concerns.
10. Broadband Infrastructure Company (Pty) Ltd	Act 33 of 2007	Improve access to electronic communications, particularly in undeveloped and underserved areas.
11. Central Energy Fund	Act 38 of 1977	Enhance energy security in South Africa and the region via exploration, acquisition, development, marketing, and strategic partnerships.
12. Development Bank of Southern Africa	Act 13 of 1997	Promote economic development, human resource development, and institutional capacity building by mobilising financial and other resources from national and international private and public sectors for sustainable development projects.
13. Independent development trust (IDT)	PFMA-Act 1 of 1999	Manage the implementation and delivery of urgently required social infrastructure programs on behalf of the state.
14. Industrial Development Corporation (IDC)	Act 22 of 1940	Form a company whose purpose is to stimulate the establishment of new industries and industrial enterprises, as well as the growth of current industries and industrial undertakings.
15. The Land and Agricultural Development Bank	Act 15 of 2002	Regulate bank management and control. Fund the bank. Manage the bank's business. Manage the bank's risk.
16. SA Broadcasting Corporation Limited (SABC)	Act 4 of 1999	Abolish the Broadcasting Act of 1976 (Act No. 73 of 1976) and establish a new broadcasting strategy for the Republic.

17. SA Nuclear Energy Corporation	Act 46 of 1999	Provide guidelines for disposing of radioactive waste and storing irradiated nuclear fuel, as well as incidental concerns.
18. SA Post Office Limited	Act 22 of 2011	Provide for the South African Post Office and its subsidiaries' continuous existence, governance, and workforce, as well as related matters.
19. Telkom SA Limited	Companies Act 71 of 2008	Govern the incorporation, registration, organisation, and management of companies, as well as the capitalisation of profit companies and registration of offices for foreign companies doing business in the Republic. It also defines the relationships between companies and their shareholders and directors.
20. Trans Caledon Tunnel Authority	Companies Act 71 of 2008	Governs the incorporation, registration, organisation, and management of companies, as well as the capitalisation of profit companies and registration of offices for foreign companies doing business in the Republic. Defines the relationships between companies and their shareholders and directors.

Source: Author (2024), adopted from the National Government Directory: State-owned enterprises and other public (2022)

As established in terms of their specific Acts, the companies above continue to follow common principles, despite the state having a majority shareholding or not, for instance, the Companies Act, PFMA, and best practices in good governance. They share common goals, which include facilitating service delivery and promoting the developmental objectives of the state. These imperatives are often outlined in other legal provisions that are discussed in detail, including the Companies Act, the King IV Report, the PFMA, the National Treasury Regulations, and the Public Audit Act.

2.2.3 The Companies Act 71 of 2008

The Companies Act 71 of 2008 is one of the most important legislations and countries worldwide have adopted it in a manner that suits their corporate setting. The Companies Act determines the formation, registration, operation and governance of companies, and provides for redress and shareholder protection (Tjano, 2021: 35). Furthermore, the Companies Act aims to simplify business procedures, foster entrepreneurship, enhance flexibility, and reduce bureaucratic red tape, thus contributing to innovation. It gives a common regulatory framework that will be applicable to all companies (Stevens, 2020: 32).

Section 38(1) of the Companies Act 71 of 2008 establishes that a company, as a legal entity, possesses the same abilities and powers as an individual to the extent that a legal entity can exercise such capacities or authorities (Limbo, 2019: 55). This indicates that a company, in its legal capacity, has the authority to sue or be sued, among other legal actions. Since its enactment, the South African Companies Act has been extensively revised, with the most recent amendments introduced by the then Minister of Trade and Industry Ebrahim Patel, which were signed into law on July 27, 2024.

This amendment to the Companies Act 71 of 2008 repealed the Companies Act of 1909 (Chikutuma, 2019: 48). Stevens (2020: 32) notes that the PFMA was the first statutory instrument to recognise SOCs as companies, followed by the Companies Act. The Companies Act also considers SOC-founding Acts, the PFMA, and the MFMA (amongst others) in its provisions applicable to SOCs (Bezuidenhout, 2016: 96). Importantly, PWC (2012: 4) highlights that SOCs are also subject to the PFMA, which entails more compliance demands than those contained in the Companies Act.

While SOCs each have their own enabling legislation, Adebayo (2020: 154) notes that the Companies Act 2008 includes provisions that also apply to SOCs. Section 66(1)(2) of the Companies Act mandates state-owned enterprises under its jurisdiction with an operational board of directors to fulfil all powers in executing the entity's mandate, save when limits are stipulated in the Act or the memorandum of incorporation (MOI) (Tjano, 2021: 36). In addition, the Companies Act prescribes that SOCs, and public companies appoint auditors and have their financial statements audited annually (South African Oxford Business Group Report, 2016).

In addition, SOCs must also appoint an audit committee (AC) and a social and ethics committee to oversee and report on the company's corporate social investment activities. The regulatory landscape is complicated for SOCs, which may be governed by multiple legislative frameworks, each of which presents different requirements and obligations.

2.2.3.1 Link between the Companies Act 71 of 2008 and the performance of SOCs

While the Companies Act does not provide a clear method of assessment and management of SOCs, the following guidelines can aid in that direction. According to the Audit Committee, section 94 of the Companies Act stipulates that SOCs must comply with the following provisions (PWC, 2012: 13). They must,

Compile a report that will be included in the yearly financial statements for the corresponding fiscal year.

Address and handle any issues or complaints, whether originating from within or outside the SOC or initiated independently, pertaining to:

1. The accounting approaches and internal audit procedures of the SOC.
2. The content or auditing of the SOC's financial statements.
3. The internal financial controls of the SOC or any connected problem; and
4. Any issues involving the SOC's accounting rules, financial controls, records and reporting to the board.

The above-listed activities under the Act can only be used to measure financial

performance and are criticised because they do not cover non-financial and developmental performance activities. Section 2.2.4 discusses the effect of the PFMA on SOCs.

2.2.4 The evolution of the Public Finance Management Act No. 1 of 1999

Before democracy and the introduction of the PFMA in 1999, the South African government faced severe challenges with its financial management systems. At that time, a highly inadequate and outdated accounting system was unable to meet core financial management functions, such as budgeting, budgetary control, performance monitoring and reporting, and timely governance over public finances. The deficiencies of this system resulted in the government's failure to manage public resources effectively and its acknowledgement that this system required continuous reform (John, 2016: 48).

In response to these issues, the democratic government embarked on a reform of the financial management framework. The passing of the PFMA in 1999 catalysed this journey of reform in terms of Section 216(1) of the Constitution of the Republic of South Africa (RSA, 1996), which requires the establishment of a more effective and transparent public financial management system. The PFMA aims for responsible and efficient expenditure of public funds, accountability, and transparency regarding the management of government expenditure (Tjano, 2021: 34).

The PFMA's primary objective is to enforce sound financial management practices across all spheres of government, including national, provincial, local and public entities. It promotes the transparent and accountable management of revenue, expenditure, assets, and liabilities by those responsible for leading public institutions (Tjano, 2021: 34). The scope of the Act extends to organs of state, including the national and provincial governments, public entities, and SOCs; however, there is an important exception: Telkom SA, which falls outside the PFMA's reach as a listed company on the Johannesburg Stock Exchange (JSE).

The South African government owns 51% of Telkom. Due to its partial privatisation, it is not subject to the PFMA's full regulatory oversight (Thabane & Van Deventer, 2018:11). PFMA provisions do not apply to all SOCs, which demonstrates the diversity of governance structures of such entities. The extent to which they are governed

depends on the entity's ownership structure and financial position.

In summary, the movement to a democratic state and the adoption of PFMA were major milestones in South Africa's financial practices. The PFMA was intended to overcome the deficiencies of previous legislation by establishing a new legal structure to regulate the conduct of public sector finances and to ultimately facilitate a more transparent, accountable, and effective public accounting and financial system.

2.2.4.1 The Regulations for SOCs under the Public Finance Management Act of 1 of 1999

In South Africa, SOCs are also regulated by a number of key statutes, namely, the PFMA 1 of 1999, the Companies Act 71 of 2008, the Constitution of the Republic of South Africa (RSA, 1996), and the founding legislation of the individual SOC (Stevens, 2020: 12). According to PWC (2012), the PFMA, the newly revised Companies Act, and the King III Report on Corporate Governance have common governance principles, namely, transparency, accountability, fairness, and responsibility. Although these principles are consistent in many ways, there are occasions when provisions in these statutes may conflict. In these situations, according to Stevens (2020: 28), the PFMA prevails, especially in otherwise irreconcilable instances with the Companies Act.

However, like any legal regime, the PFMA has its shortcomings. Importantly, it fails to address some important aspects mentioned in the founding legislation of SOCs, including SOC formation, the nomination of board members and CEOs, the appointment of state officials to boards, and the management of developmental mandates and goals (Kikeri, 2018: 6). Where the PFMA is found wanting, the Companies Act and best practices arising from the King IV Report are available.

The convergence of these different governance principles is feasible and desirable, as it serves the general objective of sound corporate governance within SOCs (PWC, 2012: 2). The PFMA further provides that SOCs remain operational and managerially independent by stipulating specific financial, accountability, and reporting processes. An important mechanism in this respect is the shareholder's compact, a performance contract between the responsible Minister and the board of directors. These compacts guide strategic decision-making, performance assessment and alignment at the PFMA

level (Tjano, 2021: 35).

SOCs and public entities must publish their financial results, performance against prescribed targets, and financial position at the end of each financial year per Section 55(2)(a) of the PFMA. This creates an agency relationship between the principal (the shareholder, the Minister) and the agent (the board of directors and managers). In this context, the board has a duty to act in the shareholders' interest, ensuring that it behaves according to the strategic objectives set out in the shareholders' compact, as provided for in the PFMA.

In conclusion, despite the PFMA providing a useful platform for regulatory purposes regarding SOCs, challenges still exist to ensure full compliance with interdependent legislation, notably, in governance and operational behaviour. Alternatively, the PFMA possesses a degree of flexibility, reflective of the principles of the Companies Act and the King IV Report, that collectively provide a comprehensive governance apparatus that forms a potent framework to handle the multifaceted governance challenges surrounding the management of SOCs.

2.2.4.2 PFMA Sections on Performance of SOCs.

According to Section 55(1) – (3) of the PFMA, the accounting authority (AA), which, in this case, is the board of directors of the SOCs, is tasked with a plethora of obligations. Among those obligations are the accounting authority's production of annual reports and financial statements for the SOCs. Section 55 (2) (b) outlines the requirements for the two reports (annual report and financial statements):

Section (2), the annual report and financial statements referred to in subsection (1) (d) must include particulars of (b):

i. any material losses through criminal conduct and any irregular expenditure and fruitless and wasteful expenditure that occurred during the financial year.

ii. any criminal or disciplinary steps taken as a consequence of such losses; or

iii. irregular expenditure or fruitless and wasteful expenditure.

iv. any losses recovered or written off.

v. any financial assistance received from the state and commitments made by the state on its behalf; and

vi. any other matters that may be prescribed.

The PFMA constitutes an essential basis for financial reporting and accountability as well as standardising such across SOCs and public entities in South Africa (Kikeri, 2018: 6). But, despite the central role of PFMA in fostering financial transparency, the application of PFMA by itself does not necessarily mean SOCs would perform better. This is because the performance of SOCs cannot be determined solely by using financial and non-financial ratios. Traditionally, studies on SOC performance evaluation have used either financial or non-financial indicators or a combination of both (Abang'a et al., 2022; Wu, Alkaraan & Le, 2023; Lusy & Riduwan, 2020; Limbo, 2019; Mbo, 2017).

However, these analyses have generally overlooked an important dimension of developmental performance that is the extent to which SOCs meet wider socio-economic goals, such as job creation, poverty alleviation, and sustainable development, often key to their mandate. SOCs are unique, and their role in achieving national development goals on this dimension is yet to be captured in existing frameworks.

A gap in the literature shows the need for further research in this area. Hence, this study aimed to establish an all-inclusive PCI consolidating financial, non-financial, and developmental performance metrics. The index incorporates multiple dimensions, an integrated measure of the performance of SOCs, which would lead to improved governance and better performance in terms of economic and developmental objectives.

2.2.5 King Code Reports on Corporate Governance

The King Report on Corporate Governance in South Africa was first published in 1994 after former President Nelson Mandela appointed retired Judge Mervyn E. King to lead a committee on corporate governance. This paved the way for the release of the initial King Code Report, with the intention to create a governance structure adapted to South African conditions and to offer implemented guidance for businesses and

government institutions (Moyo, 2010: 42). The King Reports progressed with subsequent editions, namely, King II, King III, and King IV, each refining previous iterations of the principles of good corporate governance.

These reports have influenced corporate governance in South Africa by providing a set of best practices that emphasise transparency, accountability, fairness, and responsibility. They play an important role in advising organisations, including SOCs, on adopting governance structures that are comparable to international standards and appropriate for the diverse social and economic circumstances in South Africa (Nevondwe, Odeku & Raligilia, 2015: 663).

The King Reports I, II, III and IV, which were prepared by the Institute of Directors in South Africa (IoDSA) over a period of several decades (IoDSA, 1994, 2002, 2009, 2016), have given rise to what is considered to be the best practices for corporate governance in South Africa (Legodi, 2021: 26). Over the years, these reports have created the groundwork for corporate governance in South Africa, advocating for ethical leadership, transparency, accountability, and responsible decision-making in the private and public sectors. The King Reports on Corporate Governance in SA have all built on their predecessors while also responding to the changing governance landscapes of South African organisations (local and abroad).

i. The King I Code

On 27 November 1994, the King I Report on Corporate Governance was published, which forever shifted corporate governance in South Africa. It was an important source of reference for policymakers that guided the design of legal and regulatory frameworks intended to foster the highest level of corporate governance (Moyo, 2010: 42). The report suggested that overriding codes of conduct be established for both boards and directors across key entities: JSE-listed companies; banks; SOCs such as Eskom, as a key example; and big insurers and companies with more than R50 million in shareholder equity.

The King I Report was comprehensive as it considered all aspects of finance and regulation to ensure sound corporate governance. This entailed, among other things, the need for stringent audits and the incorporation of an ethical code of conduct (Sambo, 2017: 114). The report set out a coherent and disciplined governance

framework as being contextual given South Africa's developing economic and political landscape. At the same time, it provided practical guidance for companies and SOCs seeking to apply sound governance practices.

The King I Report introduced a holistic approach to corporate governance by incorporating financial, social, ethical, and environmental guidelines. This comprehensive model was designed to serve the interests of a wide range of stakeholders while recognising the importance of balancing economic performance with social responsibility (Armstrong, Segal & Davis, 2005: 9). The report's provisions, particularly in Section 4.11, laid the foundation for significant legislative developments, including the PFMA, which further entrenched good governance practices within South African public entities (Sambo, 2017: 28).

Even though the King I Report was a voluntary code, this code was the first of its kind within South Africa. It was considered an important tool to educate newly democratic citizens regarding the operations of a free-market economy (Judin, 2019:168). Subsequent reports followed the groundwork laid by the Campbell and Treadway reports (Tleane, 2020: 539), including the King II Code issued in 2002, which expanded on the principles put forth by the original report. The King I Report has played an instrumental role in the evolution of corporate governance in South Africa. It paved a new era of corporate governance, not just in the private sector but also in the public sphere.

ii. The King II Code

The initial success of the King Code Report led to the release of the second edition. A significant factor in this revision was global developments, culminating in the World Earth Summit in Johannesburg in 2000, when former Judge Mervyn King called for an update to the original report. The second edition, according to Tjano (2021: 37), was designed to bring the first up to date and, importantly, to respond to the evolving global challenges that were beginning to impact governance practices. The updated King II Report preserved the same framework and philosophies of the first edition but built upon and clarified these, offering a much more detailed analysis in a number of key areas.

One of the key updates in the second edition was a greater emphasis on sustainability,

the role of corporate boards, and the importance of embedding risk management in governance practices. The King II Report contained six sections, covering crucial topics, including the roles and duties of boards of directors and auditing and accounting structures. Besides the general features, it gave strong attention to new topics such as internal audit, risk management, non-financial issues and the need for compliance and enforcement mechanisms (Kakabadse & Kakabadse, 2001: 310).

Perhaps the most striking change to the second edition was its wider applicability. In addition, the original focus of the King I Report on private sector organisations was extended in the King II Report to apply to all national, provincial, and municipal government administrations and all public institutions that are established in the interests of the Republic and function according to the Constitution, which naturally includes SOCs. This was a paradigm shift as it acknowledged the relevance of sound governance in effective private and public sectors, where accountability and transparency are essential for the state to function properly (Sambo, 2017: 115).

Key improvements made to the King II are as follows (IoDSA, 2002)

1. Recommendations relating to the composition of the board of directors, explicitly separating the roles of Chairperson and Chief Executive Officer (CEO).

2. Recommendations concerning the disclosure of individual directors' remuneration.

3. The suggestion that a non-executive director's contract should run for no more than three years.

4. Greater emphasis on the role and contribution of independent non-executive directors, recommending three categories of directors, executive, non-executive and independent (those that have no connection with the business).

5. The contribution of independent directors is to provide impartial advice and better represent the interests of shareholders without an affiliation to any.

6. Recommendations concerning the nomination committee's importance, role, and contribution and audit and remuneration committees would oversee new members' appointment to the board.

7. Recommendations to utilise information technology to improve reporting and transparency and acknowledge that the use of IT in business has risks.

8. An emphasis on the importance of internal audit and risk management.

9. A greater focus on the non-financial aspects of corporate governance, in particular.

In conclusion, the King II report extended the basis of its predecessor by focusing on ethics in leadership and governance within the context of new global realities and broadening the scope of the governance issues. Including public institutions within the SOCs and elsewhere marked a critical juncture in corporate governance in South Africa. It established a detailed set of standards that continues to influence governance in both the public and private spheres.

iii. The King III Code

In the aftermath of the global financial crisis of 2007–2008, the King III Report on Corporate Governance was published on 1 September 2009 and came into effect on 1 March 2010. Building on the foundations laid by the previous two editions, King III sought to address emerging corporate governance challenges and promote best practices in the wake of a global financial meltdown. According to Moyo (2010: 43), the publication of King III was driven by the anticipated enactment of the new Companies Act and the growing influence of international corporate governance trends since the release of King II in 2002.

One of the key differences of King III was its wider applicability. Previous editions had focused predominantly on corporate entities and mitigated to mention that King III applied to all organisations in every sector: public, commercial, or non-profit (Nevondwe et al., 2015: 663). Given this, an inclusive approach saw institutions in all sectors encouraged to adopt the 75 principles in the report and the expectation that they either implement them or explain why they did not do so (IoDSA, 2016).

King III emphasised the need for shareholders to be held accountable by placing pressure on corporate governance structures to enhance the reliability and transparency of a company's non-financial disclosures, such as its corporate social

responsibility (CSR) practices. This included new areas for global governance, such as risk-based internal audits, the evaluation of boards, information technology governance, and business rescue (Sambo, 2017: 115). They embodied an emerging recognition of the advantages of a risk-informed approach to governance encompassing financial, social, and environmental aspects of development.

Nevertheless, while its scope was comprehensive, King III has been critiqued as lacking in specifically addressing the governance requirements of SOCs (Stevens, 2020: 180). Though the report has wider applicability for public and non-profit organisations, it does not provide specific recommendations to SOCs in the context of implementing the governance practices identified in the code. This distinction has been criticised, as SOCs, reformed companies operating on the potential interest of the state, spanning both public and corporate sectors, require customised or additional governance frameworks to abide by public policy objectives and national development strategies.

Despite King III being a major step forward for good corporate governance, it failed to address SOCs specifically, highlighting a challenge that persists in reconciling global governance standards with the unique realities of SOCs. This makes the application of the principles of King III in SOCs a key area for additional research and development in the South African governance environment.

iv. The King IV Code

On 1 November 2016, the King Committee published the fourth edition of the King Report on Corporate Governance in South Africa (IoDSA, 2016) which applied from 1 April 2017. The first governance change from King IV was a shift from compliance to value creation for business. This change is shown by its “apply and explain” mechanism (in contrast to the former, “apply or explain”) (De Lange, 2019: 23). It signifies a pivot towards active leadership focused on results and a departure from previous norms of transparency, accountability, and ethical governance.

The King IV Report, in particular, places an unprecedented emphasis on ethical leadership as a cornerstone of governance (Chauke & Sebola, 2018: 29). This mirrors a wider trend towards embedding ethics in business, which is noted by scholars, such as Tjano (2021: 38), showing that the report is for diversity in the boardroom.

King IV recommends that boards have a diverse mix of experience, knowledge, race, age, gender and culture to improve the quality of governance and decision-making. One of the significant aspects of King IV is the fully codified nature of governance principles that have set the standard for governance transformation in South Africa (Mashamaite & Raseale, 2019: 126).

Compared to the 75 principles contained in King III, King IV restructured governance to 17 main principles. This is a much more actionable and practical set of guiding principles better suited to the needs of the governance landscape. Arguably, one of the most significant innovations in King IV is its focus on SOCs, which is unique for any iteration of the King Code. Stevens (2020: 180) argues that this is a significant shift because SOEs face unique governance challenges, most notably, the governance demands imparted by the state as the single shareholder. Chapter 6 of King IV reflects on the governance principles for SOCs, highlighting factors such as accountability, transparency, and fairness.

All principles in King IV apply to SOCs, but there are exceptions; for example, the principle of institutional investors' responsibility for investment does not apply to SOCs (Stevens, 2020: 181). However, the principles of King IV are well aligned with existing legislative frameworks, including the PFMA and the Companies Act, which apply to SOCs. More importantly, Stevens (2020) points out that several of the governance provisions of the King IV, PFMA, and Companies Act are aligned across legislation and reinforce the same underlying themes of transparency and accountability (TC). Another practical example of this alignment is the need for SOCs to be publicly accountable, as reinforced by the Public Audit Act.

However, SOCs have found it difficult to show that they are accountable and transparent in reality despite their good frameworks (Stevens, 2020: 187). The statutory imperatives and governance recommendations are now in place, but the challenge lies in making them effective and ensuring that SOCs fulfil their social, economic, and developmental obligations. Whilst there is an overlap between the King IV principles and the PFMA and the Companies Act, as with King III, there is a commendable focus on ethical leadership and accountability in King IV that, if implemented, could enhance the governance of SOCs. The next section examines the common principles that unify these three governance frameworks and their

implications for SOC performance in more detail.

2.2.5.1 Comparison between PFMA, King IV Code Editions and the Companies Act

SOCs in South Africa are subject to the Companies Act, PFMA, and King IV. These three frameworks are based on four fundamentals that are common tenets of effective governance, which are accountability, fairness, transparency, and responsibilities (PWC, 2012: 2). Therefore, aligning these principles is essential and desirable to build a coherent governance framework for SOCs. Stevens (2020:181) asserts that the voluntary principles and practices promoted by King IV must be read in conjunction with certain key statutory requirements established under the PFMA, the Companies Act and the founding legislation of each SOC highlighting the synergetic nature of these frameworks that collaboratively promote resilient governance systems.

The PFMA and the Companies Act are particularly interrelated in the specific requirements each legislation places on directors and boards of SOCs. According to PWC (2012: 6), both enactments are broadly aligned in certain key governance-related aspects, guarding against directors who fail to discharge fiduciary duties and present adequate oversight. However, when the Companies Act and the PFMA are in conflict, the latter prevails. Thus, understanding the scope and application of these two pieces of legislation relies heavily on knowing the differences between them. PWC (2012: 6) explains that the PFMA centres more on the financial management of public entities, whereas the Companies Act addresses governance issues beyond financial management, such as corporate structure, director obligations, and shareholder rights. Table 2.2. presents the comparative analysis of the three aspects.

Table 2.2: Combining sound corporate governance practices into state-owned enterprises

Principle	Company Act	PFMA	King Reports Editions
Appointment of Board	Section 66(1) determines that a SOC must have a Board except when limited by the Companies Act or Memorandum of Incorporation. The board of a SOC should comprise at least three directors.	Section 49 (2) (a) makes provision for the establishment of a board or other controlling bodies that are the accounting authority of the entity (SOC).	Principle 7 recommends that the board or governing body should comprise the appropriate balance of knowledge, skills, experience, diversity, and independence for it to discharge its governance role and responsibilities objectively and effectively. Principle 7.8: The majority of non-executive directors should be independent.
Composition of Board Committees	Section 72(4) read with Regulation 43 determines that the board of a SOC must establish a social and ethics committee. Among other committees are the Audit Committee and the Remuneration Committee.	The board must establish an AC (Treasury Regulation 27.1.1). The Minister may request that the SOCs form a Social and Ethics committee if it is in the public's best interest.	Principle 51 recommends the establishment of the Audit Committee. Principle 66 recommends the establishment of a Remuneration Committee that comprises non-executive members. King IV urges companies that are not legally required to establish a Social and Ethics Committee, nevertheless, to consider creating a structure that would achieve the aims of such a committee.

Role and functions of the board	Section 66(1) says that a company's activities and affairs must be run by, or under the direction of, its board. The board has all of the company's powers and can do all of its work, except as set out in this Act or the company's memorandum of incorporation.	Section 51 determines that the board of a SOC must ensure that it has and maintains: Effective, efficient, and transparent systems of financial and risk management and internal control;	Principle 6: The board should act as the focal point for and custodian of corporate governance. Principle 4: The board should appreciate that strategy, risk, performance, and sustainability are inseparable.
Directors' conduct and conflicts of interest	Section (76) requires directors to act in good faith and in the best interests of SOCs, with the anticipated degree of care, competence, and diligence.	Section 50 provides that the board of a SOC must: Act with sincerity, honesty, and integrity in managing the SOC's financial affairs. A director of the board may not: Act in a way that is consistent with the responsibilities assigned to the board in terms of the PFMA. The director must disclose to the board any direct or indirect personal or private business interest in any matter that the member or any spouse, partner, or close family member may have.	The board of directors must always act in the company's best interests. Part 5.5 recommends that the board should adopt a stakeholder-inclusive approach that balances the needs, interests, and expectations of material stakeholders in the best interest of the organisation over time.

Function of the AC	Sections 94(4) and (5) specify that the committee must have a minimum of three members who are both directors of the SOC and are independent, as defined. Audit Committee to prepare a report to be included in the annual financial statements for that financial year.	Section 77 states that the AC should comprise at least three persons and must meet at least twice a year. Treasury Regulation 27.1.6–13 requires the AC to work under specified terms of reference that sufficiently address its composition, jurisdiction, and responsibilities.	Oversee integrated reporting, which consists of an integrated financial and sustainability report. Ensure that a combined assurance model is applied.

Source: Developed by the researcher from PWC, PFMA & King IV (2022)

In light of the above comparison, the table addresses the issues that might overlap, and it seeks to strike a balance between statutory requirements and strong corporate governance practices in SOCs. All companies listed on the Johannesburg Stock Exchange (JSE) must conform to the King Code. In contrast, compliance by SOCs and public entities is voluntary (Tjano, 2021: 41). PWC (2012: 3) affirms this, stating that, while not required by legislation, the boards of SOCs should consider the recommendations in the King Code.

2.2.6 The Public Audit Act 25 of 2004

The enactment of the Public Audit Act (No. 25 of 2004) was a major milestone for improving the TC of government departments, public entities, and SOCs. The Act also affects constitutional provisions establishing and defining the Auditor General of South Africa's (AGSA) functions. The AGSA conducts audits of public sector institutions, facilitates accountability to the AGSA, and amends and repeals outdated laws, among other functions. As an institution of the state that supports constitutional democracy, as defined in the Constitution, the AGSA's fundamental role is to protect public finances and assist in the state's effective governance.

The AGSA plays an important role in the management of public finances, which must be supported by internal controls and audit processes in public institutions (Sambo, 2017). The AGSA is an independent watchdog that reviews the reliability and correctness of financial information reported in state institutions. Section 3(a) of the Public Audit Act requires every SOC, public entity, or government department that receives a vote on the national budget to be audited regularly.

Stevens (2020) notes that, after the Auditing Profession Act (APA) 26 of 2005 was enacted, both the AGSA and independent registered auditors must audit SOCs. However, even if SOCs wish to appoint an independent auditor, they are required to obtain the AGSA's approval. This is to ensure that, when an external audit is engaged, AGSA has oversight over the auditing process. As a result, the governance requirements for SOCs stipulate that each SOC elects a registered auditor at its annual general meeting of shareholders (Stevens, 2020: 91).

2.2.6.1 Public Audit Act 25 of 2004

As Stevens (2020: 89) indicates, the auditors of SOCs are subject to regulatory standards that aim to provide a true account of the financial and operational position of the SOC on a fiscal yearly basis. These standards are meant to improve TC in public sector reporting. Apart from the auditing-related requirements, SOCs are governed by a framework that requires a board of directors, an AC, and a social and ethics committee. The presence of an AC is valuable in defending the internal audit function's independence and, therefore, the integrity and credibility of financial oversight (Sambo, 2017: 49).

Establishing an independent AC is a best practice and a legal requirement under the PFMA, the Companies Act, and the King IV Report on Corporate Governance. These frameworks stipulate that the AC must ensure that management and the board of the SOC meet the targets set out in the SOC's Annual Performance Plans (APPs) and the shareholders' compact. Consequently, the audit report, whether issued by the AGSA or an independent auditing firm, must provide a comprehensive account of the financial and non-financial performance of the SOCs (Legodi, 2021: 5).

2.2.7 Regulatory and oversight roles of various constitutional bodies

In addition to the legislative frameworks discussed earlier in this chapter, several other regulatory oversight bodies and acts govern South African SOCs. This research focused specifically on legislation that applies to all SOCs under the DPE. The National Treasury Regulations, Companies and Intellectual Property Commission (CIPC), and the Standing Committee on Public Accounts (SCOPA) bodies ensure that SOCs function within the law and promote transparency, accountability, and good governance. The next sub-section discusses these constitutional bodies and their particular roles and relations with SOCs in more detail.

2.2.7.1 The Companies and Intellectual Property Commission (CIPC)

The Department of Trade and Industry (DTI) published the "Proposed Guidelines for Competition Policy" in November 1997, which contains a wide-ranging legislative reform programme for evaluating current securities regulations, corporate governance practices, and the organisations dealing with the regulation of corporate structures

(South African Company Law [SACL], 2004: 7). The overarching competition policy reform agenda was further bolstered by the enactment of the Competition Amendment Act 18 of 2018 on 13 February 2020, introducing a critical set of updates to enhance competition policy (South African Competition Commission, 2020). Voller (2008: 15) argues that, while regulatory reform is not enough, an overt institutional arrangement with designated roles is paramount if the Companies Bill's directives are to be implemented successfully.

The Companies Bill created the Companies and Intellectual Property Commission (CIPC) and consolidated the functions of two earlier agencies: the Office of Companies and Intellectual Property Enforcement (OCIPE) and the Companies and Intellectual Property Registration Office (CIPRO). While the CIPC plays a key role in corporate governance, it does not prescribe a single performance measure to assess SOCs' compliance. The SACL (2004) is the guiding principle that was established to guide companies, organisations, and SOCs to report on their financial and non-financial performance to facilitate accountability and transparency.

While the amended company law offers companies greater operational flexibility, it also places greater emphasis on accountability and transparency. This is intended to provide a business framework aimed not simply at a more efficient allocation of resources but also at further transparency of company performance, asset management and ownership (SACL, 2004: 28). The guidance aims to provide a balance of flexibility and oversight to strengthen SOC governance and operational effectiveness.

2.2.7.2 Standing Committee on Public Accounts (SCOPA)

The AGSA states that one of the key parliamentary committees is the National Assembly Standing Committee on Public Accounts (SCOPA), whose function is to hold the Executive to account for how they spend taxpayers' money. The AGSA produces in-depth reports annually on the financial management and accounts of various government departments and state institutions. As part of its function, SCOPA routinely calls for presentations from heads of these departments and state institutions to explain and account for their spending.

The core responsibility of SCOPA is to address issues and audit findings raised in the

AGSA's reports, as well as to ensure compliance with the PFMA, Treasury Regulations, and the reports of ACs and accounting officers (Tjano, 2021: 43). SCOPA's activities promote public accountability and transparency within all state organs. A key principle shared across the legislative frameworks and governing bodies discussed in this chapter is the obligation for SOCs, as well as other organs of state, to comply with all relevant legal prescripts, including the PFMA, National Treasury Regulations, and the Companies Act.

These frameworks depend on accountability, which SCOPA operationalises through its oversight powers. The review of the audit reports of SOCs prepared by the AGSA is where SCOPA ensures the financial performance of SOCs (Matebese-Notshulwana, 2019: 115). Notably, SCOPA's main focus is on financial performance, while non-financial and developmental performance is covered by compliance requirements enshrined in the shareholders' compact.

2.3 Theoretical framework

A theoretical framework is a logical and coherent structure of ways of thinking and principles, based on one or more theories, used by researchers to inform and guide their research (Varpio, Paradis, Uijtdehaage & Young, 2020: 987). This framework enables handling real-world challenges by providing lucidity and guidance in structuring research (Boamah, 2020: 102). Researchers note that no single theory can adequately explain the richness of phenomena attributed to organisational performance, particularly SOCs (Mbele, 2015: 2) and commonly rely on numerous theories to institute a theoretical framework. Within the context of SOCs, various factors, including political, economic, and social dynamics, limit performance, highlighting the significance of the polytheoretical approach.

Adebayo and Ackers (2024), Mulenga (2024), Mpete and Maier (2024), Kaunda and Pelser (2023), and Tanwer and Garg (2024) claim that theoretical perspectives, such as agency theory, stakeholder theory, legitimacy theory, accountability theory, resource dependency theory and stewardship theory, can be used to examine the operations of SOCs. This includes factors that affect SOC performance governance that include structures, external relationships, and resource management.

Despite the abundance of literature on the theory of SOC and its wide application in

research, SOCs in South Africa have seen little improvement in their performance. To establish the reasons for this, this study used four theories, namely, legitimacy theory, stakeholder theory, agency theory, and stewardship theory, to analyse SOC performance in the South African context. This study addressed these issues by combining the theories within the model to provide an organising framework to assess the performance and accountability of SOCs and direct future efforts to increase their effectiveness.

2.3.1 Legitimacy theory and state-owned companies (SOCs)

The origins of legitimacy theory can be traced to the social and environmental accounting literature, with its formal emergence commonly attributed to publications in 1989. SOCs need to achieve their socioeconomic mandate, which includes the delivery of financial and non-financial social benefits. Success in addressing both goals is a bilateral route: SOCs gain legitimacy through societal approval, while society supports those companies that fulfil social and economic expectations (Burlea-Schiopoiu & Popa, 2013). Legitimacy theory explains this relationship in which a company action has legitimacy when it is aligned with the expectations and norms of the broader social context (Suchman, 1995: 574).

Legitimacy theory is used to explore corporate disclosure practices, particularly social, environmental, and performance reporting (Deegan, Rankin & Tobin, 2002: 318). As companies seek to comply with social pressures, legitimacy theory provides insight into the reasons for corporate transparency (Dumay, De Villiers, Guthrie & Hsiao, 2018: 15). Legitimacy theory also poses challenges. In terms of social and environmental problems, as well as performance issues, legitimacy theory can impede SOCs' ability to yield positive financial returns (Zijl, Wöstmann & Maroun, 2017: 74).

Legitimacy informs SOCs' interactions with diverse stakeholders. Effective leadership that follows a commitment to legitimacy ensures that business activities are aligned with societal expectations (Tjano, 2021: 53). Leaders may develop divergent legitimacy strategies that affect how the public perceives the SOC's ability to meet social mandates (Deegan et al., 2002: 319). Not fulfilling these social contracts can threaten the SOC's legitimacy and its survival.

SOCs' lack of strong financial performance reflects their inability to fulfill their social

responsibilities. Such dissonance could lead to selective disclosure of their performance and sustainability data, especially in shareholders' compacts or social contracts, to protect the company's image (Brusca, Labrador & Larran, 2018: 349). According to Chikutuma (2018: 22), when management recognises a conflict between the firm's financial performance and legitimacy, it is expected to implement corrective actions that include:

1. Education and information: Informing relevant stakeholders about company performance and activities changes.

2. Changing perceptions: Shifting public perceptions without altering actual behaviour.

3. Manipulating perceptions: Using emotive symbols to deflect attention from controversial issues.

4. Altering external expectations: Redefining stakeholder expectations to prevent perceived overstepping of boundaries (Gray, Kouhy & Lavers, 1995: 54).

Savage, Gilbert, Rowlands, and Cataldo (2001: 26) suggest that strategic legitimacy theorists anticipate frequent clashes between management and society regarding legitimating activities. These activities can take two forms: substantive (where the company makes tangible changes to align with societal values) or symbolic (where the company presents itself as compliant with social norms without making real changes).

Though widely used, legitimacy theory has also been criticised. According to Owen (2008: 248), it tends to be used as a justification for management actions that serve the interests of company heads rather than furthering transparency and the accountability of stakeholders. Additionally, the theory emphasises positive outcomes and ignores negative consequences, particularly financial scandals or operational crises that can undermine a company's legitimacy. In the case of state-owned entities, such as Eskom and the SABC, accountability failures have been linked to a misalignment between the state's interests and other stakeholders, undermining the legitimacy of these entities (Mbele, 2015: 20).

Legitimacy theory has also been criticised for being vague, especially with regard to

selective reporting. The theory provides limited insight into why certain matters are excluded or why companies disclose some information but not others (Fernando & Lawrence, 2014: 155). Legitimacy theorists view corporate management as primarily concerned about its survival and profitability (Deegan, 2018: 2319), which does not acknowledge the complexities of stakeholder relations fully. While this makes it easier to analyse SOCs, it overlooks the broader expectations placed on SOCs to meet not only a financial but also a social mandate and, as a result, there are increasing demands from shareholders and other stakeholders for legitimacy in these companies' performance.

Nevertheless, legitimacy theory remains relevant to the study of SOCs, particularly as these entities are continuously safeguarding a social contract with their stakeholders (She & Michelon, 2019). As Tjano (2021: 56) argues, the legitimacy theory continues to be significant due to stakeholders' interests in both financial sustainability and social legitimacy. As a result, SOCs must disclose their performance information to shareholders and the general public, thus proving their commitment to legitimacy. This reflects the fact that the reporting required under the PFMA includes not only the annual reports and financial statements but also shareholder compacts and lists of PFMA compliance.

Given its emphasis on aligning stakeholders' interests to gain legitimacy and maintain organisational relevance, legitimacy theory provided the theoretical foundation of this study. The focus of this theory on societal approval and expectations of the stakeholders was particularly valuable for understanding the performance challenges of SOCs. This theory provides a practical methodology for studying and enhancing the overall performance of SOCs by understanding their need to conform to external pressures and abide by social norms in order to maintain their legitimacy.

Legitimacy theory suggests that SOCs should conform to prevailing social norms and seek societal approval. This indicates that SOC performance does not rely only on internal efficiency or market conditions but is also influenced by legitimacy derived from external stakeholders. In this sense, stakeholder theory served as a complementary lens for this study by showing that SOCs have a dual responsibility to manage and meet the interests of multiple stakeholders, including government, employees, citizens, and suppliers, who determine and influence their operational

success and legitimacy in the public eye.

2.3.2 Stakeholder theory and SOCs

Starting in the 1970s, Freeman (1984) conceived stakeholder theory as a managerial ideology or a way to manage the balance between stakeholders (Nkosi, 2020: 55). Freeman (1984) argues that corporates must consider stakeholder groups, such as employees, suppliers, customers, and the community, in addition to shareholders. According to Mbele (2015: 37), stakeholder theory emerged as a managerial discipline that advocates for an organisational approach in which managers build and maintain a network of relationships with diverse groups. Rather than being a singular or static framework, this theory encompasses a range of perspectives that include business ethics, CSR, strategy, finance, and corporate governance (Miles, 2015: 437).

A core principle of stakeholder theory is that effective management of stakeholder relationships contributes directly to the realisation of performance goals for the firm. Therefore, stakeholder management is positively related to company performance (Gilbert & Rasche, 2008: 761). Chikutuma (2019: 30) believes that managers should consider all stakeholders' interests as a priority. This means that a company's primary purpose is not only to be profitable but also to meet the expectations of stakeholders through responsible accountability and transparency.

Critiques of stakeholder theory emphasise its potential limitations. Mbele (2015: 38) maintains that the wider the scope of a company's responsibility to society, the more genuine accountability is diluted as it undermines private property rights and individual autonomy. Limbo (2019: 64) notes that this can lead to behaviour that is incompatible with traditional business and corporate governance assumptions that can diminish financial prosperity and managerial agency. Chikutuma (2019: 29), on the other hand, advocates for the ability of stakeholders to consent or not to decisions concerning the future direction of the company, which implies a more stringent form of stakeholder engagement.

These differences reflect continuing debates in the literature but do not undermine the underlying principle that managers, as the company's agents, are ultimately responsible to stakeholders for the company's success. Stakeholders are internal role players, such as shareholders (usually the minister of the department), employees,

and managers, as well as outside actors such as customers, suppliers, investors, and the wider community (Legodi, 2021: 2). Maintaining the interests of these groups is difficult as they have different and occasionally even conflicting demands from the organisation (Mbo, 2017: 6). For example, while financial performance may be a shared interest among all stakeholders, the social and developmental mandates of SOCs often introduce additional expectations that complicate the alignment of stakeholder interests.

Prior to the release of the State Capture Report, public concerns about the poor performance of South African SOCs had undermined their legitimacy, as they failed to meet essential service delivery and social mandates (Nyamita, 2014: 6). According to Chikutuma (2019: 33), a company could regain legitimacy by following the principles of stakeholder theory, for instance, transparency and ensuring that all stakeholders are aware of the activities of the company. This is important as South African SOCs have faced challenges of mismanagement and corruption (Madumi, 2018: 60). Tjano (2021: 46) emphasises that managers in SOCs must always be stakeholder-oriented and lead according to ethical leadership principles to overcome the negative influences of poorly governed structures.

Though some may perceive it as a threat to performance, stakeholder theory argues that ethical management is necessary to honour stakeholder needs and create superior organisational outcomes, both financially and socially. Stakeholder theory also contributes to governance structures. According to Mbele (2015: 38), stakeholder theory has influenced the structure and functions of SOC boards, which may affect decisions on board membership to meet the expectations of civil society and business groups. Consequently, Chikutuma (2019: 33) points out that the board holds management accountable to all stakeholders and ensures that the company's actions align with stakeholder interests.

Mbo (2017: 7) contends that addressing the interests of all stakeholders can distract companies from the performance-oriented behaviour required to achieve excellence. Despite its critiques, stakeholder theory was significant for this study, which used a theoretical frame grounded in stakeholder theory to examine the link between stakeholder management and the organisation's performance. The study used content analysis of the annual reports of South African SOCs to consider the feasibility of a

PCI as a mechanism to assess the performance of key South African SOCs. As Chikutuma (2019: 34) states, annual reports are vital tools for corporations to manage stakeholder communication as they are designed to reveal company operations and build trust through transparency. Stakeholder theory highlights the need for SOCs to balance the interests of external groups and stakeholders to improve performance and legitimacy; however, it also assumes that these varied stakeholders have common organisational goals (Harrison & Wicks, 2013).

On the other hand, agency theory offers a different perspective, emphasising the principal-agent relationship within the SOC, wherein managers (agents) might not always act in line with the interests of the government or the public (principals). According to agency theory, SOC performance may be affected by managers who pursue private benefits or a short-run objective to the detriment of long-run organisational performance (Qian, Crilly, Lin, Zhang & Zhang, 2024: 360).

2.3.3 Agency Theory and SOCs

Agency theory originated from the foundational work of Ross and Mitnick, with further conceptual development by Alchian and Demsetz (1972), who laid the theoretical groundwork for understanding the principal-agent relationship. The theory was subsequently formalised and popularised by Jensen and Meckling (1976: 305), who provided a structured explanation of agency costs and the contractual nature of firms, which concerns the contractual connection between two or more parties, the principal and the agent. In this concept, the principal is normally the shareholder, while the agent refers to the company's management or executives. In the context of SOCs, the minister (through their respective government department) provides the SOC with its principal, whilst the executives and non-executive directors supervise and manage the operation of the SOC (Limbo, 2019: 58). According to agency theory, the principal hires the agent to act in their best interest, running daily operations and making the company prosperous in the long run.

Agent-based approaches are predicated on the notion that the agent will act to maximise the returns of the principal, leading to better rapport and aligned objectives. However, conflicts often arise in the principal-agent relationship because of differing interests. Ferrer and Ferrer (2011: 84) acknowledge that the pursuit of benefit (e.g., a

higher bonus) by the agent may lead to decisions inconsistent with those of the principal. These conflicts in SOCs can manifest in various forms, where managers place their own personal or political interests above the broader public or developmental goals that the government expects (Bathula, 2008: 23). A lack of objective congruence also aggravates the agency problems, for example, if the shareholders are interested in profit maximisation, while the agents have competing interests such as risk aversion or career orientation (Tjano, 2021: 50).

Agency problems cause information asymmetry as agents (which include managers) of the company have more information and, therefore, more knowledge about the company operations than the principal (the government or public stakeholders). This imbalance may lead to inefficiencies in decisions or hinder accountability (Al-Shammari, Brown & Tarca, 2008: 6). Shawtari, Mohamad, Rashid and Ayedh (2016: 1066) argue that this information gap results in a lack of trust and transparency. In response to this concern, several mechanisms have been proposed, such as establishing independent boards of directors or utilising ACs to oversee managerial conduct and ensure alignment with the principal's goals (Limbo, 2019: 78). However, information asymmetry is often more prevalent in state-owned companies than in private firms due to the complex political nature of public sector enterprises (Shawtari et al., 2016: 1066).

Literature on the relationship between agency theory and SOC performance has shown its relevance and limitations in understanding SOC performance. Moreover, effective corporate governance by agency theory significantly improves SOC performance (Abang'a et al., 2022; Kaunda & Pelser, 2023; Marimuthu, 2021; Tanwer & Garg, 2024). According to Carlson and Bussin (2020: 4), the focus of agency theory on strong governance and accountability mechanisms, particularly with respect to independent directors, has the potential to improve performance by reducing agency costs and enhancing monitoring. In fact, agency theorists argue that independent directors without personal interests in the SOC are better positioned to monitor management and protect the principal's interest than others (Shao, 2019: 303).

However, Mbele (2015: 34) criticises agency theory for its assumption that agents are only driven by self-interest and do not have altruistic or broader public-minded objectives. The theory's concern with self-serving behaviour fails to account for the

complexity of human motivation and managerial choice and action, especially in the public sector, where it is more likely that agents will have a diverse set of motivations (Eisenhardt, 1989: 59). Furthermore, behavioural theorists contend that the assumption of risk-neutrality in agency theory, which asserts that principals and agents share the same risk probability, fails to consider the stakeholders' independent risk appetites and orientations (Martin, Gomez-Mejia & Wiseman, 2013: 36). This criticism posits agency theory as an unsatisfactory, reductive accounting of risk and human behaviour interplay.

Political connection and the separation of control and ownership in SOCs challenge the application of agency theory. According to Limbo (2019: 35) and Moser and Shabanaj (2019: 4), the fragmented ownership and control structures in SOCs, in which political pressures tend to play a significant role, amplify agency issues and weaken performance. Due to the interests of different stakeholders and political interference, the agent's actions may not always be in the public interest in a multi-faceted environment (Kanyane, 2018). These different objectives result in bad decision-making, poor efficiency, and corruption, culminating in high-profile cases in South Africa's SOCs.

Notwithstanding the criticisms directed at agency theory, it does yield useful two-way insights into the dynamics between the principals and the agents, especially with respect to governance and performance in SOCs. However, its core assumptions around self-interest, risk neutrality, and information asymmetry are gross limitations, especially in the public space. The greater interest in the agent-principal theory is in the assumption that agents have an inherent tendency towards self-interest and tend to prioritise their own interests over those of the principal, regardless of the context, which is not a particularly nuanced view of human behaviour, especially at the level of public interest and ethical governance.

Although the agency theory offers valuable explanations for some governance challenges that impact SOCs' performance, its fundamental assumptions, including self-interest as primary and the omission of political dynamics, make its applicability in the public sector restrictive. Such limitations have underscored the need for a more holistic and nuanced theoretical approach to SOC performance. This research includes agency theory issues, especially regarding possible misalignment towards

managers and other stakeholders. Consequently, agency theory serves as the theoretical underpinning of this research.

Stewardship theory discussed provides a more appropriate and compelling framework for observing the behaviours and performance outcomes within SOCs. Stewardship theory contrasts with agency theory, emphasising interest alignment between agents and principles, with directors acting as stewards rather than pursuing their economic self-interests (Keay, 2017: 1302).

2.3.4 Stewardship theory and SOCs

Donaldson and Davis introduced the stewardship theory in the early 1990s. Stewardship theory argues that principals and agents have common interests and that the parties must cooperate for the greater good of the organisation (Martin & Butler, 2017: 4). Under this framework, the principals and agents are viewed as partners working toward the same goal, with agents acting as stewards who make organisational goals a higher priority than their own vested personal interests. This focus on collaboration over control emphasises the nature of the management and board dynamics in steering the organisation to meet its strategic objectives, with the board acting more as advisors and mentors rather than simply monitors (Sundaramurthy & Lewis, 2003: 399).

Stewardship theory highlights the importance of the ethical and personal characteristics of managers, who are defined as stewards that act with integrity, honesty, and commitment to their duties (Hills, 2022: 39). Unlike agency theory, where information asymmetry between principal and agent is the problem, stewardship theory emphasises mutual trust (Rouault & Albertini, 2022: 494). Stewards should act in the organisation's best interests, sometimes sacrificing their own well-being for the company (Jasir, Khan & Barghathi, 2023: 283). Managers are driven not by financial gain but rather by a genuine sense of duty to the company and its stakeholders (Mbele, 2015: 36).

Proponents of stewardship theory argue that stewards are inherently driven to optimise corporate profit, improve organisational performance, and deliver long-term shareholder value (Tjano, 2021: 46) in contrast to the classic agency theory perspective where agents are chiefly motivated by self-interest and thus must be

heavily monitored to assist the principal in achieving their goals. For example, executives and managers must protect and multiply their shareholders' value. They are public stewards responsible for balancing competing interests in pursuit of the organisation's collective good (Limbo, 2019: 61). Consequently, stewardship theory argues that, when managers take on a stewardship role, they are inclined to prioritise the success of the SOC and its stakeholders over their personal gratifications; hence their personal goals align with those of the SOC (Mbo, 2017: 7).

However, stewardship theory is not without its criticisms. Recent corporate scandals (Thabane & Van Deventer, 2018: 8), including corporate speculation, excessive incentives, and cash flow engineering, have discredited the stewardship model of governance. These events point to the dangers of unmonitored stewardship that can arise without effective oversight. Rahmawati (2018: 97) criticises the theory for having excessive idealism through believing that human behaviour abides by the rules. This has implications of being too compliant for every agent, causing bureaucratic drift and inefficiency of the organisation. Mbele (2015: 36) also argues that stewardship is not a wholesome end unless adequate controls are exercised over the organisation, as the presence of stewardship without accountability and external checks can lead to poor organisational outcomes.

These shortcomings of stewardship theory are particularly pronounced for SOCs that are regularly cited for poor governance and maladministration. According to Kikeri (2018), SOCs in South Africa have been fraught with challenges such as corruption, mismanagement, and poor performance. This shows the need for principles of governance that encompass agency theory's proposal of stewardship principles and realise the ideal of stewardship with the relevant mechanism to ensure it. Since stewardship theory emphasises the moral responsibilities of managers, it should be supplemented with stronger accountability mechanisms that guarantee that organisational objectives are achieved without compromising transparency and authority (Schillemans & Bjurstrøm, 2018: 668).

Moreover, stewardship theory highlights the presence of non-financial incentives such as the desire for success, recognition, and ethical duty. The implementation of stewardship theory for SOCs is conditioned by organisational structures and managerial capabilities (Bathula, 2008: 26). For instance, motivating behaviour in

these organisations could be a transaction balancing intrinsic drives and extrinsic factors (performance targets, and compliance. As such, effective stewardship constitutes an ethical commitment, as well as the capacity to adjust the organisational structure and assets of the organisation to the long-term goals of the enterprise (Mbo, 2017: 110).

However, in some organisations, where stakeholders' long-term goals match stewards' intrinsic motivations, stewardship theory is still valid despite its critiques. These principles, however, may require rethinking in the context of complex corporate governance (Tjano, 2021: 58). The interactions between principal and agent should be optimised to engender trust and accountability within SOCs. While stewardship theory has gained recognition in various fields, there is still limited literature on how SOCs can implement these principles to improve performance.

Despite a range of critiques associated with stewardship theory, it remained utilised as the study's theoretical framework due to its potential to provide insights into SOCs' challenges and a way of addressing them. Unlike other theories, stewardship theory focuses on aligning organisational and managerial goals. It highlights trust, cooperation, and long-term commitment, which is highly applicable to the public sector. Contributions to these subjects will illuminate how SOCs can address governance challenges and enhance their performance across issues, including managerial discretion, accountability, and the trade-off between public service and financial performance.

2.4 Conceptual Framework

This section reviews existing conceptual indices relevant to evaluating SOC performance. It proposes a Performance Compliance Index (PCI) composed of four integrated components, PFMAi, CGI, HCI, and DPI to holistically assess financial, non-financial, and developmental performance.

Varpio et al. (2020: 7) describe the conceptual framework as the critical component in justifying a particular study by providing its theoretical and methodological foundation. Furthermore, the authors point out three purposes of the conceptual framework: (1) to review the existing body of knowledge comprehensively by highlighting literature relevant to the topic of interest; (2) to elucidate areas where there is a gap of

knowledge regarding a phenomenon or problem; and (3) to establish the methodological approach that will guide the research. This includes addressing two basic questions: "Why is this study important? And “What do these findings contribute to our current knowledge?”

In this regard, the conceptual framework that directed this investigation was derived from performance compliance indices (PCIs) involving the PFMAi, CGI, HCI, and DPI. Such indices are particularly useful as they incorporate financial, non-financial, and developmental performance variables, which provide a composite view of organisational performance. This PCI is important because it provides the performance measures required to explore SOCs' performance in multiple ways.

These indices are detailed below to evaluate their capability to enhance SOC performance. The study investigated the applicability of each index on the performance yardsticks of SOCs to establish whether they lead to better accountability, transparency, and performance. This examination delineated the indices' relative advantages and disadvantages in establishing an enabling environment for better governance and performance outcomes. It also evaluated the sufficiency of these indices in addressing the multidimensional issues SOCs encounter, particularly whether management approaches reflect broader development goals and shareholder expectations.

2.4.1 PFMA Compliance Index

The PFMA mandates compliance by all government departments, SOCs, municipal-owned companies, and public institutions in South Africa. The PFMA seeks to regulate the management and expenditure of public funds to ensure transparency, accountability, and efficient use of taxpayers’ money. Balbuena (2014: 8) notes that the PFMA establishes a financial framework that grants SOCs operational and managerial autonomy, yet this autonomy is coupled with accountability for how public resources are utilised. The Act's overarching goal is to enhance financial management within SOCs, although some institutions continue to face challenges in fully complying with its provisions (Nair, 2006).

The PFMA categorises SOCs as either commercial or non-commercial under various "Schedules" (Balbuena, 2014: 1). Moreover, the PFMA delegates the executive

leadership to implement key governance processes, including corporate plans, shareholder agreements, and quarterly financial statements (Du Toit, 2005: 5). These are the structures that hold SOCs accountable for their performance; they also ensure that the public policy and national objectives correspond to financial and operational activities in the SOC.

Quantifying compliance with the PFMA checklist for SOCs remains a challenge. Although the PFMA gives a clear direction for financial oversight, the implementation of PFMA in the SOCs is complex. This creates the tendency for SOCs to see compliance as a “tick-box” exercise with regard to penalty avoidance for non-compliance rather than as a substantial commitment to the governance standards (Sambo, 2017: 95). However, this process is necessary for objective measurement and standardisation of what is considered acceptable and unacceptable compliance.

The PFMA created an opportunity for management to provide explanations for deviations from compliance, implying a level of discretion with respect to enforcement (Sambo, 2017: 180). The level of compliance required from SOCs, and acceptable levels of non-compliance are not always clear due to the adherence (or a lack thereof) to the PFMA checklist. SOCs are not able to adhere to the PFMA in isolation from the stricter requirements of other Acts, including the Companies Act (PWC, 2012: 12). Accordingly, Table 2.3 lists all PFMA checklists for public entities that SOCs must comply with.

Table 2.3: PFMA Checklist for Public Entities

Compliance	Section	Description	Activity Checklist
Corporate management	49	Accounting Authority	Function by the board or CEO as AA
	TR 27.3.1	Chief financial officer (CFO)	CFO head of finance department
	56(1)	Delegation of authority	Accounting authority's function transferred to other authorities
	51(1)(a)(i)	Internal control	Effective and efficient financial, risk management and internal control
Planning and budgeting	52	Annual budget, corporate plan and shareholders' compact	Projection of revenue, expenditure and borrowings, corporate plan, shareholders' compact
	53(1)	Annual budgets	Submit a budget to the executive authority
Reporting	Tr 26.1.1	Quarterly reporting	Procedures to report quarterly to the executive authority
	55	Annual report and financial statements	Annual report, audited financial statement and audit report submitted to the AA
Cash management, banking and investment	51(1)(b)(iii) TR 31.1	Cash management	Effective and efficient system, procedures and process.
	TR 31.2.1.	Banking	Banking accounts submitted to the National Treasury by 31 May of each year
	TR31.3.1 TR31.3.2	Investment	Investment policy

Source: Developed by the researcher from the PFMA checklist (2021)

Section 49 of the PFMA describes the Accounting Authority (AA), an institution that oversees fiscal operations and general fiscal compliance within SOCs. This responsibility is often assigned to the board of directors or the CEO (PFMA, 1999). A well-structured delegation of authority in this framework will ensure that public funds are used properly, and that management follows good governance principles. Jizi (2017: 641) argues that the board of directors is responsible for the company's strategic direction, wealth distribution, and business strategies that ensure sustainability, whereas the CEO is responsible for the company's operational direction.

Treasury Regulation (TR) 27.3.1 addresses the responsibilities of the CFO regarding the reliability, effectiveness, and compliance of financial management activities for the SOCs. For instance, Bussin and Ncube (2017) showed empirically that appointing an able CFO benefits the financial performance of SOCs. This mirrors the principles of agency theory, wherein agents (or executives and management) are meant to act on behalf of the principal (or shareholders or the state), which controls the principal-agent conflict and agency cost (De Camargo, Seles, Jabbour, Mariano & De Sousa Jabbour, 2018: 115).

Furthermore, internal controls, by applicable laws and regulations, contribute to the proper functioning of SOCs. Younas and Veersamy (2024: 579) found that strong internal control systems lead to accurate financial reporting, secure assets, and efficiency in operations. Sari, Lubus, Maksum and Lumbanraja (2018:681) agree that robust internal controls enhance both corporate governance and organisational output. Conversely, failing to comply with internal controls can result in inefficiencies, resource mismanagement, and may have legal repercussions.

PFMA also includes elements of budget and financial statement planning. Section 52 of the PFMA requires SOCs to project revenue, expenditure, and borrowings in accordance with their strategic objectives and the national fiscal framework. The budget is an important instrument of financial control, public policy, and accountability (Mark & Atairet, 2022: 179). It is about cost management in a manner that optimises efficiency and aligns with critical company objectives (Mittal, 2024: 3).

In addition, Section 51(1)(b)(iii) and TR 31.1 require SOCs to disclose their activities quarterly and annually, which detects early identification of financial issues and

enhances transparency. Quarterly reporting positively affects monitoring financial health and corrective actions (in real time), unlike interim reporting provisions that aim to ensure timely financial and operational oversight of SOCs (National Treasury, 2014: 2). Annual reporting provides accountability by giving stakeholders, such as government officials, investors, and the public, a summary of the SOC's finances. Such transparency increases stakeholders' confidence and solidifies SOCs' legitimacy.

The PFMA highlights another key tenet of the Act itself, which is effective cash management, especially noting it in Section 51(1)(b)(iii) and TR 31.1. This content ensures the liquidity of the SOCs, cessation of disruptions in operations, and the fulfilment of their financial obligations. Therefore, SOCs must submit their banking details to the National Treasury by 31 May annually so that allocations or equity injections are deposited in the correct accounts (National Treasury, 2023).

Lastly, TR 31.3.1 and TR 31.3.2 require SOCs to follow an investment policy informing sound investment decisions that should match the objectives of the public sector. Huo, Zhao and Dong (2024: 5) assert that these policies reduce agency costs that could occur if managers put their private interests ahead of the shareholders or the general public. This ensures that investment decisions support long-term value creation and are consistent with national development objectives.

SOCs fulfil their mandates and obtain the public's trust by meeting the requirements of the PFMA and relevant Treasury Regulations. The PFMA checklist facilitates government finance management, accountability, and governance. By adhering to these regulations, SOCs can reduce the risk of financial mismanagement, which allows them to align with corporate and national priorities, and to be aligned with economic development dividends in the long run. Enhanced compliance provides greater financial transparency and input and strengthens the effectiveness and credibility of SOCs in pursuing their public service mandates.

2.4.2 Corporate Governance Index (CGI)

Corporate governance (CG) has emerged as a framework concept in the private and public sectors around the world for assessing good governance for organisations.

Corporate governance emerged in the 1990s as the cornerstone of effective management, transparency, accountability, and ethical practices. According to Rossouw, Van de Watt and Malan (2002: 280), “corporate governance gained momentum following the separation of ownership and control in a company. The separation between owners and managers created a conflict of interest that needed to be reconciled to ensure that management behaves in the best interests of shareholders. This, in turn, led to the emergence of corporate governance”.

Solomon (2007: 55) defines corporate governance as a system of oversight and control that ensures management operates in a manner that benefits shareholders. This process encompasses institutional factors, including the appointment of directors, managers, and regulators who oversee the organisation’s activities and ensure the effective production and distribution of goods and services (Turnbull & Prison, 2013: 18). Thus, corporate governance is more than just regulatory compliance; it supports the company's entire strategy by establishing a structure that fosters organisational performance, decision-making, and stakeholders' interests (Nwoye & Agwu, 2017).

Today, many countries adopt the principles of good governance into their national corporate governance frameworks, such as the CGI. These principles include aspects such as the board's composition (diversity, gender, size of the board), establishing audit committees, and creating social and ethics committees. These ensure that companies operate with accountability, transparency, honesty, and fairness and safeguard stakeholders' interests (Efunniyi, Abhulimen, Obiki-Osafiele, Osundare, Agu & Adeniran, 2024: 1599).

i. Board of structure and composition

The composition and functioning of the board of directors is one of the key principles of good governance. Good governance and governance oversight depend on the quality of the board of directors (Tjano, 2021: 20). The CGI places the structure and composition of the board at the most basic level of governance. Joubert (2020: 25) explains that the two predominant models of board structure are the one-tier model and the two-tier model. In a one-tier system, typically used in most jurisdictions, the board is the highest decision-making body, and its members have two roles: creating strategy and monitoring management that are the complementary functions of legal

and business significance.

The more common two-tier system in many European countries has a management board and a supervisory board. The management board runs day-to-day operations, and the supervisory board, which has a vertical hierarchy, oversees and advises the management board. However, in South Africa, the one-tier model is the most widely dopted as the board determines the company's vision, mission, and values and develops and implements strategies that result in the organisational performance (Abang'a et al., 2022; Coletta & Lima, 2020).

These functions require board members to be independent, knowledgeable, and experienced individuals. Empirical studies reveal that the independence of the board members facilitates organisational performance as independent directors are more likely to prescribe objective oversight and strategic direction (Al-Gamrh, Al-Dhamari, Jalan & Afshar Jahanshahi, 2022; Abdullah, Yusoff, Islam & Ahmad, 2021). Furthermore, Obeitoh, Buusson and Yusuf (2023) and Osazevbaru, Ogwu and Demaki (2023) find that board members' qualifications, expertise, and experience affect a company's performance.

The aforementioned scholars' insights illuminate how board members' better proficiency, exposure, and competency enhance organisations' functionality. Their research bolsters the theory of productive board succession in determining the company's strategic direction, risk approach, and operational efficiency. This is especially significant for SOCs, where challenges, such as bureaucratic inertia, political interference, accountability deficits, retention problems, and talent acquisition problems, are common (Kgarose, 2023: 543).

ii. Gender representation

The King IV Report advises that there should be more women on corporate boards and underscores gender diversity as a key aspect of sound governance. In the 1990s, scholars began documenting the characteristics of women directors and examining national institutional factors, considering these elements as contextual factors that either facilitate or hinder women's access to corporate boards (Kirsch, 2018: 356). Although actions have been taken to reduce gender gaps, there are still low numbers of women in leadership positions in many countries, due to gendered differences in

qualifications, personal choices, discriminatory practices, and gender bias (Blau & Kahn, 2017; Deschacht, 2017).

The gender imbalance in boardrooms is particularly acute in South Africa. Bosch, Van der Linde and Barit (2020: 7) found that, in 2017, 21.4% of boards comprised women. That percentage increased slightly to 24.6% in 2018 even though 51% of South Africa's population are women. Nonetheless, there are still huge gender imbalances in many of the leading SOCs. For instance, Eskom has five female non-executive directors on its board of 11; Transnet has four females out of nine board members, while SAFCOL has three females out of seven board members. These numbers highlight the urgency for increased gender diversity on boards (Orij, Rehman, Khan & Khan, 2021: 733).

There is empirical evidence that gender diversity on boards can improve organisations' performance (Baum, Ma & Payea, 2013; Khan & Vieito, 2013). Research by Orij et al. (2021), Awwad, Binsaddig, Kanan and Al Shirawi (2023) and Carmo, Alves and Quaresma (2022) demonstrates a strong relationship between women on boards and company performance. Hurley and Choudhary 2020, Main and Smith 2018 and Carmo et al. (2022: 4), on the other hand, note that female board members may be associated with negative economic outcomes when investing in gender diversity is done due to social pressure rather than merit, which may result in subpar board dynamics and performance.

iii. Board size

Board size is an important determinant of governance and oversight functions. According to Allegrini and Greco (2013: 193), board size impacts the board's efficiency. Section 66(2) of the Companies Act prescribes the minimum number of directors on the board; however, such numbers are contingent upon the company's class. A private or personal liability company must have at least one director, unlike a public or non-profit company, which must have no fewer than three directors (IoDSA, 2016). Section 72(4) of the King IV report asserts that the number of directors should be stipulated by the Companies Act or provisions in the Memorandum of Incorporation.

The discussion about board size has given rise to a range of opinions. Advocates for smaller boards say that they reduce costs and are more efficient (Larmou & Vafeas,

2010: 62). Allegrini and Greco (2013: 193) believe that a greater board size may prevent conflict between majority insider owners and minority outsider owners. Studies by Di Pietra, Grambovas, Raonic and Riccaboni (2008) and Coles, Daniel and Naveen (2008) question whether larger boards are necessarily detrimental to board effectiveness and shareholder value, concluding that size alone should not influence board effectiveness.

In contrast, critics of bigger boards, e.g., Amran, Lee and Devi (2014), and agency theory proponents, believe that a smaller board is more efficient than larger boards that may experience coordination and decision-making issues, resulting in slower response and governance inefficiencies (Prado-Lorenzo & Garcia-Sanches, 2010). According to Lipton and Lorsch (1992: 66), while there is increased monitoring with larger boards, the logistical problems of organising a large group lead to lag time and less efficient decision-making. In addition, large boards may not be able to control management efficiently, while small boards are able to exercise effective oversight and enhance performance (Jensen, 1993: 865).

In addition to this, Hsu, Chen and Wang's (2021: 6237) empirical evidence shows that larger boards are less effective in communication and coordination, which hinders the effectiveness of information security management. This finding aligns with Eskom and Transnet which have many board members. Few empirical studies in South Africa examine the relationship between board size and the performance of SOCs.

iv. Audit committee

The audit committee plays an important role in the governance and regulatory oversight of both the public and private sectors and is one of the first governance structures to gain widespread recognition (Wixley & Everingham, 2002: 3). According to Tjano (2021:82), the audit committee is a modern control and governance instrument to promote transparency, accountability, and financial oversight. The composition and independence of the audit committeeare integral to its success. A properly constituted audit committee with mostly external members mitigates financial mismanagement leading to corporate failures. The nature of the committee's work requires members to be independent and bold in performing their functions (Sambo, 2017: 107).

The PFMA (1999: 63) (Section 77) requires the audit committees in public entities to include the following.

1) The committee must consist of at least three members, with at least one external member who is not a public service employee.

2) The majority of members must be independent of the public institution unless otherwise approved by the treasury.

3) The chairman of the committee must not be an employee of the institution.

4) The committee is required to meet at least twice a year.

5) The committee may be shared by two or more departments or institutions if deemed cost-effective by the treasury.

The audit committee is a critical component for enhancing the efficiency of internal audits (George, Theofanis & Konstantinos, 2015: 114). This is because, if the internal audit function is under the oversight of the audit committee instead of the accounting authority, it protects the independence of the internal auditor (Sambo, 2017: 33). Government and public-funded entities in South Africa, though defined by different legislations, need an adequate audit committee to deal with potential risks introduced by political structures within the public sector (IIA, 2014: 6–7).

SOCs are required, in terms of statute, to have both an audit committee and a social and ethics committee, which have clear responsibilities (Stevens, 2020: 139). These committees maintain governance standards, transparency, and compliance with regulatory frameworks. Given its significant impact on organisational governance, the audit committee must be appropriately resourced, composed, and supported to enhance the performance and integrity of the institution.

iv. Social and ethics committee

According to Godi (2021: 153), ethics is the system of moral principles or values. Ethics and professionalism work together to enhance organisations. Section 195 of the South African Constitution (RSA, 1996: 67) states the values and ethics that guide public sector employees. A code of ethics fosters an ethical society and ethical

leadership, according to Allen, Hemming and Potter (2013: 378–379).

The 11th International Anti-Corruption Conference Report (2003) highlights the importance of ethics for governance by linking self-regulation to a more widespread ethical collapse, especially where sectors are prone to corruption (Munduga, 2014: 7). Corporate governance is closely related to ethical principles of care, justice, rights, and utility (Nwabueze & Mileski, 2008: 593). Therefore, the ethical conduct of an organisation, including adherence to laws and regulations, is critical for the effectiveness of corporate governance systems (Wu et al., 2023).

According to Mbele (2015: 30), sound corporate governance can only be achieved with a strong ethics-based foundation. Ethics in the public sector refers to public officials' moral convictions, compliance with different codes of conduct, and the standards of conduct that society deems acceptable or unacceptable in public service (Pauw, Woods, Van der Linde, Fourie & Visser, 2002: 329). The King IV Report therefore encourages the establishment of a social and ethics committee by private, public, and SOC companies (IoDSA, 2016: 43).

Section 72(4) of the Companies Act (2008) and Regulation 43(1) of the Companies Regulations require companies to have a social and ethics committee that monitors CSR, public safety, consumer relations, as well as labour and employment standards (Schoeman, 2022: 282). Such committees align corporate governance practices with ethics and the needs of society.

However, while there is wide agreement on the importance of ethics in corporate governance, the CGI is criticised for its ambiguity. According to Varshney, Kaul and Vasal (2012: 16), the CGI, in its unweighted format, which provides a composite of scores of individual governance parameters, apportions equal weight to all components. This simplistic approach risks the distortion of an organisation’s governance. Conversely, supporters of the unweighted index, such as Sarkar (2012: 10), assert that the advantage of treating all governance attributes equally is that it avoids the complexities and subjectivity inherent in weighted indices or principal component analysis models, which often require intricate data-driven evaluations.

In conclusion, ethics represents an important part of corporate governance and contributes to the integrity and effectiveness of organisational governance systems.

Establishing social and ethics committees in the public and private sectors, and in SOCs creates an institutional mechanism to uphold ethical standards. However, an analysis of unweighted vs weighted indices highlights the need for more sophisticated methods to reflect the ethical and governance practices of organisations.

2.4.3 Human Capital Index (HCI)

The Human Capital Index (HCI) was developed by Mincer (1958) for long-range planning purposes, then widely expanded by Schultz (1961), Becker (1993), and others. It remains one of the foundational tenets of economics and business. Human capital refers to employees' and managers' knowledge, skills, experience, abilities and continuous learning directly relevant to their jobs (Dess & Picken, 1999: 8).

Ngepah, Saba, and Mabindisa (2021: 2) argue that investing in human capital is essential to reducing inequality, thereby enabling people to participate in productive economic activities that lay the groundwork for productive, sustainable economic growth. Kraay (2019: 2) notes that investing in human capital will generate major positive economic outcomes in the long run. Human capital is one of the most valued assets of an organisation particularly for attaining organisational goals (Awan & Sarfraz, 2013: 76). Human capital, especially in knowledge, learning, creativity, and innovation, is critical for a company's competitive strategy and capacity to adapt to the external environment (Rastogi, 2017: 196). Kraay (2019: 3) states that human capital is key to large and small organisations' competitive advantage and performance. The way in which an organisation manages its human capital is a significant determinant of its financial and non-financial performance. Human capital is not only a form of physical capital, according to Wyatt (2001: 1), but also a part of the market value of an entity.

Empirical support for a direct relationship between human capital development and organisational performance is found in several studies (Hidayat & Latief, 2018; Tessema, 2014; Awan & Sarfras, 2013). This relationship is based on resource-based theory (RBT) and expectancy theory. RBT explains a firm's competitive advantage regarding the rent-generating potential of limited resources, such as human capital (Seddon, 2014: 257). Similarly, expectancy theory explains how individuals make decisions regarding goal-orientated behaviours and the expected outcomes of their

actions, including the impact of motivation and potential reward structures (Vroom, 1964).

According to Stiles and Kulvisaechana (2003), the theory comprises three elements: valence (the value of rewards), instrumentality (the assumption that achieving innovation performance is rewarded), and expectation (the belief that the performance goal can be achieved). While its importance is acknowledged, human capital is difficult to measure. According to Mubarak, Petraite and Kebure (2021: 3), the literature on measuring human capital is inconsistent and poorly defined. Research on high-performance work practices (HPWP) mobilisation remains largely curative-preventive hybrid dynamics of indiscipline (up to October 2023). HPWP focuses on integrating human resource practices, specifically recruitment, retention, training, and development, that lead to enhanced organisational performance (Stiles & Kulvisaechana, 2003: 9).

An HCI quantifies human capital, where various human capital measures, such as employee training, compensation, skills development, and diversity, can be standardised, giving an overall assessment of an organisation's human capital health. The HCI is then used to compare the performance of different organisations in relation to their human capital metrics. The results of studies that examined the relationship between human capital and firm performance are mixed. Empirical studies examining the relationship between HCI and organisational performance have yielded mixed results. While some studies have found a positive correlation, others have indicated a negative relationship or no significant association whatsoever (Goroke & Maccarthy, 2023; Ogodor & Olaniyi, 2022; Yuliarmi, Dewi, Rustariyuni, Marhaeni,& Andika, 2021; Lajili, Lin & Rostamkalaei, 2020).

HCI values are a crucial measurement in assessing non-financial performance metrics relating to the management of internal human resources and directly impact operational service delivery or efficiency while linking to specific governance outcomes. They provide a high-level view of the role of human resources in the success of an organisation through measurements of training, salary, skills development, and employment equity. Although the direct link between HCI and organisational performance is mixed, it is recognised that HCI is essential for cultivating and enhancing non-financial elements of organisational effectiveness.

2.4.4 Developmental Performance Index (DPI)

Hodge (2014: 28) defines development as something reaching its potential and gradually moving toward a better state. In South Africa, the National Development Plan 2030 (NDP, 2012) is the country's transformational vision that aims to eliminate poverty and reduce inequality by 2030 (NDP, 2012: 18). It resonates with South Africa's broader commitment to sustainable growth that drives the SDGs to build a more inclusive economy.

Facilitating critical infrastructure for key sectors, stimulating economic growth, assisting small businesses, and executing recovery plans in the wake of significant challenges form a critical aspect of the government's developmental agenda (Parliamentary Monitoring Group [PMG], 2020/21). However, as Hinson and Ndhlovu (2011: 73) argue, there are pressures on the government to deliver on these targets, not least from the forces of globalisation and liberalisation. They maintain that businesses, especially SOCs, are pressured to be more proactive in addressing poverty and inequality. This recognises that any successful developmental agenda will require the state and the private sector to be fully engaged.

Building an effective development state is critical to the country achieving its development goals. The DPE (2021: 6) reinforces that the state needs to become more effective and set up the conditions in the public sector to derive economic dividends and share them among the country's citizens. SOCs are considered crucial for this mandate's success because of their dual role in commercial activities and developmental goals. According to Mashamaite and Raseala (2019: 135), the transformational component is that SOCs are a vehicle for stimulating the economy and addressing social challenges.

SOCs are meant to help the government tackle some of the most important socio-economic challenges, including poverty, inequality, and social, ethnic, or geographic segregation (Presidential Review Committee, 2013: 7) because of the role they play in economic and social transformation, and to achieving the state's objectives. SOCs use corporate social responsibility (CSR) frameworks to develop and shape developmental goals. CSR includes process, policy, value, environmental impacts, financial profitability, human resources, and other dimensions of the overall

development impact of a company.

According to Lópes, Garcia and Rodriguez (2007: 288), CSR metrics are multidimensional, and research that considers these multiple factors tends to show differing results, depending on the variables used. However, CSR remains a complex and somewhat inconsistent construct, with a lack of universal agreement on how to measure its full impact. Studies, such as that by Hinson and Ndhlovu (2011), demonstrate that CSR frameworks are used to examine corporate performance in both developed and developing economies. In particular, the Dow Jones Sustainability Index and the Socially Responsible Investment Index are used to assess the relationship between CSR practices and corporate performance.

While there are many CSR framework systems, the literature on SOCs' developmental goals is limited, especially in African countries where CSR and developmental goals are often not separated. Subcategories, such as CSR, the shareholder's compact, enterprise and supplier development, human development, and empowerment were used in this study to create a DPI to fill this gap. This DPI assembled all relevant components of the science-centric assessment of SOC developmental performance (Sanches, Gouveia-Pereira, Marôco, Gomes & Roncon, 2016; Hinson & Ndhlovu, 2011).

The extent to which SOCs have disclosed their developmental practices were established through content analysis, by exploring the level of adherence to existing regulatory frameworks, along with the extent of the patterns formed in relation to these practices (Tjano, 2021: 89). In doing so, this approach provides a broader understanding of the way SOCs fulfil the general development goals of the state rather than only the narrower CSR models, which is a common approach in developed economies. The developmental performance index (DPI) presents a significant new tool for measuring and improving the effect of SOCs on the national development agenda.

2.5 Summary and conclusion

This chapter discussed three frameworks used in this study: the legislative and regulatory framework, the theoretical framework, and the conceptual framework. The introduction provided an overview of the legislative and regulatory framework that

governs the formation and functioning of SOCs in South Africa. The next section discusses constitutional imperatives in support of SOCs, followed by a discussion of the evolution of legislation and regulations governing SOCs in South Africa. The Companies Act, PFMA and the King IV Report on Corporate Governance were among the four Acts and principles relevant to SOCs that were discussed.

The second part gave context to the theoretical framework that is the basis of the study. It identified four theories critical to understanding SOC performance compliance: Legitimacy Theory, Stakeholder Theory, Agency Theory, and Stewardship Theory. These theories were reviewed with a critical lens as they explain the dynamics of SOC performance in South Africa. The critiques of the theories by other scholars and supporting arguments were discussed. Although many other theories exist, this chapter only focuses on the four theories underpinning this study.

The third section of the chapter reviewed the conceptual framework related to performance compliance in SOCs in South Africa. Based on this review, the study proposed the development of four PCIs to measure the performance of SOCs in South Africa: PFMA Compliance Index (PFMAi), CGI, HCI, and DPI. These indices aim to evaluate various aspects of SOCs' performance, ensuring compliance with both legislative and regulatory standards and their broader developmental objectives.

The following chapter presents an empirical review of SOCs, focusing on their nature, role, significance, and performance management practices.

CHAPTER 3: EMPIRICAL LITERATURE REVIEW

3.1 Introduction

This chapter examines the empirical literature that underlies this study. It starts with the definition and importance of SOCs, how it has evolved over time, and how SOCs contribute to economic growth. The chapter further identifies factors that drive SOC performance and compares emerging and advanced economy SOCs. Lastly, it explores the main´factors that impact SOC performance. To structure this discussion, the chapter starts with a global perspective and how BRICS countries view SOCs, with an emphasis on South Africa.

3.2 The role and importance of state-owned companies (SOCs)

The starting point for the SOCs can be as far back as ancient Egypt in the time of the Pharaohs when the state owned almost the entire economy (Albert & Kabir, 2021: 2). SOCs grew substantially after World War II, particularly in developed economies (except for America) and in many emerging markets by the 1970s (Cuervo-Cazurra, 2018: vii; Megginson & Netter, 2001: 323). SOCs were designed to spearhead social and economic development in developed mixed economies and emerging nations (Ackers & Adebayo, 2022: 170).

SOCs are either owned or controlled by the government to produce or provide goods and services to the general public, often in direct competition with private enterprises (Trebilcock, 2021: 1). Albert and Kabir (2021) explain that SOCs are state-owned corporations with a financial mandate that engage in commerce. These entities, referred to as parastatals and instrumentalities, are founded on five core tenets: promotion of national economic and strategic interests; retention of state ownership (continuum of state capitalism); provision of goods and services (health, education, and land access); monopoly operation; and market regulation.

SOCs play a vital role in stimulating economic growth are classified as commercial and non-commercial entities (Marimuthu, 2021: 42). Commercial SOCs are driven by profit while contributing to economic development, and non-commercial SOCs that provide social services for the government (Phaladi, 2021: 45). Both types of SOCs are faced with similar challenges, including high employee turnover, governance

problems, and financial impropriety (Phaladi, 2021: 45).

SOCs impact economic growth in fields such as accounting, finance, and public management (Tjano, 2021; Limbo, 2019; Sithomola, 2019; Kikeri, 2018). Tjano (2021: 14) and Sithomola (2019: 68) agree that, despite the different motivations for setting up SOCs, these entities are vital tools for economic and social development as they contribute to GDP, industrialisation, and development programmes (Kanyane & Sambo, 2021: 200).

Srarzec and Nowara (2017) studied SOCs in 13 countries of Central and Eastern Europe (CEE) between 2007 and 2013. They found that SOCs contributed 1% to 12% of total output and 0.5% to 0.8% of total employment across sectors. By comparison, the IMF (2020) estimated that the total value of SOCs worldwide is $45 trillion (roughly half of the world's GDP). SOCs play a significant role in the GDP of developing economies: 15% in Africa, 8% in Asia, and 6% in Latin America (Rigo et al., 2021).

SOCs also play a major role in the BRICS countries, which account for a significant portion of the global economy. They make up a significant share of nominal GDP, that is, US$16.6 trillion (Novosti, 2016 cited in Ponela, 2020: 2). SOCs' governance structures differ greatly in these countries, concerning the regulation, ownership, and accountability (Kanyane & Sambo, 2021). The two largest SOC sectors belong to China and India, which were also associated with their former economic systems – China with socialism and India with the mixed economy model (OECD, 2015). Brazil and India have decentralised control of their strategic SOEs (Kanyane & Sambo, 2021).

Case studies of BRICS nations

Given the economic and social contributions that SOCs make in their respective countries, their role in the economies of BRICS nations have been at the centre of academic and policy debates. Even though these countries have different approaches to state ownership, some commonalities in the governance and performance of SOCs exist that are aligned to national development objectives.

- **Brazil**

In the Brazilian economy, SOCs drive economic growth and social development particularly for mitigating market failures and stimulating long-term investments across economic sectors that include energy and infrastructure. To promote growth, Silvestre, Gomes, Lamba and Correia (2018: 59) believe that SOCs can strengthen sectors where the market is weak or does not provide a competitive environment. Their study indicates that Brazilian SOCs are more effective under limited governmental control and employ governance frameworks that limit waste and corruption.

SOCs can promote socioeconomic development, but their success depends on effective oversight and governance. According to Musacchio and Lazzarini (2014: 39), the excessive use of SOCs can cause major economic challenges in the Brazilian economy, such as inefficiency and corruption. Brazil has 266 SOCs; this includes national and publicly traded companies that form a significant part of the country's economic landscape. As part of the national economy, SOCs contribute significantly to Brazil's GDP. For instance, in 2013, SOCs were responsible for US$ 2.3 trillion (14% of GDP). In 2019, this contribution amounted to 53.22%, which increased to 61.88% in 2020 (Vianna, 2014: 20). In 2022, Brazil will be ranked as the 10th largest economy in the world, and SOCs will contribute significantly to Brazil's stock market capitalisation (World Bank, 2022).

Despite the great economic impact SOCs have on the Brazilian economy, their performance is not without challenges. Papenfuß (2020: 19) states that, while the government has "golden shares" in some enterprises, such as Embraer, its power is insufficient to control the SOCs fully. This is just one of many other forms of political interference in the management of the SOCs. Nonetheless, SOCs significantly influence the Brazilian economy by impacting the social welfare of its citizens. SOCs have a similar significant economic influence in Russia.

- **Russia**

The role and importance of SOCs has been studied in both English and Russian literature focusing on the challenges around SOCs' governance of the country. According to Abramov, Radygin and Chernova (2017: 2), the majority of empirical studies on this topic, including those undertaken in Russia, were conducted after mass

privatisation prior to the 2008–2009 crisis. The privatisation phenomenon was driven by the expansion (or contraction) of state intervention in the economy that addressed "market failures" or "state failures") (Radygin, Simachev & Entov, 2015:57).

Despite the effort to privatise SOCs in the 1990s, these entities have a significant role in the economy of Russia (Sprenger, 2010: 2). They accounted for 70% of the economy, up from 35% in the period 2005 to 2016. SOCs accounted for 60–70% of the country's economic growth in 2018 (Gusarova, 2019). Kilshevich and Panibratov (2024: 4) argue that state influence over the Russian economy has increased, resulting in the consolidation of state assets in large domestic firms.

Russian SOCs are also confronted by common challenges that exist in other countries such as political interference, governance challenges, and maladministration. These challenges give rise to concerns regarding limited autonomy, politicised decision-making, weak profit incentives and ineffective performance management. Addressing these issues requires a sound legislative framework, which includes the alignment of SOCs with the corporate code of a country (Nurgozhayeva, 2022: 27). SOCs need to be a part of market competition with full transparency with a separation of ownership from management and ownership from regulation.

- **India**

The role of SOCs has changed in India since its independence. SOCs were originally set up for the purpose of public good and social objectives. However, their emphasis has gradually turned to stimulating economic growth and development (Kim & Panchanathan, 2021: 157). This change is consistent with the recent study by Sapovadia (2018), who underscores the significance of SOCs for economic development, especially in the sectors of infrastructure and heavy industries. Khanna (2017: 6) offers a comprehensive analysis of the role of SOCs, stating that their central purpose in India's industrialisation policy is to help the country achieve economic self-sufficiency.

While SOCs have played a vital role in India's economic development, they also provide valuable insights into the state’s control of critical sectors (Sapovadia, 2018: 301). Panicker, Upadhyayula and Sivakumar (2022) argue that emerging markets, such as India, have increasing levels of privatisation of SOEs, in which the state is still

a dominant shareholder, but are now also publicly traded corporations with significant wnership from institutional investors. In March 2012, the number of SOCs increased from 246 to 260, with a total capital of 13.43 lakh crores (Jain, Gupta & Yadav, 2014: 8).

Despite this, the number of SOCs in India is relatively small compared to China. Though the central (federal) government established the most significant SOEs (referred to hereafter as CSOEs), state (provincial) governments established a large number of enterprises (SSOEs), including many in the joint sector where private partners hold up to 49% of the shares. Some units were established by municipalities or jointly by state and federal governments (Khanna, 2017: 10).

- **China**

China is the second biggest economy in the world, with more than 150,000 SOCs (Wang, Cai, Liang, Wang & Xiang, 2021). According to a comparative analysis of SOCs across BRICS countries prepared by PwC (2015), China is at the top of the list of countries regarding the contribution of SOCs to the GDP of the BRICS bloc. This establishes China's SOCs as the leading economic growth enabler in the BRICS countries. Mutize and Tefera (2020) also confirm that Chinese SOCs are among the major players in the BRICS economy, entrenching their leading position in the region. China is transitioning to a market economy even though it retains considerable control over its SOCs.

Despite the corporatisation of many SOCs, the government still has control over the economy with significant ownership in publicly listed SOCs (Tenga, Fuller & Li, 2018). However, the dominance of Chinese SOCs has received criticism in global markets. According to Chan (2021), there is preferential treatment for Chinese SOCs, including favourable government policy in funding, licensing, and procurement. This is echoed in the PWC (2015) report, which remarks that the Chinese government has actively encouraged the domestic and overseas expansion of SOCs via preferential domestic financing, tax incentives, and favourable land policies.

In 2017, SOCs contributed 39% of total assets, 23% of core business sales revenue, and 18% of large industrial employment across the country's key industrial sectors: mining, manufacturing, and utilities. While their revenue shares declined slightly in

some important industries between the second and third quarters in 2019, the total asset size of Chinese SOCs reached 259.3 trillion yuan in 2021. China has also responsibly rendered SOEs with major SOC projects across BRICS countries and beyond. In 2018, Chinese SOCs were instrumental in establishing hydroelectric plants in Brazil and constructing ports and railways in South Africa (PwC, 2015).

Kanyane and Sambo (2021: 200) believe that the BRICS alliance represents more than economic cooperation and political alliances; it embodies a response to the failings of the existing global economic governance system. On the other hand, South Africa, which currently chairs BRICS, uses the position to encourage increased cooperation and membership of the bloc while also lobbying African states to join. Indeed, Egypt and other nations have already expressed interest, highlighting BRICS's increasingly favourable global economic positions.

- South Africa

As in developed economies, SOCs in the African context are instituted to stimulate economic growth, lower unemployment, and reduce poverty (Edoun, 2015: 352). To this end, African governments have partnered with SOCs to improve service delivery in key sectors that include energy and transportation in Ethiopia and Nigeria, among others (Odhiambo, 2021). In Kenya, SOCs, such as Kenya Pipeline Company, have provided financial support to the government during periods of fiscal imbalances (Mutize & Tefera, 2020: 10).

Even though attempts have been ongoing to improve the capabilities of African countries, several of them, such as Liberia, Guinea, and Sierra Leone, are still facing overwhelming socio-economic challenges caused by poverty and health crises that detrimentally affect their SOCs (Edoun, 2015: 352). Previous literature examining the governance failures of SOCs in many African nations (Limbo, 2019; Boko & Qin, 2011) identifies weak management and poor government responses as common downsides to SOC effectiveness. Specifically, studies from Namibia and Benin highlight that inadequate administration, rather than government ownership, is a primary cause of SOC failures (Limbo, 2019; Boko & Qin, 2011).

Even in a developing economy such as South Africa, SOCs face many of the same issues, especially in sectors, such as power, telecommunications, and transportation, that were initially established to resolve market failures and promote growth (Mbeki, 2017: 119). The post-apartheid reforms were intended to reposition these companies as engines of economic growth, but many have battled indebtedness and mismanagement (Makuyana & Odhiambo, 2016). For example, South Africa's SOCs are predominantly represented by Eskom, Transnet, and SAA, all of which have found themselves in dire financial straits (Madumi, 2018: 62; National Treasury, 2020).

Several challenges negatively affect the performance of SOCs, such as leadership challenges, corruption, and political interference (Sithomola, 2019; Khanyane & Sambo, 2021). Many SOCs have either failed to meet the requirements of the applicable corporate governance codes or failed to achieve financial targets (Tjano, 2021). Despite these challenges, South Africa is restructuring SOCs to enhance their effectiveness (DPE, 2021/2022) even though it lacks a consolidated conformance model for ensuring performance of SOCs (Transnet Governance Report, 2022).

This gap indicates the requirement for an overall common framework for evaluating and enhancing SOC quality across the continent. Despite being important in Africa’s economic development, systemic governance challenges remain that hinder SOCs from realising their functions. Sharing lessons learnt from other BRICS countries, particularly China and India, could offer useful insights on improving the operations and efficiency of SOCs in South Africa.

3.2.1 Comparative analysis between South Africa and BRICS nations

While SOCs in South Africa have received considerable attention, comparative studies with other BRICS countries are few, and the attempts to draw lessons from such comparisons are limited. Research that incorporated comparative aspects by exploring the structure, governance, and performance of SOCs across the BRICS nations would be valuable in relation to the policy discourse in South Africa. Although studies of SOCs in countries, such as China, India, and Russia, have produced some useful findings, a more comparative framework can unearth not only what state-led ownership offers but also the perils it introduces into the ecosystems of vital economic sectors.

Research on the SOCs in BRICS nations confirms the different governance and management models and their varying success levels (Sapovadia, 2018). To illustrate, Brazil's governance model, inspired by the Leviathan philosophy, acknowledges the importance of an advanced capital market for attracting private investments, coupled with external oversight and transparency. According to Musacchio and Lazzarini (2014: 40), state support for the public listing of SOCs must also promote the development of private capital markets, institutional procedures, and exchanges to protect minority investors. Also, Li and Wu (2022: 6490) emphasise that SOCs can achieve relatively stable long-term profits through government support and the optimisation of their corporate governance.

This suggests that SOCs must invest in governance to ensure their sustained survival and optimal performance. The Russian government is working to implement a mixed ownership model that includes private equity partners contributing to better SOC performance. SOCs under indirect state control exhibit faster revenues and productivity growth rates than corporations with direct state ownership (Abramov et al., 2017). Such an approach is an alternative to privatisation, as there is also the option to move SOCs from direct state management to more fluid forms of indirect management, which could lead to improvements and more efficiencies.

Such reforms in the governance and performance of SOCs in India have also been made by the government. Such solutions include creating independent boards and introducing performance-based rewards for CEOs (Sapovadia, 2018). These reforms target accountability, creating incentives for improved management practices and overall efficiency of SOCs.

Through the State Assets Supervision and Administrative Commission (SASAC), China has developed a "special model" for managing SOCs. Chang and Jin (2016) explain that SASAC acts as the central investor of state-owned assets and directs the reform and restructuring of SOEs. According to Leutert (2016), SASAC's role is to oversee the preservation and appreciation of state assets, foster modern enterprise systems within SOEs, and improve corporate governance. This indirect ownership system appears to perform far better than state ownership, limiting the detrimental consequences typical of state ownership (Chang & Jin, 2016).

These BRICS nations are typically less regulated and have clearer compliance models than South Africa. For example, the SASAC framework of China provides a simpler and more enforceable regulatory structure. In South Africa, various ministries use multiple performance compliance models, which suffer from a lack of harmonisation in SOC governance. In addition, South Africa could learn from the governance practices of the other BRICS countries that have had positive results in addressing challenges, such as state capture, political interference, corruption, and poor governance, that are the reasons for the underperformance of South African SOCs (Castaneda et al., 2020).

In summary, this will ensure that South African SOCs respond to their socioeconomic and developmental mandate through a more cohesive framework and without the barriers that have limited their performance in the past. Therefore, this study focused on the development of one index (PCI) that will assess the performance of SOCs in South Africa, improve corporate governance, and allow SOCs to meet their national objectives.

3.3 Performance of State-Owned Companies (SOCs)

Financial performance indicators are popular financial metrics because they are based on objective and quantitative data that easily allow comparison across companies. Financial indicators are most frequently used to evaluate SOCs' performance (Abor & Quartey, 2010; Du Toit, 2012; Shahzad, Naeem, Shafique & Saleem, 2019). The empirical literature demonstrated that applying corporate governance principles positively influences SOCs' financial performance (Hermanto, Lucy & Widyastuti, 2023).

Financial data alone might not provide a full picture of SOC performance. As a result, non-financial performance measures, such as consumer satisfaction, employee engagement, and green impacts (Bouzgarrou, Feki & Garroussi, 2019) are used. Abang'a et al. (2022) found a positive effect on SOS performance by boards and the independent CGI. Consequently, non-financial performance measures offer a broader perspective of SOC performance than only using financial results.

In addition to financial and non-financial approaches, researchers have embraced a combined framework, where both financial and non-financial indicators are used to evaluate SOC performance (Muiruri & Kilika, 2015). This combined approach has led

to a far more sophisticated understanding of SOCs, understanding that while financial outcomes are a necessary metric, the evaluation of long-term performance and sustainability must also incorporate non-financial factors.

There are different approaches to study the performance of SOCs, with their own strengths and weaknesses that depend on research goals and study focus. These indicators include financial performance indicators that provide quantitative information, as well as non-financial measures that can gather more qualitative information on the performance of the SOC. The combination of these approaches provides a holistic assessment mechanism capable of accurately representing the complexities of SOCs. The following sections describe key financial and non-financial characteristics used to evaluate SOC performance internationally.

3.3.1 Leadership

Limbo's (2019) empirical study used financial and non-financial methods to analyse the performance of SOCs in Namibia. Results highlight the importance of managerial control and power, showing that SOCs in Namibia do not consistently perform poorly exclusively due to their state ownership but also due to manager misallocation. This harmonises with a wider, recurring trend that appears in other spheres.

Research into leadership challenges facing SOCs in South Africa identifies the importance of leadership as a determining factor of organisational effectiveness. The implication is that poor leadership structures ultimately give rise to poor performance, which is illustrated by the case of many South African SOCs. Such a leadership deficit has corroded public trust in SOCs to play their developmental and economic functions (Sithomola, 2019). The ailing leadership crisis in these organisations leads to a lack of performance to earn enough revenue to sustain operations.

Studies justifying this approach have also found that ineffective leadership is one of the main reasons for poorly performing SOCs, especially in emerging economies. Badarai, Kotze and Nel (2023) examined the effect of transformational leadership (TL) on organisational performance (OP) using quantitative predictive research. The results demonstrate a complex link between TL and OP, proposing the important role of leadership style in understanding organisational outcomes. Basera and Zhou (2021) similarly conducted a study on Zimbabwe's SOCs using a sample of 12 companies.

TL, OP strategies, and quality leader-follower relationships are collectively confirmed to improve SOC performance in Zimbabwe.

Similarly, Koech and Namusonge (2012) studied the influence of leadership on performance of SOCs in Kenya. A descriptive survey of middle and senior managers in 30 SOCs in Mombasa established a significant positive relationship between leadership style and the organisation's performance. Moreover, Kim (2018) examined the effects of narcissistic leadership on organisational performance and accounting earnings management. His work indicates that CEO narcissism can also have a positive impact on SOC performance, suggesting that traits typically associated with narcissism can prompt good management decisions, as opposed to simply distorting accounting activities.

Although significant evidence establishes a connection between leadership quality and SOC performance, there is debate about the degree of this influence. Vasudevan, Wu, Hai, Adialita, Johns, Arokiasamy and Galdolage (2024), for example, found the negative impacts of authoritative leadership on SOC performance. Thus, poor approaches to leadership may affect employees' sense of belonging and satisfaction, which can, in turn, affect organisational success (Arif & Sule, 2020; Colovic, 2022). As a result, scholars still dispute whether the influence of leadership on organisational performance is mostly positive or negative.

This research demonstrates the need for leadership in the success of the organisations in comparison to private organisations where the responsibility lies more heavily on the shoulders of the leaders due to their accountability and adaptability. Thus, if SOCS are to be more impactful and less wasteful, they need to reflect on the lessons of leadership in private sector companies, in which leadership is generally more responsive, outcome-driven, and market-orientated. Applying private-sector leadership strategies, which have been shown to work, could improve SOC efficiency and performance.

3.3.2 Privatisation

Studies, such as Phi, Taghizadeh-Hesary, Tu, Yoshino and Kim (2021), show that the performance of privatised companies and services has not been smooth. This implies that, while some studies support privatisation for improving efficiency, profitability, and

service delivery, others argue that the effects are not consistently positive. Privatisation has sometimes resulted in market failure and governance problems, especially in countries with fragile political and legal institutions, leading to adverse outcomes (Parker, 2021). Kikeri (2018: 1) states: "Privatisation has contributed to improved financial performance in some sectors but not others. Usually, the benefits derived from privatisation have gone almost exclusively to new owners, with employees, customers and other stakeholders making sacrifices."

Vrhovnik (2016) researched the performance of state-owned and private companies in Slovenia. Using four financial ratios, including return on assets (ROA), return on equity (ROE), profit margin (PM), and value-added per employee (VA), Vrhovnik (2016) surveyed a total of 552 private firms and 131 SOCs. The results suggested that private firms were broadly superior to SOCs. Phi et al. (2021) reached similar conclusions in their study of the Asian markets; they found that privately controlled SOCs outperformed fully government-owned ones.

In contrast, several global studies have shown the positive effects of privatisation on company performance. For example, in India, from 1991 to 2005, SOCs were dramatically changed due to privatisation. These findings are reinforced by cross-sectional data from more than 25,000 firms worldwide and by different measures of profitability and solvency. Baird, Chari, Nataraj, Rothenberg, Telhaj and Winters (2019) contend that SOCs are less concerned with profit-making than private entities. Phi et al. (2021) explains that improvements through privatisation frequently relied on pre-privatisation strategies in place.

Kikeri (2018) and Parker (2021) assert that privatisation improves efficiency and financial performance, especially in competitive markets. Astami, Tower, Rusmin and Neilson (2010) analysed a dataset of 57 SOCs in Indonesia drawn from 2006 that provides supporting evidence for this perspective. Their research showed that private firms perform significantly better than their government-controlled or government-owned counterparts. In support of this, a comparative performance analysis between SOCs and Indonesia's listed stock exchange companies from 2011–2015 carried out by Eforis (2018) discovered that private companies do better than SOCs on ROA.

With respect to mixed-ownership models, Guan, Gao, Tan, Sun and Shi (2021) investigated whether such reforms lead to improved SOC performance. They used a multi-level linear model (MLM) to examine Shanghai and Shenzhen-listed SOCs from 2008 to 2017 and found that mixed-ownership reforms produced only a limited positive effect on SOCs' financial performance. Similarly, an earlier investigation by Aussenegg and Jwlic (2007), based on the operating performance of privatised companies in three Central European transition economies between 1990 and 1998, discovered no significant improvement in performance during the first six years after privatisation.

The study by Alipour (2013) noted no association between the privatised SOCs and the profitability of the SOCs trading on the Tehran Stock Exchange. On the other hand, Khan, Khan and Senturk (2019) discovered a negative relationship between state ownership reductions and CSR performance. These results support the previous claims of Megginson (2005), who suggested that the post-privatisation transition process may be more difficult than expected and that privatisation does not always lead to efficient outcomes in transition economies.

In conclusion, previous literature has presented contrasting findings, noting negative, no association, and positive relationships between privatisation and company performance. These contrasting findings imply that there is no consensus in the literature with respect to this matter. Therefore, this study concluded that privatisation has no positive relationship with the company's performance unless there is managerial autonomy, political interference, and governance challenges. Therefore, for SOCs to become more effective and efficient, they must draw lessons from private sector companies' practices, particularly in adopting performance-driven leadership styles and embracing greater organisational flexibility.

3.3.3 Government/state bailouts

There is limited evidence of the incremental benefits of government financial bailouts, which include subsidies, grants, guarantees, and loans and uncertainty regarding whether the total value of these bailouts outweighs their significant costs (Xiang & Worthington, 2017: 448). State bailouts have often been used as a key performance metric for SOCs (Abang'a et al., 2022; Marimuthu, 2021; Assagaf & Ali, 2017;

Onyango, 2016).

According to Chilenga (2016: 40), the poor performance of SOCs weakens economic growth, necessitating government intervention and decisive action in underperforming SOCs facing liquidity and solvency crises. This view is supported by Assagaf and Ali (2017), who examined the impact of government bailouts on the performance of SOCs. Their findings show a markedly negative impact of government subsidies on the financial outcomes of SOCs. They suggest that a dependence on subsidies and persistent government interference undermine the autonomy of these entities, leading to the long-term instability of SOCs without debt-based finance.

Similarly, Marimuthu (2021) used government guarantees as a dummy variable and financial performance as measured by ROA. His findings indicate that government support, in the form of subsidies and guarantees, adversely affects the financial performance of SOCs. Disputing the above findings, Abang'a et al. (2022) found that government subsidies or bailouts do not significantly affect SOC performance, suggesting that such interventions may be more effective when viewed as part of a long-term strategy for recovery and reform (Onyango, 2016).

More contrasting findings are presented by Xiang and Worthington (2017), who explored the relationship between government financial assistance and the performance of small and medium-sized enterprises (SMEs) in Australia. The empirical findings demonstrate that government financial assistance significantly improves the performance of SMEs, suggesting that, in some contexts, government support can be beneficial beyond traditional financial mechanisms.

The disparate views revealed by Xiang and Worthington (2017) reflect the multifaceted interaction between government involvement and the functioning of SOCs. Some studies, however, claim that prolonged government bailouts adversely affect SOC performance. In contrast, others find government bailouts to be constructive steps as long as government intervention is thoughtfully utilised to promote sustained growth. These differing findings suggest the current need to investigate further the conditions in which government bailouts enhance SOC performance most effectively.

Various studies (Chilenga, 2016; Marimuthu, 2021; Abang'a et al., 2022) provide evidence that government intervention via financial assistance decreases SOC

efficiency and performance. According to these research findings, bailouts create inefficiency, a lack of accountability, and dependence on state support rather than enhancing the operational results of these entities. Consistent with these findings, this study agrees that government bailouts may worsen, rather than alleviate, problems in SOCs, especially if SOC performance is assessed using a combination of metric types, both financial and non-financial.

In conclusion, the disputes in the literature reflect a general deficiency in the knowledge of whether the government bailouts influence SOCs' performance. Although some research suggests that government intervention serves as a short-term alleviation strategy, the overarching literature, as represented by the studies of Marimuthu (2021), Chilenga (2016), and Abang'a et al. (2022), indicates the long-term negative effects of government interventions on SOCs. This emphasises the need for further empirical research in the South African context to understand the real effect of bailouts on the long-term sustainability of SOCs.

3.4 Drivers of the Performance of State-Owned Companies (SOCs)

In South Africa, SOCs have received negative media attention due to their poor performance, failing to realise their socioeconomic mandate and meet their financial obligations. This poor performance has led to a reliance on state bailouts that triggered public outcry (Marimuthu, 2021: 2). Although this topic has been highly researched, scholars have no clear consensus on what drives the poor performance of SOCs. As a result, numerous investigations were conducted to discover the reasons behind the poor performance of SOCs.

These investigations cover various topics, including academic research, state capture, and political commentary. However, the explanations for SOCs' poor performance have not resulted in a unified explanation (Bozec, Breton & Cote, 2002). The well-documented study by Mbo (2017: 15) pointed out that the drivers of the performance of SOCs are diverse. While empirical studies describe the operational successes or failures of SOCs, a holistic investigation of the elements that drive good SOC performance is still lacking, especially in sub-Saharan Africa (Limbo, 2019: 126).

Researchers have identified three high-level internal and external drivers that determine SOC performance. This covers political corruption and interference,

executive pay, and a lack of accountability and transparency. The autonomy of SOCs is commonly undermined by political interference and corruption (PIC); executive compensation structures are inadequate; and the lack of accountability and transparency undermine proper decision-making processes in SOCs. These findings motivate for a holistic approach to improving the performance of SOCs in South Africa, taking into account both governance and management.

3.4.1 Political interference and corruption (PIC)

Political interference and corruption have been identified as contributors to the poor performance of SOCs. This has been termed "state capture", which is a system in which businesses and politicians establish corrupt networks, where state functions are manipulated to advance private interests, hampering public services (Szarzec, Totleben & Piątek, 2022: 144). According to Kuzman, Talavera and Bellos (2018: 48), political interference is mainly driven by the desire of politicians to maintain power over state affairs and benefit from associated privileges. In South Africa, for example, the Zondo Commission (known formally as the State Capture Inquiry) was set up to investigate such an issue.

Drawing upon the literature, political interference can negatively affect the performance of SOCs in many ways, such as financial costs, low efficiency, corruption, resource misallocation, and decreased accountability. For instance, research by Krambia-Kapardis (2020) has shown that political appointments of individuals who lack appropriate qualifications and credentials to fill key positions within SOCs severely impact performance and sustainability. An overbearing political hand could misallocate funding and resources, creating policies primarily benefiting private interests instead of the public.

Corruption, in particular, can undermine public trust and the legitimacy of SOCs. Ramaswamy (2020: 190) asserts that SOCs harm their legitimacy through corruption that prevents them from effectively gaining public trust and raising funds. Using Eskom as a case study, Mabotha and Ngcamu (2024) analysed political meddling in the demise of South African SOCs. In their findings, corruption leads to misappropriation of funds, inflated outlay and declining profitability, performance and long-term sustainability.

An example is the South African Broadcasting Corporation (SABC), where personal relationships between executives, politicians, and government officials have resulted in dire governance issues (Qhobosheane, 2018). This relationship undermined due process, politicised the role of the board of the broadcaster, and interfered with how the board of directors discharged their fiduciary duties. Qhobosheane's (2018) study revealed that political interference had a negative effect on the performance of the public broadcaster, resulting in the entity being unable to realise its socio-economic imperatives.

Further studies concurred with the above-mentioned findings and revealed how political intervention and corruption harm SOCs' financial resources, resulting in their failure to deliver service. For instance, Lopes Júnior, Câmara, Rocha and Brasil (2018) examined how political influence affected SOC spending post-2008 financial crisis. They found that politicians use their influence in highly politicised and corrupt environments for personal gain. These results correlate with those of Thompson, Alleyne and Soverall (2019), who determined that political interference negatively affects SOC performance.

Domadenik, Prašnikar and Svejnar (2015) investigated the effect of political interference on the performance of SOCs and found that the appointment of politically connected individuals, incompetent boards, and management results in poor decision-making, the absence of accountability, and reduced operational efficiency. This shows that such individuals serve their political interests rather than the public. Kumar (2022) explains that the misuse of resources earmarked for SOC operations for personal gain causes corruption and the contraction of expenses (including overpricing and inflated contracts) that prevent SOCs from fulfilling their role.

While some of the literature shows overwhelming consensus on political interference negatively affecting SOC performance, other literature indicates otherwise. For example, Ding, Jia, Wu and Zhag (2014) examined the effect of politically connected managers on firm performance in China. The results indicated that political interference could enhance performance when the government maintains ultimate control. Inoue's (2020) analysis of municipal water utilised in Brazil, spanning the period between 2004 and 2014, yielded indeterminate results. Their study found that the performance of SOCs is politically contingent and thus varies systematically over

time.

However, these findings are exceptions, as most of the literature supports the notion that PIC negatively impact SOCs' performance. This is particularly relevant in the context of South Africa, where corruption goes unpunished. As a result, political interference is rife. Unlike in China, where people implicated in those activities are sent to prison, corrupt actors in South Africa have not been held accountable. For example, the absence of effective consequence management and ethical leadership has resulted in the decline of governance, not only in SOCs but also across the public and private sectors, as is evident in the now-deceased Dudu Myeni saga at SAA, and the farce of Hlaudi Motsoeneng at the SABC.

Although some research has pointed to the positive effect of political interference, which includes the possibility of access to funds and promoting national interests, such phenomena are exceptions rather than the norm. The literature suggests that political interference, whether through patronage, rent-seeking behaviour, or corruption, exceeds the gains of political connection. Lessons should be learnt from Singapore and China, where acts of corruption derive heavy prison sentences. These countries have demonstrated that limited political interference minimises corruption, allowing SOCs to operate more effectively and efficiently in meeting their socio-economic imperatives.

South Africa should implement stringent action to punish corruption culprits across all sectors. Such action would force those politicians to act with selflessness, allowing those charged with governance and oversight to discharge their fiduciary duties partially and objectively. While this study acknowledges the literature that notes a positive effect of political interference, it aligns with the empirical findings that aver that political interference has a dire effect on the performance and operation of SOCs.

3.4.2 Executive remuneration

The agency theory, tournament theory, and social network theory are key theoretical perspectives typically used in research on executive pay and firm performance. For instance, the agency theory proposes that success-based incentive pay to executives will align the interests of the managers with those of the shareholders, driving better company performance. However, empirical evidence suggests it is more nuanced than

that. Swatdikun (2013) and Bebchuk and Grinstein (2005) found a positive correlation between CEO pay and performance measures such as ROA, ROE, and Earnings Per Share (EPS).

Similarly, Wang et al. (2021) found that executive compensation had a significant positive effect on performance in global energy firms, in line with agency and tournament theories. Bussin and Modau (2015) assessed executive pay and financial performance from 2006 to 2012 in South Africa and revealed a positive relationship between executive pay and performance. However, after the 2008 global financial crisis, the relationship deteriorated. Likewise, Okpo, Eshiet and Okon (2023) concluded a positive relationship in Nigerian SOCs, reinforcing the idea that performance-based compensation can lead to monetary benefits.

In contrast, other studies found a negative relationship between executive compensation and company performance with accounting-based measures. For example, in Kenya, SOCs were found to be less financially profitable when executive remuneration (ER) was higher, according to previous studies by Gigliotti (2013) and Kyalo (2015). Bezuidenhout (2016), whose study on South African SOCs formed the basis of this study, found that executive compensation negatively correlated with company performance. This implies that there are times when executive compensation does not encourage better performance and may even point toward inefficiency or mismanagement among SOCs.

The choice of performance metrics is one reason that the findings on executive remuneration and company performance are complex. Literature tends to rely on accounting-based metrics (ROA, EPS andROI).); however, they might not always incorporate the long-term health/value of the company. Meanwhile, Bezuidenhout (2016), among others, has used market-based metrics (e.g., total shareholder returns and stock price). While Bezuidenhout (2016) argues that market-based metrics are more relevant when measuring company performance in some settings, he still found inconsistent results when using such measures.

Such findings are aligned with the South African context, where major SOCs, such as Eskom (state power utility) paid its CEO a total annual package of R7 million in 2021/2022, yet the SOCs did not meet their performance targets. In that instance,

Eskom was characterised by operational deficiency, governance issues, corruption, liquidity, and solvency challenges. That shows that CEO and executive pay does not always positively impact the performance of SOCs.

The literature on the executive remuneration (ER)link with company performance is ambiguous; there are findings that provide evidence for a positive link and those that show evidence of a negative link. This study agreed that no clear-cut link exists between ER and performance but that a potential relationship could emerge if CEO and ER is linked to the overall performance outcome and a clean audit of the SOCs. Also, an ER framework should govern the payments based on their classifications.

3.4.3 Accountability and transparency

Accountability and transparency, when implemented consistently, may curb corruption and entrench good governance (Boamah, 2020: 51). According to Nkechi, Nzewi and Augustine (2020: 24), accountability implicates stewardship, the duty to be responsible and provide reasons for actions. These principles are embedded in the relationship between the government and the governed, stating that those with power must answer for their actions to the people or governing institutions. The ethical dimension is that leaders are expected to be transparent and accountable for all decisions and actions (Agburuga, 2019: 74).

According to Bovens (2007), accountability and transparency fall into three categories: (1) organisational accountability, in which senior officers make sure that subordinates account for what they do; (2) political accountability, which is about appointed ministers being held accountable for their actions during their tenure; and (3) legal accountability, whereby public officials account for their actions in a court. Such principles are often enshrined in laws, regulatory frameworks, and governance codes (Tjano, 2021: 33).

Accountability and transparency are significant challenges that persist despite their legal backing, especially in SOCs and the public sector. The lack of these values in SOCs leads to inefficiency, corruption, and poor service delivery. Citizens must monitor the use of public resources due to the multitude of different governmental structures and their impact on the sector (Mohallem, Vasconcelos & France, 2017: 28). Therefore, Agburuga (2019: 74) maintains that, if accountability and transparency

are not enforced in governance, it may lead to misappropriation of public resources, private interests superseding public duties, and the elevation of mediocrity at the expense of meritocracy in public administration.

Studies have found that accountability and transparency, at the corporate level, positively impact overall organisational performance. Mackey and Liang (2012) used the CSR index as a proxy for accountability and transparency. They discovered that CSR enhances the company's performance. This is consistent with Kim, Cho and Park (2019) who found a positive correlation between CSR performance and financial performance in their study of 5040 large U.S. firms. Cho, Chung, and Young (2019) studied 191 firms on the Korean Exchange and discovered a partially positive relationship between the financial performance of CSR information disclosure and firm value.

Although some studies state that CSR and CSRD have positive effects, Selcuk and Kiymaz (2017) revealed a negative connection between CSR and firms' performance with firms listed on the Borsa Istanbul between 2009 and 2011. Conversely, Mwayungu (2021) found there to be no meaningful association between CSR, CSRD, and the performance of 91 publicly held U.S. corporations studied between 2017 and 2019. The above results align with the perspective of Berggren and Bernshteyn (2007), who argue that certain fundamental conditions must be established to promote organisational transparency and enhance company performance. Specifically, a clearly defined strategy, broken down into individual actionable goals, is essential for ensuring that employee contributions are both relevant and purposeful.

In addition, the study by Le Ha and Huy (2024) found that corporate governance mechanisms play a critical role in promoting accountability and transparency on the financial performance of companies in an emerging economy, Vietnam, from 2019-2022. Agburuga (2019) found that accountability and transparency improve budgeting and financial management performance, while Suharyono (2019) found the same results in his study of regional companies in Riau Province, Indonesia. On the other hand, village-owned companies were not positively affected by accountability on budget performance (Anggraini & Windyastuti, 2021).

The literature reviewed above presented contrasting findings. Yoon and Chung (2018)

argue that positive or negative results depend on the measurement of corporate social responsibility (CSR) and corporate performance. Despite the plethora of literature on this topic, this study acknowledged three outcomes: (1) that accountability and transparency have a positive effect on the performance of SOCs; (2) that there is a negative relationship; (3) that there is no relationship whatsoever between those variables. Their study, therefore, needs to be conducted in the context of South Africa.

In conclusion, this study advocates for an alignment with stakeholder and legitimacy theory, implying that reporting on CSR, enterprise supplier development (ESD), and environmental, social, and governance (ESG) enhances company legitimacy and public trust. The study results confirm this claim.

3.5 Summary and conclusion

This chapter explored the three cornerstones that underpin this study: the roles and significance of SOCs; SOC performance; and the performance drivers of SOCs. It provided a comparative analysis with respect to other emerging economies, notably those of the BRICS. The literature review captured multiple drivers of SOC performance that include: leadership (Badarai et al., 2023; Basera & Zhou, 2021); interference and corruption (Mabotha & Ngcamu, 2024); government bailouts (Abang'a et al., 2022; Marimuthu, 2021); privatisation (Phi et al., 2021; Baird et al., 2019);(Okpo et al., 2023; Wang et al., 2021); and negligence of accountability and transparency (Mwayungu, 2021; Cho et al., 2019).

The following chapter presents and discusses the methodology applied to address this study's research aim and objectives.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

This chapter offers a detailed analysis and rationale of the research methodology used to achieve the study's objectives. The primary aim and objective of this study were to develop a conceptual index to improve the performance of major SOCs in South Africa through the study of performance differentials and drivers over 10 years from 2013 to 2022.

This study aimed to develop a compliance index to improve the performance of major SOCs through differentials and drivers.

The secondary objectives of this study were to.

1. Assess the performance level of major SOCs in South Africa.
2. Assess and compare the performance differences between fully owned and partially owned SOCs in South Africa.
3. Compare and contrast the performance differentials of major SOCs that were part of the DPE with those that operated outside the DPE; and
4. Determine the drivers of the performance of major SOCs in South Africa.

To address the aim and objectives of the study, the process unfolded in two phases:

Phase 1: To address the aim of this study, a conventional Delphi technique was employed to develop a non-financial conceptual PCI.

Phase 2: To address the secondary objectives of this study, a mechanistic content analysis was performed on the annual reports using the developed PCI.

The chapter begins with an introductory section (4.1), followed by a discussion of the layers of the research onion (Alturki, 2021) (research philosophy; abductive approach; exploratory sequential mixed method; survey questionnaire and archival research strategies; longitudinal time horizon), and the underlying justification for its adoption (4.2). This is followed by a discussion of the procedure used for data collection (4.3), and section 4.4 describes the data analysis procedures used in the study. The rest of

the chapter is structured as follows: section 4.5 investigates the regression's significance; section 4.6 evaluates validity and reliability; sections 4.7, 4.8, and 4.9 address ethical issues; and Section 4.9 completes the chapter with a summary.

4.2 Research onion

A research onion is considered a complete research model for designing a robust research methodology (Alturki, 2021: 1). It provides a detailed summary of the key layers of an effective methodology (Raithatha, 2017: 71). Saunders, Lewis and Thornhill (2016: 128) explain that a research onion serves as a comprehensive framework for guiding research approach. The research onion comprises six primary layers that are: (1) research philosophy; (2) approach to theory development; (3) methodological choice; (4) strategy; (5) time horizons; and (6) techniques and procedures (Melnikovas, 2018: 33), as shown in Figure 4.1

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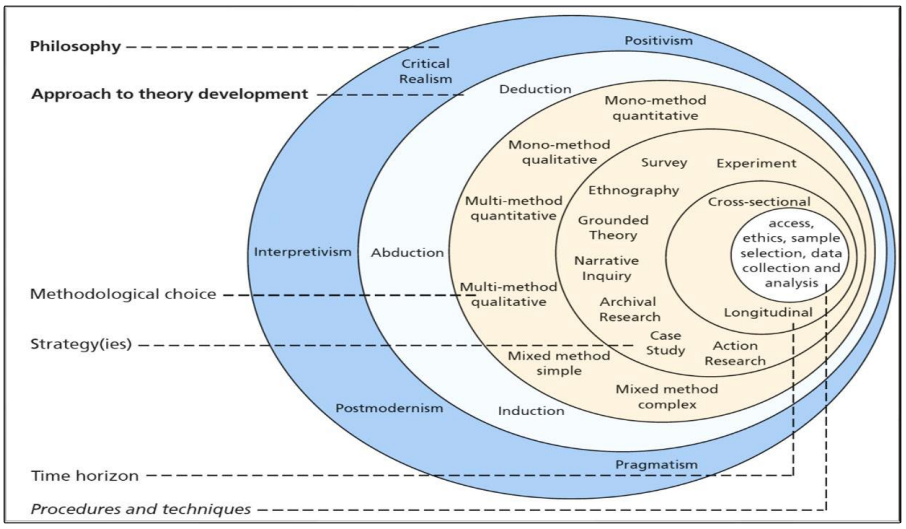

Figure 4.1: Research Onion

Source: Saunders, Lewis and Thornhill, 2019

According to Saunders, Lewis and Thornhill (2023: 129), it is important to examine the outer layers of the research framework and explain why certain elements are more relevant than others. These layers highlight unique aspects of each specific study, demonstrating the various paradigms, techniques, and options researchers use in their studies (Alturki, 2021: 1). Consequently, this study has adopted the research onion model as a conceptual framework for the research methodology of this study. The

rationale for adopting this model lies in its structural approach, which allows for a systematic and comprehensive exploration of the research process (Saunders et al., 2019).

4.2.1 Research philosophy

According to Saunders et al. (2023: 129), research philosophy refers to a set of beliefs and assumptions about knowledge development when conducting research in a particular field. Seeking to answer a specific problem creates new knowledge. A research philosophy reflects the author's key assumptions, which serve as the foundation for the research strategy. According to Melnikovas (2018: 33), philosophy, as the basis of research, and it is defined in research ontology (the nature of reality), epistemology (the nature of knowledge or facts) and axiology (the values, beliefs and ethics of the research).

Saunders et al. (2023: 101) describe five philosophical approaches, including positivism, critical realism, interpretivism, pragmatism, and postmodernism. Each research philosophy has its own unique ontology and epistemology (Oosthuizen, 2021: 46). All three of these philosophies influence the perspective of the researchers and guide the qualitative, quantitative or mixed methods approaches they take (Tjano, 2021: 95). For this reason, Table 4.1 describes the philosophies used in research studies.

Table 4.1: Diverse descriptions of research philosophies or paradigms

Philosophy	Pragmatism	Positivism	Interpretivism	Critical realism	Postmodernism
Rationale	Dialectic	Verify or predict	Understand and interpret	Observable events	Interpretations are contingent
Reality – ontology	Realism – constructed on the world we live in	Objective findings	Subjective findings	Stratified/layered (the empirical, the actual and the real)	Nominal Complex, rich Socially constructed, through power relations
Truth – epistemology	Objective and subjective viewpoints	Scientific knowledge is truth	Multiple realities and truth are co-created	Knowledge historically situated and transient	What counts as "truth" and "knowledge" is decided by dominant ideologies
Research strategy (methodological approach) – examining what is real	Multiple methodologies – hybrid of qualitative and quantitative	Leans towards quantitative methods	Leans towards qualitative methods	Reproductive, in- depth historical situated analysis of pre structures and emerging agency	Range of data types, typically qualitative methods of analysis
Sample size	Mixed or multiple	Large	Small	Medium	Small
Data type	Mixed or multiple	Highly structured	Less structured	Mixed	Multiple

Source: Adopted from Tjano (2021); Dudovskiy (2022).

Table 4.1 provides an explanation of research philosophies that can be applied that includes: rationale, reality, truth epistemology, strategy, sample size, and data type. A pragmatic research philosophy was adopted as the paradigm for this study, with further justification provided subsequently.

4.2.1.1 The choice of philosophy paradigm for the study

This study adopted a pragmatist philosophical paradigm. Pragmatist research aims to study a specific problem by analysing its many interwoven components to acquire a full understanding of the problem (Zotorvie, 2022: 82). From an ontological standpoint, the pragmatist paradigm admits that reality may be both single and plural, as well as objective and subjective at the same time (Kaushik & Walsh, 2019: 6; Khatlisi, 2022: 87). Under the axiology of pragmatism, there is an assumption that research is value driven; while the epistemology of pragmatism employs a variety of methodologies, including mixed, multiple, qualitative, quantitative, and action research (Saunders et al., 2023: 147). According to Creswell and Creswell (2018: 48), to pragmatists, external factors never determine a person's identity; everyone can change their experiences via intellect and behaviour.

The pragmatist philosophical paradigm was adopted for this study. The paradigm was chosen due to its ability to employ all techniques (mixed methods, qualitative, and quantitative) to comprehend and solve the research problem (Khatlisi, 2022: 87). Biddle and Schafft (2015: 4), Morgan (2014: 1), Hall (2013: 23) and Creswell and Creswell (2018: 12) contend that the choice of methodology depends on which approach provides a practical solution to the research problem, given the available data, without compromising the validity and quality of the research.

An additional justification for selecting the pragmatic approach is its capacity to combine multiple research methods in order to collect and evaluate reliable data (Zotorvie, 2022: 82). The pragmatist philosophical paradigm assisted the researcher in acquiring an in-depth understanding of the diverse range of performance indicators employed by SOCs for performance evaluation. Therefore, the PCI developed by this study will help policymakers, boards of directors, management, and departments to assess the performance of SOCs.

4.2.2 Research approaches

The second layer of the research onion consists of three fundamental research approaches: the deductive, inductive and abductive. According to Sheppard (2020), deductive reasoning is often affiliated with scientific inquiry. This means that the deductive approach is often the most appropriate for a positivist research philosophy (Saunders et al., 2023: 147). Inductive research is an approach that begins with data collection relevant to the topic of interest. After collection, the researcher will examine the data (Sheppard, 2020). Bell, Harley and Bryman (2022) explain abductive reasoning within the context of a pragmatic research paradigm, which seeks to address the limitations of both inductive and deductive research approaches. It is the creative, imaginative, or insightful understanding of the data (Lipscomb, 2012: 244).

4.2.2.1 The choice of research approach for the study

The abductive research approach was considered to be the most appropriate methodology for this study as it is a cognitive process that can only be validated through the collection of data, through prototyping and testing (Leavy, 2010: 9). It necessitates developing a specific “working principle” that leads to new and creative problem-solving (Fischer, 2015). Another justification for the adoption of abductive reasoning lay in the use of content analysis to address the secondary objectives of this study through content analysis (Krippendorff, 2004: 36).

The abductive research method was used in this study together with the mixed method approach to overcome the limitations of qualitative and quantitative methods (Dudovskiy, 2022). The abductive research orientation is used to collect data beforehand and then develop a theoretical framework to interpret the data (Melnikovas, 2018: 40). Based on this research strategy, this study collected data through the Delphi technique to develop a PCI to assess performance and differentials in performance of major SOCs.

4.2.3 Methodological choice

A research study can employ three types of methodological choices: qualitative, quantitative, and mixed methods. The methodological selection determines the application of quantitative and qualitative methods or their various combinations

(Melnikovas, 2018: 34; Zait & Zait, 2009: 903). Bell et al. (2022:161) and Creswell and Creswell (2018:43) present these three primary research design approaches, each with its own epistemological foundation and research strategy. According to the aforementioned authors, they are not mutually exclusive or diametrically opposed. Table 4.2 presents a comparative analysis of qualitative and quantitative methods, followed by a discussion on the preferred mixed method.

Table 4.2: Comparative analysis of qualitative and quantitative methods

Criteria	Qualitative Research	Quantitative Research
Purpose	To understand and interpret social interactions	To test hypotheses, look at cause and effect and make predictions
Group studies	Smaller and not randomly selected	Large and randomly selected
Variables	Study of the whole, not variables	Specific variables studies
Type of data collection	Words, images, or objects	Numbers and statistics
Form of data collected	Qualitative data such as open-ended Quantitative data based on precise responses, interviews, participant measurements using structured and observations, field notes and reflections.	Quantitative data based on precise measurement using structured and validated-collection instruments
Type of data analysis	Identify patterns, features, themes.	Identify statistical relationships
Objectivity and subjectivity	Subjectivity is expected.	Objectivity is critical
Role of researcher	Researcher and their biases may be known Researcher, and their biases are not known to participants in the study, but participant characteristics may be known to researcher.	Researcher and their biases may be known. Researcher and their biases are not known to participants in the study, and participant to participants in the study, and participant characteristics are deliberately hidden from the research (double-blind studies).
Results	Particular or specialised findings that are less generalisable.	Generalisable findings that can be applied to other populations
Scientific method	Exploratory or bottom-up: the researcher generates a new hypothesis and theory from the data collected.	Confirmatory or top-down: the researcher tests the hypothesis and theory with the data.

View of human behaviour	Dynamic, situational, social and personal	Regular and predictable.
Most common research objective	Explore, discover and construct.	Describe, explain and predict.
Focus	Wide-angle lens; examines the breadth and depth of phenomena.	Narrow-angle lens; tests a specific hypothesis.
Nature of observation	Study behaviour in a natural environment	Study behaviour under controlled conditions; isolate causal effects
Nature of reality	Multiple realities; subjective.	Single reality; objective.
Final Report	Narrative report with contextual description and direct quotations from research participants.	Statistical report with correlations, comparisons of means and statistical significance of findings

Source: Adapted from Apuke (2017)

A major distinction between qualitative and quantitative research designs is their focus (McNabb, 2002: 89) Quantitative research focuses on exploring relationships or interdependencies between variables via tests or experiments. Qualitative research focuses its analysis on the subject of study, typically a human being.

4.2.3.1 Mixed methods

Researchers have proposed a mixed method, which is a hybrid of qualitative and quantitative methods. The mixed methods approach refers to the use of both quantitative and qualitative data gathering and analysis approaches in a study design (Saunders et al., 2023: 181). However, Mertens (2018: 4) cautions that mixed methods are not just about mixing and combining methods but is a type of research in which researchers combine qualitative and quantitative elements (e.g., perspectives, data collection, analysis, inference techniques) for the purposes of breadth and depth of understanding and corroboration.

Creswell and Creswell (2018: 32) state that mixed methods research not only involves the collection of both quantitative and qualitative data or the integration of the two types, but that the two designs must be used with philosophical assumptions and theoretical frameworks. A mixed methodological approach includes not just procedures but also ideologies. This implies that quantitative data may be qualitatively assessed by converting it into a narrative. Alternatively, qualitative data may be quantified by transforming it into numerical codes so that it can be statistically examined (Saunders et al., 2023: 153). There are three types of mixed methods: convergent, explanatory, and exploratory sequential mixed methods (Creswell, 2014: 269), as shown in Figure 4.2.

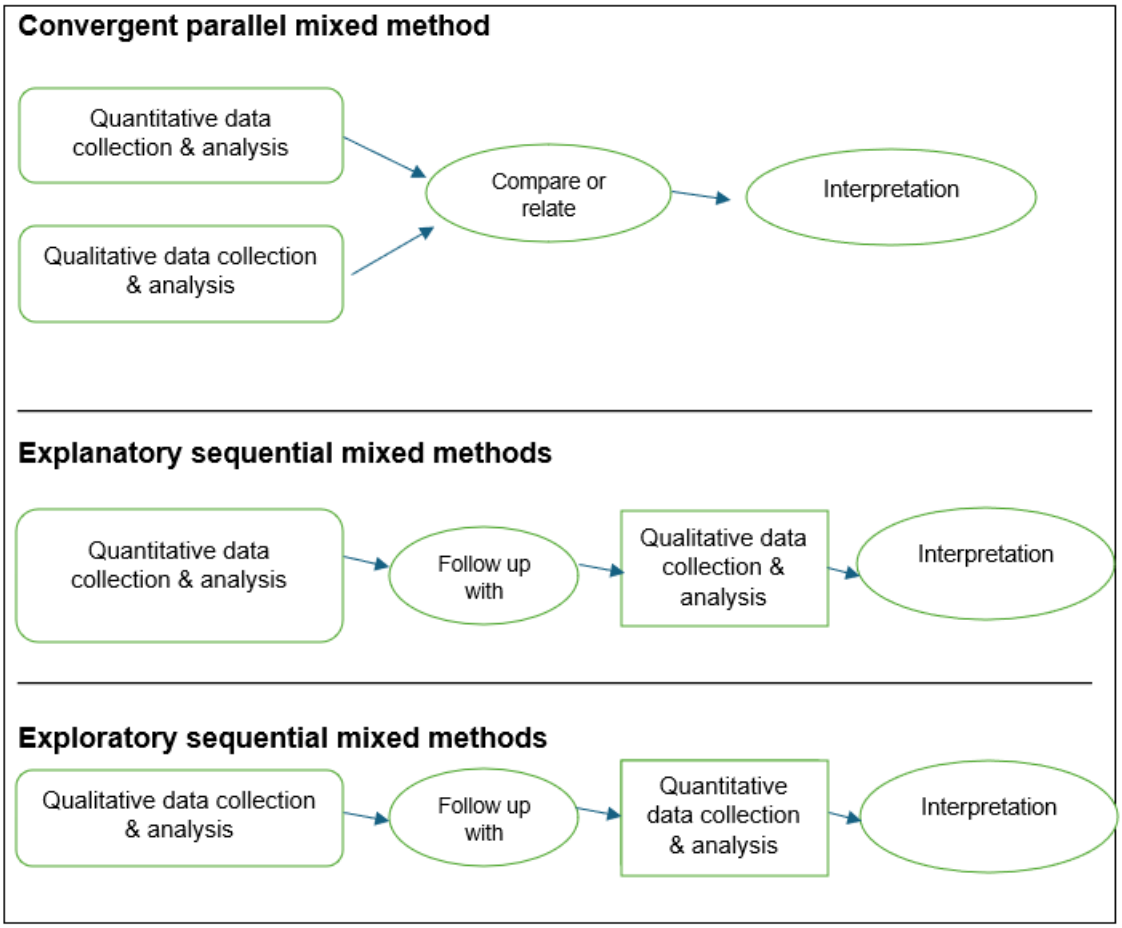

Figure 4.2: Basic mixed research methods

Source: Creswell (2014)

Convergent parallel mixed methods research integrates qualitative and quantitative data for a more comprehensive method of evaluating the research topic (see Figure above). This technique is appropriate for studies that are complex and require deep interpretations of quantitative and qualitative data. Unlike parallel mixed methods, an explanatory sequential mixed methods researcher would conduct one phase of quantitative research, and the results would inform a deeper qualitative study. The last type of mixed-methods procedure is the exploratory sequential design, which is similar to the explanatory sequential design. This study began with qualitative data collection that was followed by quantitative data collection (Crowe, Creswell, Robertson, Huby, Avery & Sheikh, 2011).

4.2.3.2 Methodological choice for this study

An exploratory sequential mixed-method approach was utilised in this study to achieve

the research aim and objectives. Tjano (2021: 97) asserts that mixed-methods research utilises quantitative and qualitative data to answer the research questions. Tjano (2021) stresses that a mixed-methods design should be used when quantitative and qualitative questions (RQs) are used, as in the present study. According to Manjengwa (2020), researchers should be well-versed in both quantitative and qualitative research methods to address any problems involved in this design, for example, collinearity.

Therefore, this study used both quantitative and qualitative research methods thereby avoiding the limitations of each (Chikutuma, 2019: 163). The exploratory sequential mixed methods design was divided into two phases: the qualitative part, which employed the Delphi technique to determine the PCI through structured questionnaires; and the quantitative part that consisted of content analysis of annual reports which contained both financial and non-financial information. Inferential statistics were used in hypothesis testing, inference drawing, and interrogation of relationships among the variables identified.

4.2.4 Research strategies

A research strategy is a guide for designing, implementing, and monitoring a research study. Saunders et al. (2023: 192) assert that before choosing the research strategy to be utilised in the research study, it is necessary to investigate the key attributes of research strategies and their respective merits and drawbacks. The research strategy must be supplemented with research methodologies that direct the study activities at a more granular level (Johannesson & Perjons, 2014: 39). The fourth layer of the research onion comprises research strategies that include experimentation, survey, case research, action study, grounded theory, ethnography, and archival research (Ambe, 2021: 106). Two research strategies were adopted in this study: a survey questionnaire using a Delphi technique and archival research.

4.2.4.1 The Delphi technique

The aim of the Delphi technique is to produce an expert opinion on an epistemological question (Niederberger & Spranger, 2020: 1). Examining discussions in this manner, in addition to qualitative methods, such as interviews or focus groups, which do not

provide a comparison of different opinions (Barrett & Heale, 2020: 68), allows participants to evaluate the perspectives of others in relation to their own. Twin (2022) underscores that, due to the anonymity of the participants' responses, individual participants do not need to cope with the consequences of their opinions as the method shields participants from the "halo effect", which endows greater importance to the perspectives of more influential or higher-ranking members of the group.

Beyond its statistical superiority, the Delphi technique offers other practical benefits over alternative forms of opinion gathering. Apart from statistical aggregation superiority, the Delphi technique offers several other practical benefits over alternative opinion-capture methods. It is particularly useful in situations where face-to-face discussions are impractical. Furthermore, it mitigates the challenges of time and cost constraints that may otherwise hinder experts from simultaneously convening in a single location (Chikutuma, 2019: 178). Thus, after every round of responses, an anonymous summary of the experts' views and rationale is made available, encouraging experts to adjust their earlier responses based on the responses of others involved in the study (Ambe, 2021: 117).

The advantages and disadvantages of the Delphi technique (Ambe, 2021: 76) are presented in Table 4.3.

Table 4.3: Advantages and limitations of the Delphi technique

Advantages	Limitations
• Builds consensus. • Forecasts the future. • Brings together a geographically dispersed panel of experts. • Ensures the confidentiality and anonymity of responses. • Short time necessary for respondents to complete surveys. • Allows for quiet, thoughtful consideration. • Avoids confrontation of experts thus encourages honest opinion, free from pressure of the group. • Organised and structured group communication approach. • Reduces the tendency to follow the leader. • Avoids needless side-tracking for panellists and is focused. • Ties together the collective wisdom of participants. • Flexible/adaptable and cost-effective. • Panellists drive the content validity. • Simple to use. • Long-range educational planning and short-term decision-making benefits. • Relevant in the situation of ambiguity or inadequate understanding, delivering data where not much existed before. • Establish the foundation for forthcoming research. • Can include a relatively large group.	• Group influence for consensus may not be a genuine agreement. • The feedback method may lead to compliance rather than consensus. • No accepted guidelines for establishing consensus, sample size, and sampling technique. • Results are perceptual at best. • Entails time/expert commitment. • Possible problems in developing an initial questionnaire to start the process. • Could result in hasty, ill-thought conclusions. • Written communication skills required. • The potential danger of researcher's bias. • Panel composition and selection. • Setbacks between rounds in the data gathering process. • May confront a middle-of-the-road compromise. • Limitations on the reliability of the method. • Possible high dropouts and low response rates.

Source: Ambe (2021) and Skinner, Nelson, Chin and Land (2015)

This study applied the conventional Delphi technique, which accommodates the availability of experts and minimises dropout rates (Gnatzy, Warth, Von der Gracht & Darkow, 2011: 1681). According to Ambe (2021: 78), the Delphi technique is based on five essential elements, which include: (i) the use of experts; (ii) anonymity of participants; (iii) organising the flow of information; (iv) providing regular feedback; and (v) the role of a facilitator.

4.2.4.2 Literature on the Delphi selection criteria and sample size

The Delphi selection criteria and the appropriate number of participants have been widely discussed (Matemane, Moloi & Adelowotan, 2022; Ambe, 2021; Jamil, Hassan, Salleh & Yaakob, 2020; Wantanakomol & Silpcharu, 2020; Chikutuma, 2019; De Oliveira, Behr & Maçada, 2019; Sahari, Tinggi, Cheuk & Nordin, 2018; Sourani & Sohail, 2015). Table 4.4 presents diverse perspectives on the Delphi selection criteria and acceptable sample size.

Table 4.4: Diverse perspectives on the Delphi selection criteria and acceptable sample size

Researcher	Topic	Perspective on the acceptable size	Justification on the selection of Delphi panel
Matemane et al. (2022)	Appraising executive compensation ESG- based indicators using analytical hierarchical process and Delphi technique	There were 31 responses obtained in the fourth round of the Delphi process. The number is adequate because it exceeds the proposed range of 7–15 experts by a wide margin (Sourani & Sohail, 2015).	The panel of experts with the required socio-demographic profile were invited to participate in the study. The majority of them are from South Africa (83%), and 35% have Master's and/or Doctoral degrees. These experts are largely academics and serve as members of the boards.
Ambe (2021)	Public accountability model for South African higher education	The study used a two-stage Delphi process to develop the public accountability model, which was subsequently reviewed by a total of 26 experts. The number of expert participants in the first and second rounds is acceptable because it fulfils the Delphi panel of between 10 and 30 participants recommended by prior studies (Worrell, Di Gangi & Bush, 2013; Baldwin & Trinkle, 2011; De Haes & Van Grembergen, 2009).	The experts' group consisted of highly qualified and experienced people who have deep knowledge and insights and are up to date on the latest developments in PHEIs' annual reporting in South Africa. They include: experts in annual reporting by PHEIs in South Africa; PHEI annual report experts; researchers; regulators; and PHEI annual report preparers.
Jamil et al. (2020)	Non-financial Risk Disclosure: from Narratives to an Index based on Delphi technique.	A group of stakeholders was involved in the implementation of the Delphi process, with 11 individuals agreeing to serve as panellists. This number of experts was considered to be sufficient for the study, as Hallowell and Gambatese (2010) advise a number between eight and 16 panellists.	The Delphi panellists for this study are stakeholders with specific knowledge and experience in risk management. Such entities have also been included in the study to serve at the NFRDI's disposal as needed.

Wantanakomol and Silpcharu (2020)	Strategy for preventing corruption in industrial business organisations with the Delphi technique.	A total of 15 experts participated in three rounds of open-ended interview forms and open-ended questionnaires with rating scales. The number of experts who participated in the study was acceptable because it adhered to the approach outlined by McMillan (1971), which requires 15 experts.	The study used the Delphi technique to acquire consensus from three groups of experts: internal auditors; certified public accountants (CPAs); and financial and accounting academicians, to investigate solutions for combating corruption in industrial company organisations.
Chikutuma (2019)	A polychotomous accountability index for integrated reporting by South African listed companies.	A sample size of 25 people partook in the Delphi Inquiry exercise. Consequently, the number of participants was considered appropriate because Turoff and Linstone (2002) asserted that, while no definitive rule exists regarding the ideal number of participants, most studies typically engage 15 to 30 experts. This range is optimal for capturing diverse perspectives while ensuring the practical feasibility of conducting analysis and feedback rounds.	The selection criteria for the Delphi inquiry panellists encompassed individuals who possess a higher degree in the area of study, supervisors of students in the area, recipients of research grants from international organisations, such as CIMA, members of an auditing professional body such as IRBA (South Africa), and members of the IIRC.
De Oliveira et al. (2019)	Building the main mechanisms of Accounting Information Governance: A Delphi study with accountants.	A sample size of 30 participants was obtained, which was in line with the recommendations of Paré, Ann- Frances, Placide and Mathieu (2013) and Skinner et al. (2015) on the minimum number of experts for a ranking-type Delphi.	The selection of participants was based on criteria that included their experience, their education in the relevant area of research, and their motivation and commitment to participate in all rounds (Paré et al., 2013). Also, they were chosen for convenience as well as their fields in expertise in accounting.
Sahari et al. (2018)	Review of Delphi technique in developing	This study did not specify how many experts are required to conduct a Delphi technique. However, the number is acceptable provided it	The consensus of the study was achieved after three revision cycles whereby the item measurement was generated. The Delphi

	human capital disclosure index.	meets the widely accepted minimum number of 7–8 experts prescribed by Weidman, Miller, Christofferson and Newitt (2011).	panel selections included experts with extensive knowledge and experience in human capital in corporations, employee relations and rights, and the topic under consideration.
Sourani & Sohail, 2015	Review and use of the Delphi Method in construction management research	In total, 21 specialist stakeholders participated in the Delphi process, and provided a broad range of views from various sectors. This number was considered satisfactory because it did not exceed the suggested maximum of 30 participants proposed by many researchers (e.g., Worrell et al. [2013], Baldwin and Trinkle [2011], and Van Grembergen [2009])	The experts were chosen for their knowledge, willingness, availability and representative diversity of backgrounds and positions. The experts were either in professional eminence (e.g., as evidenced by leadership, membership, or position in professional society or organisation) or erroneous members of 1-2-4 higher education institutions.

Source: Author (2023)

The literature suggests differing opinions on the appropriate number of experts for minimum, medium and maximum levels of a Delphi panel. A panel of experts must consist of at least seven people and, at most, 15 people according to Weidman et al. (2011) and Sourani and Sohail (2015). In contrast, some researchers argue for a lower-minimum threshold of eight and an upper limit around 30 (De Haes & Van Grembergen, 2009; Hallowell & Gambatese, 2010; Baldwin & Trinkle, 2011; Paré et al., 2013; Worrell et al., 2013; Skinner et al., 2015). Based on recommendations from literature studies, this study adopted a lower limit of 10 and an upper limit of 30 participants.

4.2.4.3 Survey questionnaire

According to Check and Schutt (2012: 160), survey research with questionnaires is the process of collecting information from a sample of respondents in order to obtain their answers to the questions. As a survey questionnaire is a research strategy, the primary goal is to systematically map and specify different aspects of the world, both physical and social. Questionnaires for surveys usually entail wide coverage, offering a cross-sectional view of the targeted fields of interest (Johannesson & Perjons, 2014: 43).

Survey questionnaire research may employ a range of data collection techniques, the most frequent being questionnaires and interviews. Survey questionnaires can be self-administered or delivered by a professional, can be administered individually or in groups, and often contain a sequence of items that represent the study objectives (Ponto, 2015: 170). The advantages of survey questionnaires include having a large population and hence increased statistical power, the capacity to collect vast volumes of information, and the availability of proven models.

However, survey questionnaires are expensive, referencing memory can sometimes be inaccurate and validity is dependent on response rate (Jones, Baxter & Khanduja, 2013: 7). Wilson (2014), on the other hand, argues that the use of an online survey questionnaire enables researchers to obtain accurate data. The Delphi online questionnaire was adapted for this study from the Delphi survey questionnaire. This facilitated the ability of experts to fill in the questionnaire based upon their own

discretion of either time or space, when and where it was most convenient for them. Therefore, the Delphi online questionnaire was carried out in the following four steps as described below.

4.2.4.3.1 Phase 1: Delphi process flow for the development of non-financial performance compliance index (PCI)

This is a qualitative phase where data were collected from a list of experts. Prior to the occurrence of the Delphi process flow, the following procedures were carried out:

(i) Qualification criteria and composition of the Delphi panel

When selecting experts for a survey, it is essential to consider their competence and knowledge in the specific area under investigation. According to Caley, O'Leary, Fisher, Low-Choy, Johnson and Mengersen (2014), specialists need to have a thorough knowledge of the subject matter to provide accurate and trustworthy information.

An expert for this study was deemed as an individual who: (i) has been working in the governance, oversight, and management of SOCs on a daily basis; and (ii) has sensitive knowledge and insights and is updated with the latest developments in SOCs. In addition, the individual must have a minimum of two publications in peer-reviewed journals that primarily focus on governance, management, leadership, and the performance SOCs; and (iii) someone who is trained and experienced in being preparers, reviewers, and auditors of the annual reports of SOCs. In order to be deemed experts for this study, individuals were required to conform to the composition criteria outlined below:

- Group A - CEO and CFO of SOCs.
- Group B - Chairperson or a member of the AC.
- Group C - Board members of SOCs.
- Group D - Academics and researchers in the subject matter of SOCs.

Therefore, the inclusion criteria encompassed all those who satisfied the

predetermined requirements, while those who did not satisfy the criteria were excluded from participating in the conversional Delphi online questionnaire. Once the criteria had been developed, the next step was to identify experts to take part in the study.

The process of recruitment was subject to the individual voluntarily participating in the Delphi online questionnaire.

(ii) Delphi questionnaire panel size

The Delphi panel for this study was determined to have a target size of 30 participants who were divided into five groups. This panel size met the criteria indicated in the existing literature and satisfied the previously recommended minimum thresholds (Nitzl, Roldan & Cepeda, 2016). All participants who fulfilled the requirements were included (Groups A to E) and those who did not were excluded from participating. The Delphi online questionnaire featured demographic gender information of the participants to provide evidence for empirical findings, positive correlated gender diversity in management and corporate boards and to reinforce the view that gender parity increases the performance of companies (Pidani, Mahmood & Agbola, 2020; Khatri, 2018; Reguera-Alvarado, De Fuentes & Laffarga, 2017).

(iii) The recruitment process for Delphi panellists

The researcher approached known people with whom he served on some boards as a non-executive and AC member, and academics and professionals meeting the inclusion criteria and invited them to participate in the Delphi online questionnaire. In addition, the researcher issued a formal request via his network to recommend candidates who matched the selection criteria and were willing to participate in the Delphi online survey questionnaire. A master list was created containing the names and contact details of all relevant individuals who indicated their willingness to participate in the Delphi online survey.

A subsequent email consisting of an official invitation letter, consent form, and all approved ethics letters were sent to all prospective participants. The invitation letter informed the participants that they had the choice to pull out of the Delphi online questionnaire if they felt uncomfortable continuing with the questionnaire. Moreover,

the participants were requested to complete, sign, and return the consent form as acknowledgement of their participation in the Delphi online questionnaire. A follow-up inquiry was conducted with those who did not submit their consent forms to ensure that the desired Delphi panel size of 30 was met.

(iv) Pilot study

Prior to collection and analysis of the primary data, the researcher conducted a pilot study to assess the reliability of the research instrument, as recommended by Saunders, Lewis and Thornhill (2012: 451). According to Arain, Campbell, Cooper and Lancaster (2010), a pilot study serves as a preliminary investigation to evaluate the suitability and feasibility of research methods planned for a more comprehensive study.

Consistent with the approaches of Abu Al-Ajeen, El Esely and Abo (2020), and Ambe (2021), this study conducted a pilot study to validate the research tools, ensure the relevance and appropriateness of selected items and categories, clarify any ambiguities, and gauge the reliability of the measurement tool's disclosure. In the pilot study, participants were invited to give feedback and share their experiences on using the Delphi online questionnaire which offered useful suggestions for further development of the Delphi (Ambe, 2021: 131).

Section ii details a pilot study carried out with 15 respondents evenly across the groups listed in section i. This sample size was considered sufficient and valid, exceeding the general consensus in the literature that pilot studies need to include a substantially smaller number of participants, generally fewer than 30 or approximately 10% to 20% of the total intended survey size (Bujang, Omar, Foo & Hon, 2024). Thus, in the Delphi pilot study, the two-round process was implemented to reach consensus.

(v) The administration procedure for the Delphi online questionnaire

The participants received emails with a link that gave access to the Delphi online questionnaire. This hyperlink email was only sent to the participants who signed the consent forms confirming their willingness to participate in this study. Participants in the Delphi online questionnaire were not required to provide their personal details

(name and surname, ID number or contact details). However, it did ask for information such as gender, age, highest education and professional affiliation. Secondly, the respondents were given 30 minutes to fill the questionnaire at their convenience. The Delphi online questionnaire was administered over a period of 14 days, starting after the completion of the pilot study.

Phase 1: Participants were asked to identify potential missing information or errors in the questionnaire and validate the compliance chapters of SOCs with non-financial performance in terms of PFMA, corporate governance, human capital and developmental performance checklists. Secondly, they were asked to score the performance indicators included in the suggested performance compliance checklist in terms of significance and relevance based on the dichotomous index scale of 1 and 0. When this metric is to be reported, it is given a value of 1; if it does not apply, it is given a value of 0.

Thirdly, the participants were encouraged to make suggestions for any performance indicators that were not included but they felt should be included in the proposed performance checklist, along with a rationale for their inclusion.

The researcher subsequently consolidated all responses and sent the questionnaire out again for participants to examine, input, approve, and return in order to create a non-financial PCI. The process flow is summarised in Table 4.5.

Table 4.5: Delphi process flow

NO	Step	Description of the flow
1	Identify potential panel of experts	Identify potential panel of experts who possess the requisite expertise and knowledge about the subject matter in this case, SOC (sustainability or social) disclosure performance.
2	Selection of experts as described in section (i) above	After identifying potential experts, they were selected using the criteria outlined in section i.
3	Pilot study	A pilot study was done to fine-tune the process to make a Delphi study credible, efficient, and effective.
4	First round: Sent a hyperlink to experts for review	A hyperlink was sent to experts to review the performance checklist for omissions and errors, validate, and rate items for their importance and relevance in terms of SOC disclosure performance.
5	Feedback from the first round	Consolidate to identify common themes, suggestions, and issues.
6	Collect and analyse the rated indicators	Assessed the rated indicator on a scale ranging between 0 and 1. When an item or indicator is reported, a value of "1" is assigned, and when it is not reported, a value of "0" is assigned. Recommend any item missing and justify.
7	Second round	In round two, the researcher distributed the new feedback to the participants based on their earlier responses. This round was for final adjustments or fine tuning of the framework with the experts aligned and contributing their end of stage assessment before advancing. The second round was used to deepen the consensus building process.
8	Consolidate the final inputs	Receive and analyse the final review from the panel of experts.
9	Develop the PCI	The last process was developing the PCI, which contains non-financial and developmental performance data.

Source: Author (2023)

The rigorous Delphi process flow produced an innovative, valid, and reliable non-financial PCI. This is because the input, suggestions, and recommendations from subject matter experts (SMEs) were integrated into it, eliminating vagueness. Researchers also had the opportunity to provide comments and suggestions on the inputs put forward by others in the first two rounds of the Delphi process, in addition to making individual inputs and recommendations. Therefore, the present study employed the Delphi techniques that corresponded with earlier studies by Matemane et al. (2022), Ambe (2021), Jamil et al. (2020), Denhere (2019), Chikutuma (2019) and Sahari et al. (2018).

4.2.4.4 Archival research

Archival research methods encompass a wide variety of activities used to aid in the analysis of documents and textual materials created by and about organisations. In the most traditional meaning, archive methods entail the study of historical records, that is, materials generated in the relatively distant past, giving access to the organisations, personalities, and events of that time that we would not otherwise have (Ventresca & Mohr, 2017). According to Gilliland, McKemmish and Lau (2017), archival research is non-evaluative in the sense that it achieves objectivity through the application of established (albeit historically established) principles and methods inherent in the archival doctrine itself. The strategy of archival research enables researchers to answer exploratory, descriptive, or explanatory research questions about the past and the changes over time.

In archival research, first identify existing data, then design the study to utilise it effectively (Saunders et al., 2023: 156). Jones (2010) describes archival data as any information that has already been gathered by a previous researcher but can be used for another study. Like any other methodology, archival studies face limitations, such as untraceable information, prejudicial or subjective information, outdated information, and unavailable information. This study used archival research which, in this case, included SOCs' audited annual reports accessed from respected sources such as the SOCs' sites, the National Treasury and the McGregor BFA database. Subsequently, the annual reports were subjected to content analysis.

4.2.4.5 Content analysis – Phase 2

The term "content analysis" refers to various methodologies for the systematic, repeatable examination of text. It entails the classification of portions of text using a structured coding scheme, from which implications about the content may be formed (Rose, Sprinks & Canhoto, 2015: 1). According to Coe and Scacco (2017), content analysis is frequently used in the field of communication and has applications in a variety of other domains. The definitions of content analysis represent its historical evolution (Chikutuma, 2019: 181). The aim of content analysis is, therefore, to measure the level of disclosure in texts, such as annual reports and websites, using quantitative values that can be statistically examined (Joseph & Taplin, 2011: 20).

This study adopted content (mechanistic) analysis for quantitative data to address research objectives 2 to 5 by measuring the performance and performance differentials of SOCs for the period between 2013 and 2022. Content analysis was conducted on a total of 210 annual reports, where one annual report per year was downloaded for each of the 21 SOCs for a period of 10 years, from 2013 to 2022. All SOCs stipulated on Schedule 2 of the PFMA were considered for inclusion, whereas any SOCs that did not meet the criteria of Schedule 2 were excluded (see Table 2.1). The annual reports underwent content analysis using the disclosure index.

4.2.4.6 Disclosure index

Marston and Shrives (1991: 197) describe a disclosure index as a research instrument comprising predetermined items that, upon scoring, yield a measurable statistic indicative of the extent of disclosure. This instrument intended, firstly, to evaluate the presence of a number of items and, secondly, the quality of the disclosure (Ambe, 2021: 84). According to Abu Bakar (2016), the use of the disclosure index is commonly observed in the existing literature on public sector transparency. This index is used to assess the extent to which accountability information is disclosed in the annual reports of institutions. It improves the institution's annual report reporting practices and provides valuable information to a broad range of stakeholders (Abu Al-Ajeen et al., 2020: 4).

The disclosure index is divided into two categories: the polychotomous accountability index and the dichotomous disclosure index (Chikutuma, 2019: 174). The

dichotomous disclosure index integrates conventional measures to evaluate the quality of particular disclosure items, assigning equal scores for the presence or absence of a measurement item (Beattie, McInnes & Fearnley, 2004 cited in Ambe, 2021: 121). In contrast, to the polychotomous disclosure index, Chikutuma (2019: 174) asserts that a dichotomous index is used to assess whether a company reveals a particular theme or not, taking into account the extent of disclosure. This is a simple binary coding technique that records the absence or existence of an item. Moreover, the dichotomous index measures the presence or existence of a number of items as compared to the quality or degree of disclosure.

Thus, in this study, a dichotomous index was developed and then applied to annual reports. This was based on the notion that all items are of equal importance and should be assigned equal weight (Ambe, 2021: 89). Therefore, "1" was assigned to instances in which an indicator was reported as expected. In contrast, a value of "0" was assigned when an indication was judged irrelevant or not expected to be reported. The selection of the dichotomous or binary score rating was inspired by the fact that there is a lack of a standardised PCI for SOCs. Instead, the boards of various SOCs develop standards for factors to be stated in annual reports that are consistent with the company's strategic goals and have them signed and accepted in the corporate plan, shareholder compact, or balanced scorecard. The next step involved the magnitude coding of the data that were collected and analysed.

4.2.4.7 Coding

According to Saldana (2014: 585), a code refers to a word or concise phrase that symbolically assigns a summarising, salient, essence-capturing and/or evocative attribute to a datum; a piece of language or visual data. The collection may consist of multiple types of qualitative data such as interview transcripts, participant observation field notes, personal journals, documents, literature, artefacts, images, movies, websites, e-mails, and other such documentations. The data that preforms can range in scale, from a single word to a phrase, paragraph, or several pages of text or a series of moving images. There are two main groupings of codes, broadly speaking, which are first cycle codes and second cycle codes (Chikutuma, 2019: 193).

For the purpose of this study, the first cycle approach was employed, specifically using

the grammatical method. According to Chikutuma (2019: 194), the grammatical method refers to the fundamental grammatical principles of a methodology rather than to language grammar. Attribute coding, magnitude coding, sub-coding, and simultaneous coding are examples of the grammatical method. Therefore, the research employed magnitude coding due to its capacity to incorporate and manage both qualitative and quantitative descriptive data. According to Saldana (2014), magnitude codes might constitute numbers to indicate the weight, importance, intensity, or frequency, such as “0” = not applicable and “1” is applicable, which was used for the dichotomous part of the study.

The magnitude coding used in this study involved following a set of specific instructions bearing which aspects to be recognised in a text and eventually producing the notation of the particular magnitude when they did occur. After the coding process is done with first-cycle methods, the coding process is finalised with second-cycle methods. In second-cycle designs, more advanced strategies are applied to reorganise and revalue data that have been originally coded through first-cycle approaches (Chikutuma, 2019: 194).

4.2.5 Time horizons

The next layer of the research onion to be peeled is the time horizon. This layer establishes the temporal scope of the research (Melnikovas, 2018: 34). In a similar manner, the time horizon refers to the time span over which any information related to the current decision problem may be acquired (Phillips, Claxton & Palmer, 2008: 288). Collecting data over a specific period of time involves two types of time horizons: cross-sectional, and longitudinal. These two types of time horizon, the “snapshot” and “diary” viewpoints, are labelled as cross-sectional and longitudinal respectively in this context (Saunders et al., 2023: 156). Given that this study used the longitudinal time frame of a 10-year period from 2013 to 2022, it was appropriate to present a contemporary analysis of this study.

4.2.5.1 Longitudinal

Longitudinal data collection is defined by Melnikovas (2018: 34) as "a procedure when data are collected on a repeated basis during an extended time span to compare data.”

In such a scenario, longitudinal design means "researchers repeatedly observe the same individuals to see what changes occur" and data are collected "two or more times over a period of time" (Christensen, Johnson & Turner, 2021: 66). Longitudinal data analysis is when specific individuals are measured repeatedly over an extended period often over years or decades. Longitudinal designs are correlational in nature whereby researchers observe and collect data on numerous variables, without trying to change those variables (Thomas, 2020).

Longitudinal data are primarily observational in nature, with quantitative and/or qualitative data gathered on any combination of exposures and outcomes, with no external influences applied. Hence, it only tracks one group or age cohort of people across time, and all individuals within this cohort encounter comparable environmental occurrences (Christensen et al., 2021: 67). This study considered the longitudinal design to be relevant and appropriate to measure objectives of this study for the period 2013 to 2022. Hence, it is imperative to consider quantitative or qualitative research methodologies in a longitudinal study that centres on a shared purpose for many initiatives (Chikutuma, 2019: 169).

4.2.6 Techniques and procedures

The final layer in the research onion is the techniques and procedures that include data collection and analysis; the use of primary and secondary data; the selection of sample groups; the development of questionnaire content; the preparation of interviews, etc. (Melnikovas, 2018: 34).

4.2.6.1 Population and sample

(i) Population

According to Shukla (2020), the population is the set or group of all the units on which the study findings are to be applied. In other words, a population is a collection of all the units that share the variable feature under investigation and for whom research findings may be generalised. There are four types of populations in research: finite and infinite; homogeneous and heterogeneous; existing and hypothetical; and known and unknown. The homogeneous population was used for the qualitative Delphi technique and finite population for the quantitative approach. Homogeneity means the

units of a population can be identical or equal in some characteristic, while finite means that a population contains a limited number of units whose size can be well-defined (Shukla, 2020).

(ii) Sampling

Sampling is the method of selecting aspects from a population to form a sample (which is a portion of that population) (Christensen et al., 2021: 161). According to Saunders et al. (2023: 207), sampling approaches afford an alternative for minimising the data collection through the analysis of data from sub-samples instead of all potential cases or components. If the sample is well-chosen, it is probable that it will have the same features or properties as the wider group (Sambo, 2017: 142). In research, sampling methods are of two types, probability and non-probability sampling.

Acharya, Prakash, Saxena and Nigam (2013: 330) state that probability sampling is a process in which the sample for the study is drawn from the population and selection is done randomly. Non-probability sampling means the use of non-random factors such as availability, geographical area or knowledge of a specific subject to answer a question. Non-probability sampling, which generates five categories of sample methods: convenience; quota; self-selection (volunteer); snowball; and purposive (judgemental) sampling) was used to select the study population.

Purposive sampling was also used. Sampling purposively (also known as judgement) is a research approach in which the researcher selects (samples) according to aspects that matter or are pertinent to the research question (Mbo, 2017: 22). It also provides a way to be intentional in the contexts that are chosen to address the research questions and achieve the objectives. Note that small sample sizes are notable in case study research, and such samples are chosen when cases are particularly informative (Saunders, Lewis & Thornhill, 2009: 237). Purposive sampling is obtained as in Figure 4.3.

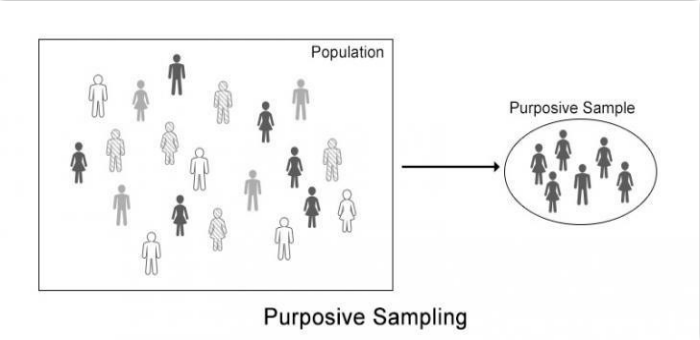

Figure 4.3: Purposive sampling
Source: Dudovskiy (2022)

The sample size of 21 Schedule 2 major SOCs for quantitative data processing was determined by the snowball sampling method. The sample size for the quantitative data in this study was determined using a snowball sampling method due to the sample of interest being difficult to reach with other sampling methods. Despite its limitation, snowball sampling offered a credible and feasible means to gather a sufficient number of cases to meet the inclusion criteria.

4.3 Data collection

Christensen et al. (2021: 70) describe data collection as “the approach a researcher takes to get empirical data to answer his or her research questions”. A more recent definition is offered by Musundwa (2022: 103), who defines data collection as the method of gathering the information from the research participants to solve the research problem. This means that researchers need to gather data so that they can make inferences and conclusions (Bhat, 2022: 5). Based on the data collection methods, there are two data collection methods, primary and secondary, as shown in Figure 4.4.

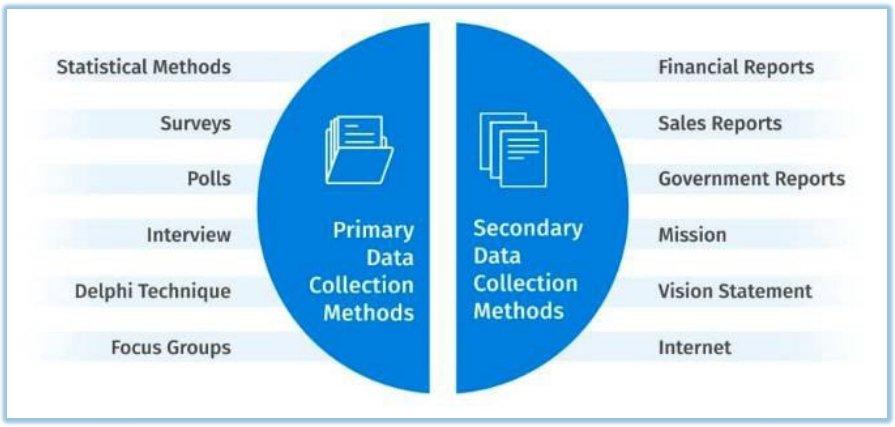

Figure 4.4: Data Collection Methods
Source: Bhat (2022)

4.3.1 Primary and secondary data collection

The primary data collection of this study included a questionnaire, and secondary data included the content analysis of annual reports for the period between 2013 and 2022.

4.4 Data analysis

As described by Flick (2018) and Ngqumeya (2012), data analysis is a systematic process of examining, manipulating, organising, and summarising data to extract useful information from it. It is the process of reducing the gathered data to a manageable size, summarising it, and making sense of it using statistical tools to identify patterns and correlations in the captured data (Ngqumeya, 2012: 25). The data from this study were analysed in the following steps:

1. The study used Microsoft Forms to develop and administer the conventional Delphi online questionnaire.

2. A self-developed binary, dichotomous index was used for content (mechanistic) analysis of annual reports.

3. Microsoft Excel was used for capturing and cleansing the collected data.

4. Magnitude data coding was employed on all data collected in order to ensure that any potential mistakes or duplicates were addressed.

5. The Statistical Package for Social Science (SPSS) 30.0.0 was used to

perform descriptive analysis, and Minitab v17, 2024 was used for econometric analysis, forecasting, and statistical calculations.

6. Single and multiple regression models were used to address secondary objectives 1 to 4.

The application of the data analysis to each objective is explained below.

Aim and objective : Developing a performance compliance index (PCI)

This objective was addressed through the development of a PCI. The Delphi technique was used, which consisted of four non-financial performance compliance checklists. The indicators used in the initial stages of the checklist were: (i) the PFMA; (ii) corporate governance; (iii) human capital; and (iv) the developmental performance checklist. Subsequently, the Altman Z-score, which serves as a proxy for financial performance, was integrated into the non-financial PCI. This resulted in a comprehensive conceptual PCI that combines financial, non-financial, and developmental performance. The Altman Z-score, used as a proxy for financial performance, is explained below.

The Altman Z-score is a predictive model which has been used in different industries to identify financially distressed companies (Lord, Laundry, Savage & Weech-Maldonado, 2020: 1). Hence, this model was used in this study to evaluate the economic feasibility and operation of SOCs. It showed accuracy in predicting companies that are about to go bankrupt (Ko, Fujita & Li, 2017). The formula for the Altman Z-score is:

Altman Z-score = 1.2A x 1.4B x 3.3C x 0.6D x 0.99E……...…….equ. 4.1

Where:

A = Working capital / Total assets (Measures the relative amount of liquid assets)

B = Retained earnings / Total assets (Determines cumulative profitability)

C = Earnings before interest and taxes / Total assets (Measures earnings away from the effects of taxes and leverage)

D = Market value of equity / Book value of total liabilities (Incorporates the effects of a decline in the market value of a company's shares)

E = Sales / Total assets (Measures asset turnover).

According to the Z-score, if the number is greater than 2.99, the entity is considered to be safe from bankruptcy. Less than 1.81 indicates businesses that are at heightened risk of bankruptcy, and scores in the middle range should be considered a warning that something might be wrong (Lord et al., 2020).

Secondary objective 1: Assessing the performance level of major SOCs in South Africa

This study used the developed PCI in the objective 1 and a multiple regression model to answer this research objective. Earlier literature states the importance of the use of both financial and non-financial measurements in a comprehensive assessment of performance (Mbo, 2017: 43). This study built on that by adding a third element to make up for the PCI (developmental performance). This is a novel way to differentiate the current study from those that have been previously researched as it used a new way to assess how SOCs are performing in South Africa.

Financial, non-financial, and developmental performance dimensions are part of the new framework which enables a more comprehensive understanding of the organisations' performance. Financial performance factors show the financial position and risk of bankruptcy and non-financial performance factors show other areas such as customer satisfaction, employee productivity, and the environmental impact, etc. By introducing a new dimension, the developmental performance of the SOCs considers not only their social impact contributions, but also their economic development.

Therefore, the multiple-regression model utilised for this purpose is presented in equation 4.2.

$$Y_{it} = \alpha_1 + \beta_1 + \beta_2 + \beta_3 + \varepsilon_{it} \quad \text{.....equ. 4.2}$$

then

Y_{it} = α_1 + β_1 financial + β_2 non-financial + β_3 developmental + ε_{it}

Y_{it} = α_1 + Z-score + PFMAi + CGI + HCI + DPI + ε_{it}

Where:

$\boldsymbol{Y_{it}}$ = Return on Assets (ROA)

$\boldsymbol{\alpha_1}$ = Constant, y-intercept, that is, the value of y when x is equal to zero

$\mathbf{B_1}$ = financial (Altman Z-score)

$\mathbf{B_2}$ = non-financial (PFMAi, CGI, HCI)

$\boldsymbol{\beta_3}$ = developmental (DPI)

$\boldsymbol{\varepsilon i_t}$ = Error term

Objective 2: To evaluate and contrast the performance differentials of major wholly and non-wholly owned state-owned companies in South Africa

- H_0: There are performance differentials between major state-owned companies that are wholly owned by the state and those that are partially controlled by the state.

- H_1: There are no performance differentials between major state-owned companies that are wholly owned by the state and those that are partially controlled by the state.

Objective 3: To compare and contrast the performance differentials of major SOCs that were under the Department of Public Enterprises and those that were not under the Department of Public Enterprises

- H_0: There are performance differences between state-owned companies under the Department of Public Enterprises and those that are not.

- H_1: There are no performance differences between state-owned companies under the Department of Public Enterprises and those that are not.

For objectives 3 and 4, hypotheses were tested using a t-test formula first established in 1908, then employed in a study by Umar and Zhanfang (2021). According to Kim

(2015: 1), a t-test is a statistical method that compares the average of two separate groups. The formula for the t-test is given in equation 4.3.

Equation 4.3: $t = [(x_1 - x_2) - d] / SE$……equ. 4.3

Where :

x_1 = the mean of wholly owned SOCs' performance x2 = the mean of partially owned SOCs' performance

d = the assumed mean difference between population means, and SE = the standard error.

In conclusion, the aforementioned objectives were achieved using two distinct approaches. One approach involved doing a comparative analysis of major SOCs and subsequently ranking them based on their performance. Secondly, this study compared and contrasted the performance of SOCs that fall under the DPE with other SOCs outside the department.

Objective 4: To determine the drivers of the performance of major SOCs in South Africa

In order to determine which factors drive performance of the top SOCs in South Africa, this analysis used a regression model similar to that of previous models; however, different independent variables were used. The dependent variable of the regression model was ROA, while the independent variables were PIC, ER, and TC.

The performance measure used in these regression models was taken from the response to research objective RO2, which assessed the performance of the major SOCs. Based on the literature, these factors were retained as they have a proven impact on company performance (Mwayungu, 2021; Mabotha & Ngcamu, 2024; Wang et al., 2021; Inoue, 2020; Cho et al., 2019; Qhobosheane, 2018; Selcuk & Kiymaz, 2017; Bezuidenhout, 2016).

(i) Political interference and corruption (PIC)

These are irregular, fruitless and wasteful or unauthorised expenditures (IFWUEs) proxy indicator used to measure PIC inside SOCs. IFWUE is used as a proxy by

researchers or analysts to associate large sums of such expenditures with greater political interest and corruption within SOCs. Depending on the specific approach taken for IFWUE, the hard benefits may not be direct or necessarily result in operational efficiency or increased financial performance. As such, this distinction could inform key management practices within SOCs by directing efforts and resources toward core business operations and strategic investments.

(ii) Executive remuneration (ER)

The researcher in this study established the definition of CEO total remuneration by considering three elements: fixed pay, variable pay/bonuses (also known as short-term incentives or STIs), and employee benefits. The equation for the total salary of a CEO is presented as follows: the overall salary of a CEO is calculated by adding their fixed pay, short-term incentives, and employee benefits. Employee benefits encompass a range of monetary compensations, such as cash payments, as well as the employer's contributions to medical aid, group life insurance, and pension/provident funds (Bezuidenhout, 2016: 142). The CEO's overall pay was assessed using the South African rand as the currency denomination.

(iii) Transparency and accountability

To measure transparency and accountability, corporate social responsibility (CSR) was employed as a proxy for accountability and transparency, respectively, to assess whether the latter drives the performance of SOCs. Therefore, CSR utilised indicators such as: (1) employment, or the number of employees; (2) community development projects (CDPs); (3) ESD; (4) environmental stewardship; and (5) localisation and industrialisation (LAD) (opportunities for black people, youth, women, small businesses, people with disabilities, and people living in rural communities) (Transnet Integrated Report, 2021).

In conclusion, the expression below represents the regression model to address objective 5.

$$Y_{it} = \alpha_1 + \beta_1 + \beta_2 + \beta_3 + \varepsilon_{it}$$

then

ROA = α_1 + PC + ER +TC + ε_{it}

Where Y_{it} = Return on Assets (ROA)

α_1 = Constant, y-intercept, that is, the value of y when x is equal to zero

$\mathbf{B_1}$ = IFWUE B2 = Executive remuneration (ER)

$\boldsymbol{\beta_3}$ = Transparency and accountability (TC)

ε_{it} = Error term

4.5 Significance of the regression model

The significance of the model is diagnosed to check the correctness and importance of multiple regression models (Chikutuma, 2019: 8). The constructed multiple regression model was subsequently subjected to testing to identify possible problems and check the extent to which the assumptions of the linear regression model were fulfilled including linearity, independence, homoscedasticity, normality, and absence of multicollinearity. The model underwent additional examination in order to quantify the coefficient of determination, also known as R-squared. The t-statistic was employed to assess whether the slope of the model significantly deviated from zero when fitting the regression model using a sample dataset. After verifying that the assumptions were attained, the results were examined to confirm that all error terms were normally distributed in the model.

4.6 Validity and Reliability

Empirical studies, such as this one, must establish validity and reliability to achieve methodological rigour in quantitative and qualitative research paradigms (Ambe, 2021: 130). According to Bezuidenhout (2016: 176), validity and reliability determine whether the results and conclusions of a study can survive expert evaluation. Validity involves establishing whether the findings are correct from the researcher's, participant's, or reader's perspectives (Creswell, 2014: 251). According to Breneman, Sahay and Lewis (2022: 1), reliability refers to the accurate depiction of the facts. Reliability pertains to the extent of consistency in measurement and the absence of error (Gidron, 2020). Therefore, this study's validity and reliability were addressed as discussed

below.

4.6.1 Validity and reliability of the Delphi technique

As a preliminary evaluation of a research instrument in advance of overall coding, a pilot test is conducted (Van Teijlingen & Hundley, 2002). To confirm the validity of the results of the Delphi technique, the present study performed a pilot study to construct a final conceptual PCI. Its system of application fits with the type of approach used in prior research (Khatlisi, 2022; Ambe, 2021), and Saunders et al. (2012) who used piloting to test the validity of their research instruments.

A panel of experts was assembled through the Delphi method to achieve content validity and face validity. This technique encompassed assessing the legitimacy of the researcher tool by gaining the subjective feedback or opinions of experts and professionals (Hassan & Marston, 2019: 36–37). This is an evaluation of whether the instrument measures its intended construct. This study received expert opinions through discussions, and performance items were fine-tuned to correct errors or omissions occurring during the non-financial PCI development. The validation process was used to determine if gaps existed and to address these gaps, thus confirming that the indicator was comprehensive and strengthening the argument for the weaknesses of the Delphi technique.

4.6.2 Validity and reliability of content analysis

This research employed validity testing as a standard practice to address the potential inaccuracies or misrepresentations in the suggested disclosure indices (Hassan & Marston, 2019: 39). The content analysis was conducted solely on secondary data extracted from the annual reports of SOCs. The annual reports were supported by the legislation as the Public Financial Management Act, No. 1 of 1999 (PFMA) requires all SOCs to publish their audited reports. The publishing of the reports on websites of SOCs is mandated not only by the PFMA but also by the Companies Act and codes of good governance such as King IV on Corporate Governance. Thus, the annual reports are assumed to be valid and reliable. The study employed the test-retest approach to determine the reliability of content analysis, wherein a sole coder engaged in the coding procedure. In order to reduce the occurrence of errors in the code, the annual

reports underwent two rounds of review utilising the voluntary disclosure checklists (Hassan & Marston, 2019: 35).

4.7 Ethical considerations

As per Adebayo (2020: 238), ethical considerations in research are the rules and guidelines that researchers and investigators need to follow while conducting a study. These principles provide structure for researchers as they navigate the process of doing research honestly, with integrity, and fairly. Ethics in research includes ensuring that the participants' rights and well-being are protected (Tjano, 2021: 108) as well as providing accuracy of research results and reliability of the scientific community. Ethics also include informed consent, confidentiality, and “do no harm”. Furthermore, researchers are required to be transparent in their research practices, accurately report research findings, and refrain from conflicts of interest.

This study was carried out according to the University of South Africa’s (UNISA) Research and Ethics Policy. The policy outlines the ethical principles that researchers are expected to follow in their scientific research. In this way, it acts as a bill of rights for those who are involved in scientific research for both honourable and appropriate conduct in research as well as to respect the rights and welfare of participants. The researcher of this study sought ethical clearance for the data that he would be collecting, acquired informed consent, and also ensured the confidentiality of the participants.

The validity of the research is based on the integrity of the research process. It bolsters the credibility and reliability of the findings, strengthens the trust of the research community, and reinforces the ethical principles underscoring scientific progress. The researcher adhered to the guidelines and criteria set by the University and the College of Accounting Sciences and received ethical clearance and participant consent. The researcher also established ethical parameters for the study to show his responsibility and respect for the participants.

4.8 Anonymity and confidentiality

Ethical implications were considered in this study to ensure the anonymity and confidentiality of participants. As per the POPI Act, the researcher ensured

confidentiality of the personal information of participants in the research. Individual identities were not disclosed, the Delphi online questionnaire was anonymous, and none of the participants' information was provided to the researcher. Concerning secondary data, permission was not needed to collect annual reports because they are publicly available on platforms including SOCs, National Treasury, and McGregor BFA websites.

This is in alignment with open access resources and enables the use of publicly available data regardless of privacy issues or permissions. To safeguard the data collected in this study, it will be stored on iCloud file storage with a protected password. Data access for the supervisors and statistician will be restricted and granted upon request. Thus, access to the data will only be granted to authorised personnel.

4.9 Summary of the chapter

This chapter provided an overview of the methodological framework employed in this research. The chapter began by discussing the research methodology, specifically, the use of the research onion framework. The layers of the research onion, including the abductive approach, survey questionnaire, and archival research revealed the underlying methods and strategies utilised in the study. This included the adoption of a mixed method approach, considering a longitudinal time horizon, and employing non-probability purposive sampling.

The validity and reliability of the study were also discussed briefly to ensure the accuracy and dependability of the research findings. This includes the anonymity and confidentiality of research participants, which prevents the identification of participants. Ethics considerations were also discussed, indicating the guidelines that were followed, and that participants' rights and well-being were respected. The next chapter focuses on the empirical research findings, where the results of the research instruments employed in the study are presented and discussed.

CHAPTER 5: DATA ANALYSIS AND INTERPRETATION OF QUALITATIVE RESULTS

5.1 Introduction

This chapter presents the findings of qualitative data analysis and interpretation regarding the primary aim of this study. Data were collected through an online Delphi questionnaire to obtain the experts' opinions in order to create a PCI used to evaluate and improve the performance of SOCs according to four main performance indicators: the PFMAi, CGI, HCI, and DPI. To develop the PCI, the Delphi questionnaire was conducted in two rounds to reach saturation and consensus.

The remainder of this chapter is structured to systematically present the results of the qualitative components. Section 5.2 outlines the Delphi technique process, detailing the iterative procedures employed to solicit experts' consensus. Section 5.3 presents the demographic profiles of the panel of experts, offering insights into their professional backgrounds, areas of expertise, and gender representation. In section 5.4, attention shifts to the development and structure of the performance compliance checklist, which emerged from the experts' consultations. Building on this, section 5.5. introduces the Performance Compliance Index (PCI). Finally, section 5.6 provides a summary of the chapter.

5.2 The Delphi technique process

The study utilised a self-developed Delphi online questionnaire distributed via Microsoft Forms to collect data from a panel of experts. Participants were asked to evaluate the draft checklist and provide recommendations regarding its completeness. Moreover, the experts were encouraged to make suggestions on the inclusion or exclusion of indicators that were perceived to be relevant or irrelevant and give justifications. A binary score of 0 and 1 was applied to each proposed indicator, implying that a score of "0" was allocated for an indicator that should not be reported and a score of "1" was allocated to an indicator that should be reported.

5.2.1 Delphi technique acceptable sample size

The targeted sample size for the Delphi technique was predetermined as 30 panel experts in this study. The number of panel experts who participated in the first and

second rounds of the study was 20 and 16, respectively. Although participation decreased in the second round, the number sizes were deemed appropriate based on the fact that there is no consensus among researchers on the minimum and maximum levels of participants in the Delphi technique. For instance, some scholars proposed seven to 15 (Weidman et al., 2011; Sourani & Sohail, 2015) and others proposed eight to 30 (Paré et al., 2013; Worrell et al., 2013; Skinner et al., 2015). According to Akins, Tolson and Cole (2005), the literature contains minimum and maximum numbers of panellists required that are not universally accepted. Panels for Delphi studies range from fewer than 10 to over 100 panellists.

In support of this variability, Ogbeifun, Mbohwa and Pretorius (2016) employed a panel of 12 participants and claimed that even smaller groups can be productive. Vogel, Zwolinsky, Griffiths, Hobbs, Henderson and Wilkins (2019) support this viewpoint, suggesting that a sample of at least 12 participants is sufficient to achieve consensus, particularly relevant in their context of determining and utilising big data.

In contrast, Page, Huang, Verhagen, Buchbinder and Gagnier (2016) argue that larger panels, of 10 to more than 100 individuals, may enhance the reliability of Delphi conclusions. According to Sajesh (2018), a sample of between 10 and 30 can be used to successfully predict via the Delphi method. Research by Paré et al. (2013), Worrell et al. (2013), Baldwin and Trinkle (2011), and De Haes and Van Grembergen (2009) support this recommendation by showing a diverse range of individuals. Akins et al. (2005) offer additional proof that a small expert group of 23 people, meeting the rigorous criteria for selection, may generate ventures of high reliability. This finding suggests that the issue of the optimal size of a Delphi panel may be more related to the quality of its members rather than to their quantity. Therefore, the sample sizes used in this study align with academic norms and illustrate the flexible yet robust nature of the Delphi methodology in academic inquiry.

5.2.2 Acceptable rate for Delphi inclusion and exclusion

The threshold of nine used to include and exclude category items in this study seems reasonable for analysis and exclusion. While no consensus appears to exist among researchers regarding the precise rate at which items should be kept in Delphi studies, the 51% rule is a simple majority, which entails that more than half of the participants

agree with an item. This helps to attain consensus and also involves a broader expert opinion base.

Existing literature has presented a diverse consensus on the threshold of the retention of an indicator on the Delphi technique. For example, a study by Lau et al. (2022) argues for a 47% threshold for rounds two and three on a Delphi study. This illustrates the flexible and precise elements necessary to establish thresholds related to consensus in the Delphi technique.

A baseline algorithm for minimal majority agreement was provided by De Lima and Doyle (2017), where a minimal consensus of 50% for retention was proposed. In contrast, Maaß, Hajo Zeeb and Rothgang (2024) only kept an indicator in their studies if they had a 70% agreement rate – a tighter threshold indicating more consensus.

Diamond, Grant, Feldman, Pencharz, Ling, Moore and Wales (2014) suggest raising to a 75% threshold (elevated median agreement) to establish consensus to ensure a strong majority support behind each decision. This strategy is similar to the one used by Louw, Fraser and Giraldo (2023) and Krause et al. (2022), who argue that an even higher ≥80% agreement threshold should be applied for statements to remain in the final round of their Delphi studies, thus ensuring that the retained statements represent a strong consensus opinion.

Thus, the 51% threshold in this case is particularly appropriate, treading the line between useful decisiveness and liberality, generating a definitive direction in the outcomes of the study while implementing the perspectives of numerous different people. Additionally, it avoids marginalising minority opinions, which can be problematic for exploratory domains that benefit from divergent perspectives. Consensus of the Delphi study is determined by the threshold of 51% which is in accordance with common practice and serves as a practical and justified criterion for retaining as well as reaching consensus on items during the Delphi. Appropriate degrees of saturation

5.2.3 Appropriate degrees of saturation

The number of rounds in a Delphi study to reach consensus or saturation has been debated among researchers. Some recommend two to four rounds, arguing that this

is usually enough to achieve a robust consensus among knowledgeable individuals. For example, Vitacca et al. (2020) and Mikuls et al. (2020) corroborate the appropriateness of a two-round threshold in Delphi, arguing that, in many Delphi cases, two only rounds are required to gain practical, usable agreement among experts.

In contrast, in their paper titled “The Delphi method as a research tool: An example, design considerations, and applications”, Okoli and Pawlowski (2004) focus on practicalities and iterative rounds that promote consensus but still allow new ideas to emerge. They imply that the saturation point may differ widely across studies. Keeney, Hasson and McKenna (2000) outline guidelines for the Delphi survey method and suggest that the criterion for saturation can be when a pre-specified percentage (defined by researchers according to study context) of participants do not change their opinions between rounds, providing a quantifiable measure of consensus or saturation.

This background suggests that the ideal amount of Delphi rounds of saturation or consensus is not predetermined, but is context-dependent, related to study objectives, the complexity of the field and methodological choices. In this research, two parallel rounds of a Delphi technique were systematically used. The first-round Delphi online questionnaire was distributed to the panel experts for 14 days, while this time was reduced to 10 days for the second round.

Further, there were efforts to actively seek suggestions from professionals in the first round, which were then incorporated into the instrument for the second round. This iterative process was performed to ensure that the responses given by the expert panel achieved consensus and saturation. Table 5.1 presents the demographic characteristics of panel experts who reached consensus and saturation for this study.

Table 5.1: Respondents to the Delphi online questionnaire

Group of panel experts	Target	Actual Respondence		Response Percentage %	
		1st round	2nd round	1st round %	2nd round %
CEO and CFO	6	5	4	25%	25%
Chairperson or member of the AC	6	3	4	15%	25%
Board member of SOCs	6	3	2	15%	12.5%
Academic and researcher	6	2	1	10%	6.25%
Professional accounting and auditing affiliates	6	7	5	35%	31%
TOTAL	30	20	16	100%	100%

Source: Author's compilation (2024)

Response rates for the first and second rounds of the Delphi study were 20 and 16 respectively, which is in line with the standard adherence to the methodology in both studies. The validation of the selected factors, including those that represent a greater internal consistency and reliability of a measurement using Cronbach's alpha also contribute to the strength of the validity and reliability of this study's results. Consistent with the approaches used by researchers, such as Ambe (2021) and Abu Al-Ajeen et al. (2020), the internal consistency of this study ($\alpha = 0.80$) surpassed the minimum acceptance level ($\alpha = 0.70$). Subsequently, the alpha value of the study was determined as 0.918 which indicates an excellent internal consistency of the data collected and reflects the reliability of the results.

5.3 Demography of the panel experts

Collecting information on panel experts' demographic data (e.g., age, gender, race, education, and professional experience) could inform the process through which panel contributions fulfil their intended purpose while also improving the validity, acceptability, and effectiveness of work products. Accordingly, Table 5.2 provides a detailed analysis of the breakout segmentation by demographic categories. This table gives a sense of how demographics might have driven some of the answers to Questions 7 and 8, allowing for a better understanding of the variations and indirect

patterns within it.

Table 5.2: Profile of Delphi panel experts

Category	Description	Actual Total Response	
		1st Round Count (N=20)	2nd Round Count (N=16)
1. Gender	Male	13	9
	Female	7	7
2. Highest Qualification	PhD/Doctorate	1	1
	Masters	8	6
	Honours	8	6
	Degree	2	2
	Diploma	0	0
	Others	1	1
3. Professional Body	SAICA	11	7
	CIMA	0	2
	SAIPA	6	4
	ACCA	0	0
	CIBA	0	0
	IIASA	2	2
	IAC	0	0
	Other (SAIBA)	1	1
4. Current Position	CEO and CFO	5	3
	Chairperson of ARC	2	2
	Independent member of ARC	1	2
	Non-Executive Director (NED)	3	3
	Academic and Researcher	2	1
	Professional in subject matter	7	5
Years of Experience	0 – 10 years	7	4
	11 – 20 years	11	8
	21 – 30 years	2	2
	31 and above	0	2

Source: Author's compilation (2024)

The composition of the Delphi panel experts was limited to individuals engaged in the governance, oversight, operation, and possession of technical expertise regarding the

functions of SOCs. The first and second rounds of the demographic category showed that the sample was predominantly male, with 13 individuals (65% and 56% respectively) compared to seven females (35% and 44% respectively). However, a similar conclusion cannot be drawn in terms of the highest qualification achieved by the participants. There was an equal proportion of participants holding a master's and honours degree in each round. In the first round, eight participants from each category were involved, while in the second round, six participants from each category participated, representing 40% and 48%, respectively, of the total sample.

For each of the two rounds (at 10% and 12.5% enrichment respectively), there were two people with a bachelor's degree, two people with a PhD, and one person with another qualification. The highest proportion of the certified panel professionals registered with professional bodies was with SAICA, with eleven and seven, representing 55% and 44% of the total sample, respectively. SAIPA followed with six and four responses (30% and 25%) respectively, IIASA with two responses for both rounds (10% and 12.5%) and SAIBA with one response for each round (5% and 6.25%). The distribution highlights the variation of respondents according to their current positions and years of experience in the governance and supervision of SOCs.

As for the specific roles within SOCs, most roles were from those directly working on SOC processes. There were seven respondents in round one and five in round two, constituting 35% and 31%, respectively. The next two surveyed were CEOs and CFOs, with five and three participants respectively, representing 25% and 19%. Non-Executive Directors (NEDs) were next with three participants in both rounds, constituting 15% and 19%, respectively. Each round had two participants from chair of audit and risk committees (ARCs – 10% and 12.5%). Finally, two and one participant(s) were academic researchers for 10% and 6.25%, respectively.

The profile of panel experts also included their years of experience in governance, oversight, operation, and technical expertise within SOCs. The participants with 11-and 20-years' experience were the majority, totalling 11 individuals and eight in the second round (55% and 50%). This was followed by respondents with 0–10 years of experience. The smallest number of participants fell into the category of 21–30 years of experience with 11 and eight (55% and 50%), consisting of two individuals on both rounds representing 10% and 12.5% of the total sample. The biographical profile

described above presents the findings from the first round, which involved soliciting the opinions of panel experts for the accuracy and comprehensiveness of the performance compliance listing.

5.4 Performance compliance checklist

This section provides the outcomes of the first round in relation to the four performance indicators: PFMA, corporate governance, human capital, and developmental performance. This step was based on a thorough evaluation of the Delphi questionnaire by participants, the absence of any omissions, and the rectification of potential errors. Participants were requested to use a dichotomous index to systematically assess the relevance and importance of each category in those performance indicators.

This binary scoring method required the provision of a score of "1" to categories that were considered important, relevant and should be reported. In contrast, a score of "0" was assigned to categories deemed non-essential, indicating that they should be excluded from reporting. According to the previously reviewed literature, to include or exclude a category from the main performance indicator for consideration in the first and second rounds, a category must achieve an average weighting of at least 51%.

The implementation of a threshold in the review process acted as an important filter to ensure that only categories that reached a specified standard of consensus or relevance, as assessed by the panel of experts, were chosen for further consideration. This methodological precaution was crucial for narrowing down the focus of the study to issues that are very important and applicable, as acknowledged by the panellists, as a collective that proposed their exclusion from reporting.

5.4.1 PFMA checklist

The PFMA functions as a benchmark for the performance of SOCs by enhancing financial responsibility, risk mitigation, sustainability, efficacy in service provision, stakeholder trust, and adherence to legal mandates. Utilising the PFMA criteria to gauge the performance of SOCs facilitates an analysis of their compliance, managerial strategies, and overall success in achieving organisational goals within the bounds of designated legislative structures. Table 5.4 presents the outcome of the first-round

checklist.

Table 5.3: First Round of the PFMA checklist

Public Financial Management Act (PFMA) listing					
No	Category	TOTAL RATING (N=20)			
		1 = reporting	**0 = non-reporting**	**% reporting**	**% non-reporting**
1	Integrated report (AFS and AR)	20	0	100	0
2	Financial misconduct procedure report	19	1	95	5
3	Projection of revenue, expenditure	14	6	70	30
4	Corporate plan	12	8	60	40
5	Quarterly reports on above reflecting actual borrowings	12	8	60	40
6	Shareholders compact	18	2	90	10
7	Irregular, fruitless, wasteful and unauthorised expenditure	20	0	100	0
8	Enterprise Risk Management Report (ERM)	14	6	70	30
9	Compliance Report	20	0	100	0
10	Material Losses	16	4	80	20
11	Investment Report	19	1	95	5

Source: Author's compilation (2024)

The total of 11 categories of PFMA performance compliance were rated: A consensus of support in six key areas (all above the minimum reporting threshold of 51%) Specifically, integrated report (AFS and AR), compliance reports, and irregular, fruitless, wasteful and unauthorised expenditure (IFWUE) achieved a unanimous consensus (100%), indicating both the critical importance of these good governance disclosures and the agreement of their inclusion as key reporting items for participants.

There was also a very strong support for the reports on financial misconduct procedures and for the report on investment at 95% approval for both. Immediately behind was the shareholder with 90% favour and material losses reports which achieved an 80% rating. The enterprise risk management, income forecasts, and

expenditure reports were approved at the 70% level, slightly lower but still significant.

Corporate plans and quarterly reports on actual borrowings received a 60% rating the lowest but still within the reporting threshold. Furthermore, participants suggested two new categories to enhance the PFMA performance compliance framework; that is, an internal audit report and a whistle blower report. Such additional items were recommended on the grounds that it is necessary to substantiate the effectiveness of the company's internal control systems over financial reporting and the strong governance and oversight mechanisms in the company.

Table 5.4: Second Round of the PMFA Checklist

Public Financial Management Act (PFMA) listing					
No	Category	TOTAL RATING (N=16)			
		1 = reporting	0 = non-reporting	% reporting	% non-reporting
1	Internal audit report	14	2	88	12
2	Whistle blowing report	2	14	12	88
3	Integrated report (AFS and AR)	16	0	100	0
4	Financial misconduct procedure report	15	1	94	6
5	Projection of revenue, expenditure	10	6	63	37
6	Corporate plan	10	6	63	37
7	Quarterly reports on above reflecting actual borrowings	9	7	57	43
8	Shareholders compact	14	2	88	12
9	Irregular, fruitless, wasteful and unauthorised expenditure	16	0	100	0
10	Enterprise Risk Management Report (ERM)	14	2	88	12
11	Compliance Report	16	0	100	0
12	Material losses	14	2	88	12
13	Investment Report	15	1	94	6

Source: Author's compilation (2024)

Out of 20 participants who initially joined the first round of the questionnaire, four later dropped out in the second round, giving a 20% drop-out rate. Nevertheless, the few members who remained to the end unanimously agreed on key points. Jointly,

integrated reports (AFS and AR), compliance reports, and reports on FWUE received 100% agreement and saturation, constituting their perceived need in the overall reporting structure. In addition, the financial misconduct and investment reports received an overall approval rating of an outstanding 93%. Also, the internal audit report, shareholder's compact, material losses and other key reports received high levels of endorsement at 88% and above. At the same time, enterprise risk management (ERM) was deemed important with a 75% rating.

Rated the lowest in terms of levels of endorsement were revenue and expenditure predictions, the business plan and quarterly actual borrowing with respectively only 63%, 63% and 57% approval ratings. "Whistle blower" did not meet the threshold for inclusion, earning a consensus rating of 12%. It is, however, lower than the consensus percentage for group 3 that was recommended in the outcome of the first round, as participants' responses returned its inclusion in the PFMA listing. Consequently, the "whistle blower" category was removed as it was not included in the PFMA performance compliance listing based on these findings. The results indicate a different degree of consensus among the respondents concerning the significance of the PFMAi.

5.4.2 Corporate Governance Checklist

The importance of corporate governance in SOCs performance evaluation usually set range on how these entities are governed in a more prudent and responsible manner consistent with wider economy and society goals the government pursue. With respect to results produced by the questionnaire based on this indicator, a full grouping of 11 categories was formulated and released in response to all of the performance evaluation samples. Finally, the results of the first round of the Delphi questionnaire can be seen in Table 5.5.

Table 5.5: First round of the Corporate Governance Checklist

Corporate Governance performance listing					
No	Category	TOTAL RATING (N=20)			
		1 = reporting	0 = non-reporting	% reporting	% non-reporting
1	Ethical and effective leadership	19	1	95	5
2	Board diversity (age, gender, demographics and qualification)	18	2	90	10
3	Board size	14	6	70	30
4	Audit committee	20	0	100	0
5	Structure and policies	15	5	75	25
6	Effective internal controls	17	3	85	15
7	CEO's and board chairperson's report	18	2	90	10
8	Independent external auditors	20	0	100	0
9	Board committees	19	1	95	5
10	Declaration of interest to avoid potential conflict	18	2	90	10
11	Whistle-blowing reports	14	6	70	30

Source: Author's compilation (2024)

There was a unanimous agreement that all categories of the associated corporate governance performance indicator should remain. In terms of the specific areas that make up this performance indicator, AC and external auditors were notably both rated to fulfil that role with a unified agreement of 100%. Just behind, 95% of respondents approved of ethics-related leadership and board committees. Other key issues, including board diversity, declarations and conflict of interest, were similarly well-received, with each receiving a 90% approval rating. Internal controls came in a little lower on the list but still scored an impressive 85%. Structure and policy, including whistleblower policies, received lower, though still high, approval ratings of 75% and 70%, respectively.

In the second round of the Delphi process, participants made recommendations on the additional indicators (categories) that should be removed and those that should be added to the performance indicator, along with justifications for their recommendations.

The following categories were specifically addressed:

a) **Report of the CEO and Board Chairperson:** It was discussed that, because the reports of the CEO and board chairperson are already published as part of its annual report, the SOCs need not report separately in the performance indicator category.

b) **Whistleblower, declaration and conflict of interests:** There was a view that these items are generally addressed in the social and ethics committee and should be reported as part of this structure rather than as standalone indicators.

c) **Corporate social responsibility (CSR):** This indicator was overwhelmingly supported to be reported as a stand-alone item because it presents CSR activities of the organisation, implying how the organisation is affecting the context in which it operates.

These results demonstrate a general agreement among participants toward a more efficient inclusion of specific indicators in corporate governance which aligns with the goal to improve the efficiency and effectiveness of the reporting process. The second round of the Delphi process allowed further refinement and validation of these recommendations, according to expert insights and opinions. Accordingly, Table 5.5 presents results of the second round for which consensus and saturation were achieved.

Table 5.6: Second Round of the Corporate Governance Checklist

Corporate Governance performance listing					
No	**Category**	**TOTAL RATING (N=16)**			
		1 = reporting	**0 = non-reporting**	**% reporting**	**% non-reporting**
1	Ethical and effective leadership	16	0	100	0
2	Board diversity (age, gender, demographics, and qualification)	15	1	94	6
3	Board size	15	1	94	6
4	Audit committee	16	0	100	0
5	Structure and policies	14	2	86	14
6	Effective internal controls	14	2	86	14
7	CEO's and board chairperson's report	8	8	50	50
8	Independent external auditors	16	0	100	0
9	Board committees	15	1	94	6
10	Declaration of interest to avoid potential conflict	1	15	6	94
11	Whistle blowing reports	7	9	44	56
12	Business continuity plan	15	1	94	6

Source: Researcher's compilation (2024)

A second-round analysis of the Delphi process revealed a consensus judgement of the significance of nine out of the 12 indicators (categories) to be integrated as elements of the reporting items under the corporate governance performance compliance list. Notable findings were that both the AC and internal auditors scored a perfect score of 100% that these groups should be included that indicates a high amount of consensus among participants in the survey. Whistle blowing and CEO and Board chairperson's reports were dropped because they failed to reach the set threshold of 51%.

The corporate governance principles received strong support for the inclusion of areas of board diversity, board size, board committees and BCP, which all achieved a substantial grade of 94%. Structure, policies, and internal control achieved an extraordinary 86% for that category, which was by far the highest, indicating how critical and valuable it is in governance reporting. On the other hand, three categories

did not meet the required 51% consensus criterion, confirming their exclusion from the final list of corporate governance checklist.

This choice is coherent in light of the results as well the rationales reached during the first round of the Delphi procedure. The excellent agreement and good coverage reached in the second round of evaluation strongly support the nine categories that exceeded the required level for inclusion. These categories are crucial for assessing and reporting on corporate governance performance. This iterative process ensured that the final performance compliance listing is robust, reflective of expertise and aligned with the aim of the study.

5.4.3 Human Capital Checklist

The human capital based first round results are shown in Table 5.7 .

Table 5.7: First round of the Human Capital Checklist

Human Capital Listing					
No	**Category**	**TOTAL RATING (N=20)**			
		1 = reporting	**0 = non-reporting**	**% reporting**	**% non-reporting**
1	Number of employees	19	1	95	5
2	Composition of the workforce	18	2	90	10
3	Remuneration (executive and board)	18	2	90	10
4	Training and development	18	2	90	10
5	Recruitment costs	13	7	65	35
6	Working environment policies	12	6	60	40
7	Absence rates	13	7	65	35
8	Accidents on duty rates	16	4	80	20
9	Employee wellness	17	3	85	15

Author's compilation (2024)

As indicated by the data presented in Table 5.7, at the first stage of the Delphi process, the human capital performance indicator only consisted of nine category items all of which were voted in favour of being included by a sufficient percentage of people, above 51%. In particular, the employee number category was strongly endorsed, reaching a consensus top rate of 95%. The workforce composition and training and

development categories were also highly rated, both attaining a 90% approval rate. The employee wellbeing programme was also rated positively with 85% in favour.

Similarly, the assessment of incidents on duty received a rating of 80%, whereas the rating for recruitment costs and absence rates was slightly above the minimum threshold of 65%, and policies on the working environment were rated at 60%. Despite the lower rating of the latter category items, none of them were recommended for elimination. Moreover, five additional categories of items were recommended for inclusion, such as conflict and declaration of interests, disciplinary proceedings, termination of employment, staff expenses, and succession and retention plans, which should be integrated into the reporting framework for human capital. The human capital indicator incorporated all the suggested additional category items and subjected them to the second round, giving a total of 13 items. See Table 5.8 and the results thereof.

Table 5.8: Second round of the Human Capital Checklist

Human Capital Listing					
No	**Category**	**TOTAL RATING (N=16)**			
		1 = reporting	**0 = non-reporting**	**% reporting**	**% non-reporting**
1	Number of employees	16	0	100	0
2	Composition of the workforce	16	0	100	0
3	Remuneration (executives and board)	15	1	94	6
4	Training and development	15	1	94	6
5	Recruitment costs	10	6	68	32
6	Working environment policies	10	6	68	32
7	Absence rates	10	6	68	32
8	Accidents on duty rates	13	3	81	19
9	Employee wellness	14	2	87	13
10	Disciplinary proceedings	5	11	31	69
11	Termination of employment	8	8	50	50
12	Staff expense	6	10	37	63
13	Succession and retention plan	13	3	81	13

Source: Author’s compilation (2024)

In the concluding second round of the evaluation process, a panel of experts assessed a total of 13 category items for potential inclusion in the human capital performance indicator. Of these, 10 items successfully met the criteria for inclusion, receiving anonymous support that favoured their incorporation into the performance indicator.

However, three category items (disciplinary proceedings, termination of employment and staff expense) failed to surpass the stipulated threshold of 51% for inclusion and were subsequently excluded from the indicator.

The rationale for excluding the three category items was their seeming redundancy. The panel of experts maintained that there was no need to report these figures as separate items, since their substance was captured in the integrated annual report that included this information. It was also maintained that these category items could instead be included within the human resources committee's report to the board. This decision emphasised the panel's desire to streamline reporting by minimising duplication amongst various reporting platforms.

In the second and final round, two categories, number of employees and composition of workforce, achieved unanimous consensus, each receiving a perfect approval rating of 100%. Closely following these were the categories of remuneration (executive and board) and training and development, which both received substantial support with ratings of 94% each. A deeper survey analysis revealed many additional categories that received significant approval relating to employee wellness, accidents on duty, rates and succession, and retention rates achieving 87%, 81% and 81%, respectively.

Industry-specific factors, such as recruitment costs, working environment policies, and absence rate received moderate support, each with a 68% rating. However, there were three categories that fell behind the inclusion threshold. Termination of employment was rated 50%, staff expenses 37%, and disciplinary proceedings received the least, at 31%. As such, they were excluded from the indicator based on these results.

5.4.4 Developmental Performance Checklist

In the domain of non-financial performance, especially in comparison with the developmental performance, the proposed lists were provided to a panel of experts for a comprehensive evaluation. This finding is shown in Table 5.9. This required

reviewing by experts, taking into account that the indicators should encompass a wide range of successful non-financial development risk factors. Not much needs to be done however but the validation and feedback from the expert panel would be helpful in confirming the appropriateness of the performance measures used in the study.

A summary of the findings from this expert panel evaluation is found in Table 5.9. To the extent that the development performance is related to non-financial performance, it gives useful information for forming, discussing and evaluating the proposed developmental performance categories.

Table 5.9: First round of the Developmental Performance Checklist

Developmental performance listing					
No	Category	**TOTAL RATING (N=20)**			
		1 = reporting	**0 = non-reporting**	**% reporting**	**% non-reporting**
1	Economic growth (GDP)	14	6	70	30
2	Corporate social and environmental responsibility	19	1	95	5
3	Enterprise and supplier development programmes	18	2	90	10
4	Skills development	19	1	95	5
5	Economic transformation	18	2	90	10
6	Regional integration and industrial capability building	13	7	65	35
7	Developmental impact assessment in the economy	16	4	80	20
8	National integration	15	5	75	25

Source: Author's compilation (2024)

Eight categories were evaluated for relevance and importance to the developmental performance indicator in round one. All categories received high scores, indicating agreement on their importance. Corporate social and environmental responsibility, and skills development received a commendable 95% each on inclusion rating, which shows their importance to the organisation's developmental objectives. Enterprise and supplier development, and economic transformation are both at 90%. Developmental impact was rated as important 80% of the time as well. National integration and economic growth (GDP) received approval ratings of 75% and 70% respectively while regional integration and industrial capability building were the lowest rating but still

secured a 65% each.

Additionally, the expert panel proposed various types of categories that should be included and reported under the developmental performance indicator. The environmental, social and governance (ESG), business continuity plan (BCP), sustainability report, SDGs, NDP targets initiatives, business/inherent risks and stakeholder engagement were strongly recommended. For the second round of the Delphi process, observers gathered data on these categories for establishing consensus and saturation, with results listed in Table 5.10.

Table 5.10: Second round of the Developmental Performance Checklist

Developmental performance listing					
No	**Category**	**TOTAL RATING (N=20)**			
		1 = reporting	**0 = non-reporting**	**% reporting**	**% non-reporting**
1	Economic growth (GDP)	12	4	75	25
2	Corporate social and responsibility (CSR)	16	0	100	0
3	Enterprise and supplier development programs	15	1	94	6
4	Skills development	15	1	94	6
5	Economic transformation	15	1	94	6
6	Regional integration and industrial capability building	11	5	69	31
7	Developmental impact assessment in the economy	13	3	80	20
8	National Integration	12	4	75	25
9	Environmental, social and governance (ESG)	16	0	100	0
10	Sustainability report	12	4	75	25
11	Sustainable Development Goals (SDGs)	11	5	69	31
12	Business/inherent risks	1	15	6	94
13	community involvement	3	13	20	80
14	National Development Plan targets	14	2	88	12

Source: Author's compilation (2024)

In the second phase of assessing this performance indicator, a panel of experts reviewed 15 category items to achieve consensus and saturation. However, only two

categories, namely, business/inherent risk, and community involvement, were recommended to be dropped since they did not meet the minimum level of 51%. Those categories were eliminated because they fell under the external audit report and the ESG report, respectively.

Conversely, there was a unanimous agreement among the participants that the other categories must be incorporated and reported within the developmental performance indicator. The respondents unanimously agreed that ESG and CSR should be included and reported in this indicator. This agreement was reinforced by a perfect score rating of 100%. Enterprise and supplier development, skills development, and economic transformation each achieved an exceptionally high assessment of 94%.

Targets in the National Development Plan (NDP) were rated 88%, followed by developmental impact (80%), with economic growth, sustainability, and national integration all at 75%. Regional integration and SDGs scored the lowest at 68%. The developmental performance indicator reflected support for including and reporting all 12 category items.

5.5 A Performance Compliance Index (PCI)

There is a range of performance measurement frameworks in South Africa used to enhance institutional effectiveness and accountability of national, provincial and local SOCs, and the public sector in general. Prominent among these are the Management Performance Assessment Tool (MPAT), the Performance Management and Development System (PMDS), and the Government-Wide Monitoring and Evaluation System (GWMES). While each of these frameworks contributes to the overall governance and performance design, they are not without limitations.

The MPAT assesses the performance of SOCs. While the MPAT aims for accountability and good governance, it has been criticised for its narrow focus on human resource management (HRM), which frequently ignores the larger systemic and organisational components of performance. Furthermore, its implementation has been marred by discrepancies and the persistence of informal practices, such as senior management's reluctance to critically evaluate or question self-assigned performance ratings by subordinates. These flaws diminish the credibility and utility of performance assessments, limiting their ability to produce significant improvements in

public sector performance (DMPE, 2007: 25).

The PMDS is a central framework used by SOCs in South Africa to evaluate and enhance employee performance in accordance with organisational goals outlined in yearly performance plans and strategic documents. Despite its intended purpose in encouraging accountability and establishing a performance-oriented culture, the PMDS has a number of structural and operational challenges. They include: its misalignment between individual performance assessments and overarching organisational objectives; a lack of integration of performance measurements with broader developmental imperatives; its low stakeholder engagement; and an overemphasis on quantitative performance metrics (Khumalo, 2022: 2)

The GWMES was established in 2005 with the goal of improving governance and accountability across all domains of government in South Africa, including SOEs, by institutionalising strong monitoring and evaluation (M&E) procedures (DPME, 2007: 6). While the framework is a big step towards integrated performance measurement, its implementation within SOEs has been fraught with difficulties that hinder its overall effectiveness. For example, during the early stages of implementation, assessments were commonly hampered by insufficient, inconsistent, or low-quality data. As a result, evaluations frequently focused solely on efficiency and relevance, ignoring a thorough assessment of effectiveness in terms of accomplishing long-term developmental goals. These data limits severely limit the GWMES's ability to promote evidence-based decision-making and foster a culture of continuous performance improvement within SOEs (Masombuka & Thani, 2023: 148).

SOCs rarely implement these performance management frameworks consistently or comprehensively. Rather, their implementation is frequently selective, determined by the specific mandates, strategic aims, and contextual realities of different SOCs. This uneven use, along with the weaknesses of each framework, leads to a distorted and often insufficient view of how well SOCs are performing. As a result, reporting methods among SOCs are often varied and disconnected, making it difficult to systematically evaluate their administrative efficacy and operational efficiency (Mikael & Mabhungu, 2024:1). This contrasts with the OECD (2021b) guidelines, which advocate for the implementation of performance measurement systems that include both financial and non-financial indicators and are closely aligned with SOCs' strategic objectives.

The absence of an integrated and standardised performance measuring approach in South Africa highlights a critical absence in the governance and accountability framework that governs SOC performance. In response to these limitations, this study developed and recommends a comprehensive Performance Compliance Index (PCI) for addressing the numerous shortcomings inherent in existing systems. The PCI is envisioned as a comprehensive evaluative tool that incorporates mechanisms to address critical deficiencies such as a disproportionate reliance on qualitative data, an overly narrow focus on human capital metrics, and a misalignment between individual performance assessments and SOCs' broader strategic objectives.

The index also aims to fix the confusing and sometimes misleading way performance is reported while including measures that consider long-term sustainability and development needs. Through this combined approach, the PCI aims to provide a fair, unbiased, and results-focused evaluation of SOC performance, which will improve accountability and governance. Therefore, what distinguishes the PCI developed in this research is its use of universal performance indicators that offer a holistic performance overview. Unlike existing frameworks, the PCI encompasses financial, non-financial, and developmental dimensions, thereby offering a more holistic and balanced evaluation of SOCs' effectiveness, sustainability, and strategic alignment.

The PCI proposed in this study consists of 42 equally weighted sub-indicators organised into four core dimensions: the Public Financial Management Act Index (PFMAi); the Corporate Governance Index (CGI); the Human Capital Index (HCI); and the Developmental Performance Index (DPI). This integrated and multidimensional framework was designed expressly to address disparities and fragmented reporting processes that currently characterise performance evaluation across SOCs. By standardising the parameters used to assess entities with similar mandates, the PCI improves comparability and develops a more objective foundation for performance benchmarking.

Beyond its position as a diagnostic tool for performance monitoring, the PCI can serve as a framework for performance agreements between SOC boards and executive management. By including stakeholder-oriented metrics and widening the evaluation lens beyond shareholder-centric outcomes, the index promotes a more inclusive and developmentally aligned governance model (Okere & Peschka, 2021). Furthermore,

the PCI provides boards and management with a formalised mechanism for evaluating institutional performance across four dimensions: Public Financial Management Act Index (PFMAi), Corporate Governance (CGI), Human Capital Index (HCI), and Developmental Performance Index (DPI). Thus, these indicators encourage strategic alignment, accountability, and long-term sustainability.

The PCI through the Public Financial Management Act (PFMAi) dimension will allow for customisation of the public financial matters, making it applicable across various public sector entities, including national and provincial departments, municipalities, and SOCs. Tailoring the index to each company's specific mandates and operational contexts improves the relevance and efficacy of performance evaluations (Gasela, 2021: 3). This index may be introduced during the performance planning phase to ensure that financial management standards are integrated into the strategic objectives of public entities. This indicator may enable the establishment of clear performance targets and the alignment of departmental objectives with South Africa's national budget.

Moreover, the PCI through the PFMAi dimension may be used as a checklist during the mid-term and final term reviews to determine to what extent SOCs comply with the principles outlined in the PFMA. Compliance with the index may improve the SOCs' performance reporting framework of PFMA, as required by the Act. This study acknowledges that there is an existing PFMA checklist applicable to the public sector; however, the one developed in this study is tailor-made for SOCs. Thus, SOCs that do not follow these standards may suffer financial penalties, may be subjected to examination by the AGSA, and may further lose out on government guarantees and bailouts, which are utilised to sustain the majority of significant SOCs (Ngobeni, Barnard & Molate, 2023: 2).

The PCI, through the CGI dimension, facilitates the alignment of interests between management and shareholders by promoting transparency, accountability, and equitable treatment. Studies indicate that firms with robust governance structures, as reflected in higher CGI scores, exhibit improved financial performance metrics. For example, Harvey, Chamisa, Abdulla, and Smith (2015) found that CGI improves financial measures such as ROA and economic value added (EVA). Another empirical study found that board size, corporatisation, transparency, and disclosure are

positively associated with performance, implying that they influence the efficiency of SOCs (Heo, 2018). This alignment with PCI, through the CGI dimension, reduces agency expenses, resulting in more efficient resource allocation and increased shareholder value and trust.

Implementing the PCI, through the CGI dimension, at the commencement of the financial year is advisable to establish a clear governance baseline. This indicator may allow for the integration of governance objectives into the annual strategic planning process, facilitating alignment with corporate goals. Moreover, early implementation enables the identification and rectification of governance deficiencies before they impact performance metrics. Continuous monitoring throughout the year ensures adherence to governance standards and timely adjustments, as needed. Ultimately, the PCI, through the CGI dimension, contributes to the creation of a governance culture that supports sustainable business success.

Human capital, encompassing the knowledge, skills, and abilities of employees, has long been recognised as a pivotal driver of organisational performance. Recent studies by Goroke and McCarthy (2023), Ogodor and Olaniyi (2022), Ngepah et al. (2021), and Mubarak et al. (2021) have expanded this understanding, highlighting the nuanced ways in which human capital influences outcomes such as productivity, innovation, and financial performance. This study delved into the mechanisms through which PCI, through the HCI dimension, enhances performance, contrasts its findings with existing literature, examines the optimal timing for implementation within a financial year, and assesses the generalisability of these insights across various organisational contexts.

Implementing PCI through the HCI dimension may align with the organisation's financial planning cycle to maximise impact. Typically, the beginning of the financial year is ideal for launching training programmes and strategic hiring to coincide with budget allocations. Mid-year evaluations can assess the effectiveness of these initiatives, allowing for adjustments before the fiscal year-end. Such timing ensures that human capital investments are adequately funded and aligned with organisational goals and operational plans. By aligning PCI through the HCI dimension initiatives with the financial planning cycle, and considering industry-specific contexts, SOCs may optimise the effectiveness of their strategies.

The PCI, through the DPI dimension of this study, is an innovative tool designed to evaluate SOC performance beyond traditional financial metrics, incorporating developmental objectives such as social impact, environmental sustainability, and alignment with national policy goals. Unlike conventional performance indices that focus solely on profitability and efficiency, this PCI, through the DPI dimension, offers a multi-dimensional assessment that reflects the complex roles of SOCs in public service delivery and national development. It addresses the gap by providing a comprehensive evaluation framework that aligns SOC performance with broader societal goals, thereby offering a more holistic approach to performance measurement.

The strategic implementation of the PCI, through the DPI dimension, may coincide with the annual strategic planning cycle of SOCs, typically at the commencement of the financial year. This timing allows for the incorporation of developmental objectives into the budgeting and performance planning processes, ensuring that the PCI, through the DPI dimension's criteria, are embedded into the operational framework from the outset. Moreover, aligning PCI, through the DPI dimension implementation with the financial year, enables periodic assessments and adjustments, fostering a dynamic approach to performance management that can adapt to evolving developmental priorities. As such, the PCI, through the DPI dimension, stands as a critical tool for advancing the performance and impact of SOCs globally.

In conclusion, implementing the developed comprehensive PCI, through the DPI dimension, is most effective at the commencement of the financial year, aligning with the South African government's fiscal calendar, which starts on 1 April. This timing allows for the integration of performance benchmarks into annual planning and budgeting processes, ensuring that performance expectations are set from the outset. The generalisability of the PCI extends beyond South Africa, offering a robust framework adaptable to other emerging markets with similar governance structures and developmental objectives. By providing a standardised approach to performance assessment, the PCI can inform policy decisions, enhance accountability, and drive improvements in public sector performance globally.

5.6 Summary

This chapter began with a panel of experts gathering data through a Delphi process over the course of two consecutive rounds until they reached a consensus and achieved data saturation. Delphi online questionnaires were applied exclusively to non-financial performance indicators, utilising Microsoft Forms. In the first round, the respondents were requested to assess the listed category items from the four performance indicators to see if there were errors or omissions and that they were complete in terms of those performance indicators.

In addition, participants were prompted to suggest any categories that may have been excluded. Those suggested items were then integrated and included in the revised list for the second round, where consensus and saturation were reached. Categories that failed to meet the established threshold were excluded, while those surpassed were assimilated into their respective indicators, culminating in the creation of a non-financial performance index. The aim of this study was met in this chapter because a PCI was developed to improve the performance of SOCs. Thus, the next chapter presents the results of the secondary objectives 1 to 4.

CHAPTER 6: DATA ANALYSIS AND INTERPRETATION OF QUANTITATIVE RESULTS

6.1 Introduction

This chapter presents the results of the quantitative data related to secondary objectives 1 to 4, covering the 10 years, 2013 to 2022. A PCI was applied to determine the results of the aim of this research. Then, a t-test formula was applied to objectives 2 and 3 to determine the performance differentials between major SOCs that are wholly owned against those that are partially owned by the state, as well as the performance differentials between major SOCs that fall under the DPE and those that are outside the DPE.

Lastly, this chapter presents results for objective 4, which seeks to identify major drivers impacting the performance of leading South African SOCs. In this study, ROA served as the dependent variable. The independent variables consisted of unauthorised, irregular, fruitless, and wasteful expenditure (UIFWE) as a proxy for political interference and corruption, CEO compensation, and transparency and accountability levels.

6.2 Research objective 1: Assessing the performance levels of major SOCs in South Africa

In this research objective, a Performance Compliance Index (PCI) developed in Chapter 5 was used to access the performance levels of major SOCs in South Africa. The PCI includes independent variables such as financial, non-financial, and developmental performance, whereas the return on assets (ROA) was used as a dependent variable, which is the proxy for performance.

6.2.1 Analysis of descriptive statistics

This section presents descriptive statistics that illustrate the evaluation and analysis of the data. Table 6.1 presents the analysis of variance (ANOVA) statistics method compared between independent variables such as the Public Finance Management Act Index (PFMAi), Corporate Governance Index (CGI), Human Resource Index (HCI), and Developmental Performance Index (DPI) (and the Altman Z-score against the dependent variable as return on assets (ROA). To preserve the integrity and

robustness of the final dataset, no outliers were present in the analysis. If any outliers were detected, they would have been systematically excluded from the dataset. Thus, to ensure the dataset's integrity and dependability, outliers were removed using a systematic exclusion method. Specifically, researchers carefully deleted any data points identified as outliers using known statistical procedures or checks (such as normalized residuals, z-scores, or influence statistics such as Cook's distance) rather than eliminating them at random. This approach guaranteed that anomalous values, which could skew the conclusions or distort data patterns, did not bias the analysis.

Table 6.1: Analysis of Variance (ANOVA)

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	5	0.62963	0.125926	7.21	0.000
Z-Score	1	0.44100	1 0.44100	25.24	0.000***
PFMAi	1	0.00112	0.001124	0.06	0.800
CGI	1	0.09085	0.090853	5.20	0.024**
HCI	1	0.00059	0.000595	0.03	0.854
DPI	1	0.07648	0.076481	4.38	0.038**
Error	174	3.03989	0.017471		
Lack-of-Fit 173	173	3.03849	0.017564	12.57	0.222
Pure Error	1	0.00140	0.001397		
Total	179	3.66952			

Note: $Y_{it} = \alpha_1 + \beta_1 + \beta_2 + \beta_3 + \varepsilon_{it}$.

Where: Yit=ROA; α_1=Constant; β1=Z-score; β2=PFMA: β3= CGI; β4=HCI; β5=DPI; εit= error term, then

Y_{it} = -0.040 - 0.04961 Z-Score + 0.029 PFMAi + 0.2025 CGI - 0.0134 HCI - 0.1914 DPI.

(-) = Negative; < = less than

NB: ***<0.01, **<0.05 and * <0.1 at a p-value signify the significances at the level 1%, 5% and 10%, respectively.

Source: Author's compilation (Minitab v17, 2024)

The ANOVA results in Table 6.1 are designed to compare variance across and within

multiple groups at one time (Stoker, Tian & Kim, 2020:197). According to Hossain, Rahim, Aman and Selvaraj (2019), ANOVA is a statistical model that includes processes for comparing group means in a sample. The results show a significant overall regression model, with an F-value of 7.21 and a p-value of 0.000, implying that at least a single indicator significantly contributes to explaining the variance in the dependent variable. Key findings are presented as follows:

1) Z-score: This predictor is significant (F-value =25.24; p = 0.000). It indicates a very highly significant contribution, suggesting that changes to the Z-Score are likely to have a greater importance for the outcome.

2) The CGI has also shown a statistically significant effect, having an F-value of 5.20 and a p-value of 0.024. This result indicates that this model CGI is an important predictor.

3) The DPI is similarly significant (F-value = 4.38, p-value = 0.038). This indicates that it is helpful to explain the variance of the dependent variable.

4) PFMAi and HCI: In contrast, the variables predicting PFMAi and HCI do not have significant impacts (p-values = 0.800 and 0.854, respectively). This means that these variables do not alter the model significantly.

P-Value: Probability of the data if the null hypothesis is correct (no effect). The p-value of the overall regression is 0.000, which confirms that there are significant differences among groups.

1) Z-Score: $p < 0.001$ (very significant)

2) PFMAi: $p = 0.800$ (not statistically significant)

3) CGI: $p = 0.024$ (significant)

4) HCI: $p = 0.854$ (not significant)

5) DPI: $p = 0.038$ (significant).

Error Analysis: The Error term has an F-value of 12.57 with p-value 0.222, indicating that a poor fit is not statistically significant. This means that the model is good and fit

for the data.

In summary, the results of the ANOVA analysis indicate that the variable Z-Score, corporate governance index (CGI), and developmental performance index (DPI) exert a statistically significant influence on the dependent variable (return on assets). In contrast, the Public Financial Management Assessment Index (PFMAi) and the Human Capital Index (HCI) do not exhibit a significant effect within the model. Furthermore, the overall regression model is statistically significant, suggesting that, collectively, the explanatory variables contribute meaningfully to the interpretation of the outcome variable.

Table 6.2 provides the descriptive analysis statistics and regression outputs derived from the linear regression analysis, which evaluates the relationship between the dependent variable (Yit) and the set of independent variables: Z-Score, PFMAi, CGI, HCI, and DPI.

Table 6.2: Summary of the Regression Model

Summary of the Model

S	R-sq	R-sq(adj)	R-sq(pred)
0.132176	17.16%	14.78%	9.33%

Term	Coefficient	SE Coef	T-Value	*P-Value	VIF
Constant	-0.040	0.112	-0.35	0.723	
Z-Score	-0.04961	0.00987	-5.02	0.000 ***	1.02
PFMAi	0.029	0.114	0.25	0.800	1.17
CGI	0.2025	0.0888	2.28	0.024**	1.24
HCI	-0.0134	0.0729	-0.18	0.854	1.16
DPI	-0.1914	0.0915	-2.09	0.038	1.20

Regression Equation (summary)

Y_{it} = -0.040 - 0.04961 Z-Score + 0.029 $PFMA_i$ + 0.2025 CGI - 0.0134 HCI - 0.1914 DPI

Note: $Y_{it} = \alpha_1 + \beta_1 + \beta 2 + \beta 3 + \varepsilon_{it}$.

Where: Y_{it}=ROA; α_1=Constant; β1=Z-score; β2=PFMA: β3= CGI; β4=HCI; β5=DPI.

ε_{it}= error term, then

Y_{it} -0.040 - 0.04961 Z-Score + 0.029 PFMAi + 0.2025 CGI - 0.0134 HCI - 0.1914 DPI.

(-) = Negative; < = less than

NB: ***<0.01, **<0.05 and * <0.1 at a p-value signify the significances at the level 1%, 5% and 10%, respectively.

Source: Author's compilation (Minitab v17, 2024)

Table 6.2 presents the regression descriptive statistics calculated using the equation: Yit = Z-score + PFMAi + CGI + HCI + DPI. The table includes the Standard Error of the Estimate (S), R-squared (R-sq), adjusted R-squared (R-sq(adj)), predicted R-squared (R-sq(pred)), term, coefficient, standard error of coefficient, t-value, p-value, and variance inflation factor (VIF).

'S' in descriptive statistics means the standard error of the regression model. In summary, this statistic reflects how well the model fits the data, where a lower S means a better model fit (Field, 2018). R-squared (R-sq) is defined, according to Filho, Silva, and Rocha (2011: 60), as the percentage of variation on the dependent variable explained by the independent variables. Karch (2020: 3) states that R-squared (R-sq) differs from adjusted R-squared (R-sq(adj)) in that it takes into account more than just one independent variable relative to the model, unlike R-squared (R-sq). The R-squared (R-sq(pred)) states the predictive power of a regression model and its ability to forecast or predict future observations (Hasanzadeh & Azdast, 2024: 80).

There are some important statistics in regression analysis that indicate how well one variable predicts another, or the accuracy of the model. McClave and Sincich (2017) define a coefficient as the measure of the relationship between the predictor and response variables. This is calculated from the standard deviation of the sample and represents the accuracy with which a sample approximates the population. The t-value tests the difference between the supposed value of the parameter and the estimated value divided by its standard error (Field, 2018), which is used to test for significance between the means of groups.

The p-value represents the probability of observing extreme results if the null

hypothesis were true, with low p-values indicating the null hypothesis should be rejected (Sullivan, 2018). Lastly, the VIF allows an assessment of multicollinearity or how much variance of regression coefficients is inflated and the determination of an appropriate model specification and inclusion of variables (O'Brien, 2007).

6.2.1.1 Interpretation of the results

The diagnostic test results reveal that the model demonstrates limited explanatory power in capturing the variability inherent in the dataset. Specifically, the standard error of the estimate is 0.132176, which shows that the actual values are, on average, moderately different from what the model predicts; generally, a lower standard error means the model fits better. However, the coefficient of determination (R^2) stands at 17.16%, indicating that the independent variables collectively explain only a small proportion of the variance in the dependent variable. The adjusted R^2, calculated at 14.78%, accounts for the number of predictors included in the model and further implies that some variables may contribute marginal explanatory value. While the R^2 value might appear relatively moderate in isolation, it can be misleading, particularly when considering the model's capacity for external validity. This concern is underscored by the predicted R^2 value of 9.33%, which reveals a low level of generalisability and suggests that the model's performance would likely deteriorate when applied to out-of-sample data.

Overall, the model indicates that the chosen predictors have limited explanatory power in the context of the data and suggests that they may not generalise well to unknown data at this time, and that additional data and/or improvements will be required in the future. A low R-squared value reveals that the model does not include other variables that might have a large effect on the dependent variable (ROA) implying that the model may accurately represent and may not account for everything that might be a meaningful contributor. This explains the lower R-squared values confirming that the model should be explored further, and other possible predictors should be added at a later time to better explain the variability in ROA.

6.2.1.2 Constant

The -0.040 coefficient from the model indicates that, when holding all independent

variables to zero, the expected value of the dependent variable is -0.040. A negative intercept indicates that, in this scenario, the expected value of the dependent variable is just below zero. The SE Coef, which is 0.112, is the standard error of the coefficient i.e., the average change in the coefficient estimate when the model is run multiple times. Its coefficient is even higher with a standard error, suggesting that this estimate could very well be ambiguous.

Constant: This t-value is -0.35, which is the number of standard deviations the coefficient is from zero. A t-value of -0.35 suggests the coefficient is not statistically different from zero in which case there is no strong association. The p-value of 0.723 from the results is used to examine the statistical significance of the model coefficient. The p-value of 0.723 is much larger than the usual significance level (such as 0.05) so the constant term is not statistically significant. This implies that there is not enough evidence to reject the null hypothesis that says that the constant is 0.

6.2.1.3 Relationship between Z-Score index and SOCs' performance

As mentioned earlier in this paper, the Altman Z-Score is a proxy for SOC performance based on financial information. The coefficient of -0.04961 in the regression results reveals that 1% of an increase in Z-Score is associated with a 0.04961 unit decrease in the ROA. In other words, Z-scores exhibit an inverse relationship with ROA, such that higher Z-scores are associated with lower ROA values. The standard error of this coefficient is 0.00987, which indicates the average variability of the coefficient estimates from repeated sampling.

The t value is -5.02, indicating that the coefficient is far from zero, confirming that the relationship is strong. The results indicate a lack of significant multicollinearity with other explanatory variables. Values approaching 1 indicate a high degree of multicollinearity, although values greater than 5 (or more than 10) are indicative of potential problems (Field, 2013). The p-value (0.000) is smaller than the two most commonly used significance levels, 0.05 and 0.01, indicating that the correlation is statistically significant. Consequently, the results suggest that the Z-score has a significant negative impact on the ROA.

A significant negative impact of the Altman Z-Score on the performance of SOCs implies that these companies are at a higher risk of financial distress or insolvency,

which could significantly affect their operational efficiency, strategic objectives, and overall performance. Furthermore, that trend indicates that SOCs are financially stressed, a condition that may affect their ability to provide cost-effective services, innovations, and/or expansion. This dynamic contributes to a self-reinforcing cycle of financial deterioration, marked by sustained poor fiscal health, diminishing investor and public confidence, and growing discontent among key stakeholders. Such adverse outcomes can largely be attributed to persistent political interference, particularly from trade unions and government officials, as well as the continued reliance on government bailouts to ensure the survival of these entities (Kesieman & Thakhathi, 2022: 55).

These factors collectively undermine the operational autonomy and long-term viability of the affected organisations. These findings align with Roque and Carrero's (2022) and Boda and Uradnicek's (2016) conclusions that the Z-score has an adverse association with profitability. Roque and Carrero (2022: 129) note that these companies may operate with hidden financial stresses. Izzaty, Azhar, Lokman, Alam and Said (2021) also state that companies with low Z-score levels operate with high costs and face restricted financing opportunities. Thus, they cannot generate high performance on their assets. Chen, Hsu and Wang (2022) found that Z-Score levels with poor resource allocations and inefficiencies result in poor performance.

Researchers, such as Roque and Carrero (2022), Tandiontong and Sitompul (2017), as well as Behn and Riley (1999), argue that a positive relationship exists between the Z-score and company performance. Hu et al. (2022) assert that there is a positive relationship between the Altman Z-Score and stock performance in US-listed airline companies. Likewise, Mohamed El Mokadem, Gad and Sobhy (2024) report a positive correlation between the independent variables (liquidity, growth potential, asset tangibility, company size, and Altman's Z-score) and the profitability of the company. The study found that liquidity, opportunities for growth, size and Altman's Z-score may increase company profitability. Hence, companies must have the right management in place to take advantage of such opportunities.

However, in contrast to the above findings, the study by Joshi (2020) did not find any statistically significant correlation between the Altman Z-Score and the financial performance of some individual public banks in India, by inferring that the Z-Score is

not a sectoral and regional determinant. Azam, Ahmad, Khan, Mulla and Khan (2023) found a complementary approach linking the Z-Score of selected Indian pharmaceutical companies with their performance measures. These results indicate that there is no agreement among researchers on the relationship of Z-score to company performance.

This study notes the diverse findings based on previous and current findings; therefore, it acknowledges the fact that the Z-score is an important tool to predict the financial bankruptcy of a company (Ofori, 2016; Drábková's, 2014). This negative effect suggests that SOCs, during the time of this study, were on the brink of collapse, showing financial distress and bankruptcy. They therefore require the agent and principal to develop diverse strategies (such as access to capital) to mitigate financial distress and bankruptcy in SOCs. Moreover, it would mitigate factors that contribute to a low Z-Score, such as excessive debt, low profitability, or operational inefficiency, which would be critical for improving the long-term performance and sustainability of SOCs.

In conclusion, the study affirms that the Z-score is one of the most prominent tools for both agents and principals to make sound decisions in the acquisition of debt capital and, as a result, reduces over-indebtedness. If implemented, this metric allows the improved handling of SOCs with access to better capital that also results in improved operational efficiency and performance. Therefore, the Z-score remains a suitable indicator to balance and administer the public funds of SOCs, which aligns with the broader objectives of the PFMA.

6.2.1.4 Relationship between Public Finance Management Act Index (PFMAi) and SOCs' performance

The results indicate that the coefficient for PFMAi is positive, and estimated at 0.029, which shows a positive relationship with the dependent variable, ROA. This means that a one-unit increase in PFMAi will increase ROA by 0.029, keeping other variables constant. With a standard error of 0.114, this indicates the level of variability or uncertainty associated with the estimated coefficient. The high scope of error indicates high uncertainty regarding the impact of PFMAi on ROA, relative to the coefficient.

The estimated t-value for PFMAi is 0.25 (0.029 / 0.114), which is near zero, suggesting

that its effect is not statistically significant. This indicates that the coefficient is not statistically different from zero. This t-value has a p-value of 0.800, meaning that the PFMAi coefficient is not statistically significant at common levels (e.g., 0.05 or 0.01). A high p-value suggests that the association observed may be attributed to random chance rather than a real cause and effect.

Thus, the VIF is at 1.17 for PFMAi, which is well below the traditional threshold of 10 for detecting multicollinearity problems. The low VIF indicates that PFMAi has no multicollinearity, which has no effect on the dependent variable in the model that contributes towards a more reliable estimate of the coefficient. The analysis of these statistics suggests that, although there is a positive relationship between PFMAi and ROA, the connection is weak and not statistically significant. That means that PFMAi does not have a strong or reliable impact on the ROA of SOCs. So, given the data, the null hypothesis cannot be rejected.

These results support Xhati (2015) who concludes that PFMA financial rules and processes are beneficial and allow departments to achieve objectives that are informed by SOCs' objectives. Hence, the PFMA's governance framework needs to be validated by a public finance angle to corroborate that it adheres to the aforementioned principles of accountability, responsibility and transparency (Makhanya, 2023). A study by the National Treasury (2023) supports these findings, concluding that the PFMA has a positive impact on SOC management as the PFMA places increased accountability on managers for performance.

Makhanya (2023) and Xhati (2015) further demonstrates strong compliance to the PFMA guidelines resulting in improved financial oversight and effectively allocating resources ultimately positively impacting the SOC's performance. These results imply that the good practices of PFMA may provide the impetus behind improved SOC performance on profitability and operational efficiency. Therefore, public companies are not exempt from being penalised for non-compliance with the PFMA and for conducting financially sound corporate governance (Mukono, 2021).

The findings of this study suggest that the application of the PFMA to assess the performance of SOCs yields positive outcomes. The PFMA's objectives align with the core priorities of the PFMA which are focused on the proper management of public

funds. Managing public funds responsibly establishes and maintains legitimacy and is vital to ensuring that funds are used for their intended purpose. SOCs that manage public resources transparently and efficiently are accountable to both the government and the public, which adds to the trust in their operations. This accountability is important, as all stakeholders, including governmental departments and citizens, want assurance that the common funds are being used in pursuit of socio-economic and developmental objectives.

As a result, compliance with the PFMA remains non-negotiable for SOCs. Any non-compliance must attract sanctions targeting both the SOCs and the individuals who govern and administer these entities. In conclusion, this research addressed modern governance questions by providing actionable frameworks that ensure SOCs fully achieve the aims of the PFMA. It makes an important contribution by introducing SOC-specific frameworks that highlight not only accountability but also alignment with the principles enshrined in the PFMA and corporate governance best practices.

6.2.1.5 Relationship between corporate governance index (CGI) and SOCs' performance

The regression analysis produced a coefficient of 0.2025 for the Control of Corruption Index (CGI), suggesting that a one-unit increase in CGI corresponds to an expected 0.2025 increase in the dependent variable, Return on Assets (ROA). The positive sign of the coefficient implies a direct relationship between CGI and ROA, suggesting that improved control of corruption may positively influence the financial performance of the entity under investigation. The standard error associated with this coefficient is 0.0888, which, although not negligible, is sufficiently small relative to the coefficient to suggest a reasonable degree of precision in the estimate.

Additionally, the t-value of 2.28 shows strong evidence that the coefficient is significantly different from zero, which supports the idea that CGI has a real impact on the dependent variable in this model. Also, the VIF of 1.24 indicates that the CGI variables are not strongly correlated. Values below 5 are generally acceptable, implying that CGI is not overly correlated with other model variables. Such a finding is supported by a p-value of 0.024, which means there is only a 2.4% chance that the effect being observed is due to random fluctuation. Since the p-value is less than

conventional significance level of 0.05, this means that the CGI has a significant effect on ROA.

Overall, these results indicate that the use of CGI brings statistically significant benefits to the SOCs' performance. Strengthening compliance enhances performance and follows both the best practices from corporate governance perspective, as well as regulatory requirements mentioned in the Companies Act of 2008. This is consistent with the existing literature, which has shown similar outcomes, reinforcing the positive influence of strong governance practices on SOCs' performance.

This finding is supported by Wu et al. (2023), who revealed a positive correlation between governance quality and SOC operational performance and reinforced that strong governance is still a prerequisite for operational effectiveness and accountability. Kaunda and Pelser (2023) also built on those insights and emphasised several corporate governance features (board structures, board process, board size) that enhance the performance of SOEs. Other studies, including those by Abang'a et al. (2022) and Turyakia, Nyamute, Okiro and Wainaina (2022), revealed a very positive relationship between board power and independence and financial performance.

Recent empirical evidence points to the importance of sound corporate governance in enhancing the performance of SOCs in Zambia. Mulenga (2024) highlights that adherence to robust corporate governance principles significantly contributes to operational and financial improvements within these entities. This finding aligns with the earlier work of Tjano (2021), who posits that corporate governance mechanisms exert a positive influence on organisational performance more broadly. Additionally, Andriani, Pratiwi, Olivia, and Sebastian (2024) show that audit committees, which are important parts of governance, help improve financial performance, strengthening the overall case for governance changes in SOCs.

In contrast to the aforementioned findings, Jahja, Mohammed, and Lokman (2024) report that an increase in the application of corporate governance practices is associated with a decline in the performance of State-Owned Companies (SOCs) in Indonesia. This suggests that, in certain institutional contexts, excessive or improperly implemented governance mechanisms may introduce inefficiencies or bureaucratic constraints that hinder performance. Meanwhile, the study by Hussain, Rigoni, and

Orij (2018) presents evidence of a positive association between corporate governance and organisational performance; however, it also highlights that specific board characteristics, such as size, composition, and diversity, play a critical moderating role.

These findings imply that the effectiveness of governance practices may depend not only on their presence but also on how they are structured and contextualised within a given institutional and cultural environment. The debates on the effect of corporate governance on the performance of companies remain contested, with results that are far from definitive. As illustrated above, the literature on the effect of corporate governance on the performance of companies revealed inconsistent results. However, this positive finding affirms the plethora of literature mentioned above. Thus, the wide range of goals and ownership structures of SOCs calls for effective governance to balance and manage conflicting expectations from multiple stakeholders while serving the public interest and maximising organisational performance.

This calls for the corporate governance commitment to evolve to not only adhere to the principle of good governance but also be broader to include policy compliance for SOCs as well. Thus, good governance is important for the confidence of stakeholders, legitimacy and the trust of the public. Adopting transparent, accountable and ethical governance practices shows that SOCs are serious about operating responsibly and fulfilling their mandates. This promotes proper utilisation of resources and sends a message to stakeholders that the organisation is functioning according to the law and societal expectations.

6.2.1.6 Relationship between human capital index (HCI) and SOCs' performance

Incorporating the Human Capital Index (HCI) as an explanatory variable in the regression model results in a coefficient of -0.0134. The negative coefficient indicates a marginal inverse correlation with Return on Assets (ROA), suggesting that an increase in HCI correlates with a slight decline in financial performance. The effect magnitude is low, since the coefficient value approaches 0 and likely represents statistical noise rather than a significant economic relationship. The standard error of the coefficient is 0.0729, which is considerable compared to the coefficient itself, showing a significant level of uncertainty and suggesting that the observed link may result from random variation. The t-value of -0.18 supports this conclusion, indicating

that the coefficient is not statistically different from zero. The results collectively indicate that HCI does not significantly impact ROA within the framework of the existing model.

The VIF score of 1.16 confirms that multicollinearity is not a problem in this model. A VIF of less than 5 suggests that HCI is highly uncorrelated with other variables, thus permitting a more accurate estimate of its impact on ROA. The p-value of 0.854 provides context; numbers that are above the conventional 0.05 threshold do not reject the null hypothesis. Therefore, it can be validly inferred that HCI had no statistically significant influence on ROA in the present research.

The results, therefore, suggest that the influence of HCI on ROA is either limited or negligible, and multicollinearity is less of a concern. However, HCI demonstrated an effect on SOCs' performance; however, it is not significant. Thus, the HCI's relation to performance is not strong enough to be significant. While statistically insignificant in this study, the broader theoretical and practical implications of HCI suggest it remains a critical input for long-term performance enhancement in SOCs.

These results are consistent with Anwar and Abdullah's (2021) study, where they found no evidence that such a relationship between HCI and performance exists. Similarly, Lopez, Peon and Ordas (2007) did not establish a link between human resource strategies and firm performance in their sample of companies. Kamal, Mahat and Kandel (2023) found no statistically significant (nonzero) relationship between the HRM effect and the job format. This graph shows that the basic ingredients of human capital can be null to a firm's performance. Regardless of training, additional compensation increases or other supportive activities do not impact performance results.

Consistent with these findings, Amason et al. (2006) reported that in new companies, neither innovation nor entrepreneurial team heterogeneity was directly associated with performance. Shrader and Siegel (2007) further found a limited direct association between team experience and venture performance. On the other hand, Veselinović, Krstić and Rađenović (2018) found that higher human capital values have a negative impact on efficiency measures. Therefore, job experience has a negative and statistically insignificant impact on company performance (Tessema, 2014).

In contrast, Jeong and Choi (2016) averred that a strong human resource function can boost the influence of high-performance work systems (HPWSs) on firm performance. Increasing data demonstrates that HPWSs boost company performance by positively influencing individuals' talents, discretionary efforts, and commitment (Kehoe & Wright, 2013; Liao, Toya, Lepak & Hong, 2009). Culver (2010) and Costley (2012) assessed the relationship between human capital and software company success, and both established that a positive relationship exists between HCIs and company performance.

Despite conflicting findings presented by previous literature, this study aligns with the finding that HCI has an effect on performance, regardless of whether that effect is statistically significant. This means that managing human resources well is necessary for improving performance in organisations (Masyhuri, Sudiro, Prabandari & Kurniawati, 2024). Good principles of human resources attract skilled and knowledgeable resources that help the organisation perform extremely well. Thus, SOCs should adopt the HCI and its prescriptive requirements to determine their performance level and enhance their performance.

When a company does well due to strong human capital management tenets, the agency cost potential is minimised because of effective people practices, such as employee development, motivation and alignment with the goals of the organisation and of the interests of the agents (managers) and the principal (government or shareholders). This minimises the conflict of interest normally arising from agency problems as a culture of mutual benefit and nurtures joint objectives. This alignment lays the groundwork for stronger trust, accountability and legitimacy, which are critical for the viability and sustainability of SOCs over the long term.

6.2.1.7 Relationship between developmental performance index (DPI) and SOCs' performance

The regression results indicate that the Developmental Performance Index (DPI), treated here as an independent variable, has a coefficient of -0.1914. This negative sign signifies an inverse relationship, suggesting that for each one-unit increase in DPI, the dependent variable is expected to decrease by approximately 0.1914 units, holding all else constant. The standard error of the coefficient is 0.0915, reflecting the

degree of variability in the coefficient estimate. Given that the standard error is relatively small in comparison to the magnitude of the coefficient, the estimate can be considered reasonably reliable. The corresponding t-value of -2.09 indicates that the coefficient is approximately 2.09 standard deviations away from zero.

This level of difference shows that the negative connection between DPI and the dependent variable is statistically important, backing up the idea that DPI has a significant opposite effect in the model. The VIF is 1.20, which allows multicollinearity (correlation among IDT variables) to inflate the uncertainty of the determined regression coefficients. For example, if the VIF of a certain feature is 1.20, it indicates that there is little multicollinearity, hence, the model is valid. A p-value lower than a threshold of 0.05 is interpreted as a statistically significant result, therefore the p-value of 0.038 suggests significance.

This gives an indication that the null hypothesis can be rejected, and DPI has a statistically significant impact on the dependent variable. The net impact of DPI on SOC performance (ROA) is statistically significant and negative. This suggests that the DPI has a negative and statistically significant impact on the performance of SOCs therefore SOCs do not need DPI to determine and improve their performance levels. This implies that disclosure of the principles of DPI, such as ESG, CSR, enterprise supply development (ESD), and sustainability developmental growth (SDG) is voluntary because they have no effect on the performance of SOCs, which contradicts the objectives outlined in the National Development Plans (NDPs).

Similarly, the result of this study is consistent with a previous study by Martha and Khomsiyah (2023) regarding the influence of ESG factors on financial performance, namely, ROA and ROE. They also observed a negative relationship between ROA and ROE in both studies. Moreover, Maome and Zondo (2024) show that CSR decreases business risks and compliance expenses for the corporation, subsequently increasing its revenues and lowering production costs.

Many studies have found that ESG factors are positively correlated with better performance from companies (Martha & Khomsiyah, 2023; Alareeni & Hamdan, 2020; Almeyda & Darmansya, 2019). Additionally, Nirino, Santoro, Miglietta and Roberto (2020) using Tobin's Q (a market performance measurement) as the dependent

variable, revealed a strong positive impact of ESG disclosure on company performance (Lu & Cheng, 2023).

Surroca, Tribó, and Waddock (2010) were unable to establish a direct causal link between Corporate Social Responsibility (CSR) and financial performance. Instead, their findings indicate that a company's intangible resources, like its reputation, ability to innovate, and trust from stakeholders, play a key role in turning CSR efforts into financial results. Building on this complexity, Friede, Busch, and Bassen (2015) identified a nuanced dynamic in which firms with higher Environmental, Social, and Governance (ESG) ratings tend to benefit in the long term. However, these benefits may be offset in the short term by increased compliance and implementation costs, which can negatively impact immediate financial returns.

Similarly, Mazzucato (2013) contends that firms may experience reduced asset efficiency in the medium term when financial and managerial resources are distributed across multiple, potentially competing priorities, thereby diluting strategic focus and operational performance. Due to a negative and statistically significant effect obtained in both previous literature and the analysis of this objective, this study recognised these findings but was more in line with research which presents a positive effect of DPI on performance. This development is in line with the principles contained in, inter alia, the PFMA, the Treasury Regulations, the Companies Act and other regulatory frameworks governing SOCs.

Thus, DPI reporting should not be considered as an optional requirement for SOCs, rather as a prescribed policy requirement. Building legitimacy and public trust through such reporting is another challenge faced by SOCs. DPI reporting, in addition, reveals the agency costs that may need intervention from shareholders. It keeps managers (agents) responsible to make decisions in the best interest of owners (principals) which is in line with stewardship and improves corporate governance.

Ensuring that managers are responsible for their choices, DPI reporting aligns the managers' interests with those of the owners, which facilitates the stewardship theory. It reinforces the notion that, when managers are given autonomy, they should behave like responsible stewards of taxpayer monies. DPI reporting is thus a double-edged sword in its value add by improving governance and accountability. It is also a more

effective part of corporate governance as it ensures that decisions taken are in the organisation's and its stakeholders' best interests over time.

6.2.2 Summary of Secondary Objective 1

The performance levels of major SOCs were measured by the PCI that was developed in the main objective of this study. This PCI consists of four indices that represent both financial and non-performance indicators. This objective tested whether these indices affect the performance (measured by ROA) of SOCs. Secondly, it determined whether such relationships influence the performance of these companies.

Z-scorei: The results revealed that PFMAi has a statistically significant effect on the performance of SOCs. However, its effect on the performance is negative, implying that agents and principals must pay attention to this indicator in order to make sound financial decisions which includes raising debt capital and mitigating excessive debt.

Therefore, the Z-score is thus one of the indices that can be used to determine the performance level of SOCs in South Africa.

PFMAi: The analysis presented a statistically insignificant positive effect of PFMA on the performance of SOCs. It implies that PFMA has little or no statistically significant impact on SOC performance in South Africa, however the index remains a useful instrument for assessing the performance of SOCs and their compliance purposes. This policy relevance is evident, especially in regulatory compliance, as it also needs to be addressed. Even in the absence of a direct, significant effect of performance metrics, SOCs align their practices with regulatory standards for both the state and society to hold them accountable.

CGI: The use of CGI on the performance of SOCs in this study yielded a statistically insignificant positive result. This implies that CGI has a positive effect on determining the performance level and improving the performance of SOCs. As a result, all SOCs should adopt the use of CGI not just as the best practice but as a matter of compliance, which calls for corporate governance principles to be enacted as an act of law.

HCI: The impact of HCI on the performance of SOCs is positive and significant. Therefore, the adoption of HCI will aid the SOCs in determining their performance level

and enhancing their performance. By systematically measuring these dimensions, SOCs can identify strengths and areas for improvement in their workforce, leading to more informed decision-making around training, recruitment, and talent management.

DPI: The results of this analysis show that DPI has a statistically significant negative effect on performance. Despite this, the study aligns with the notion that DPI has a positive effect on performance, emphasising that DPI reporting must be mandatory for SOCs because it covers critical aspects that are aligned with developmental goals that will give credence to legitimacy and stewardship. Thus, SOCs should adopt and use DPI to measure its level and improve their developmental imperatives.

6.3 Research objective 2: To evaluate and contrast the performance differentials of major wholly and non-wholly owned SOCs in South Africa

- H_0: There are no performance differentials between major SOCs that are wholly owned by the state and those that are partially controlled by the state.
- H_1: There are performance differentials between major SOCs that are wholly owned by the state and those that are partially controlled by the state.

Table 6.3 presents a comparison analysis between wholly owned SOCs and partially owned SOCs (Telkom).

Table 6.3: Fully state-owned vs. partially owned companies (difference μ - μ): N=10

Fully Owned - SOCs				Partially Owned - SOCs			Key-Findings					
SOC	**Mean**	**St Dev**	**SE Mean**	**SOCs**	**Mean**	**St Dev**	**SE Mean**	**Est Diff - Mean**	**CI**	**T-Value**	**P-Value**	**DF**
ATNS	0.031	0.122	0.039	**Telkom**	0.023	0.109	0.034	0.0081	-0.1011, 0.1172	0.16	0.878	17
ACSA	0.0325	0.0434	0.014	**Telkom**	0.023	0.109	0.034	0.0092	-0.0723, 0.0906	0.25	0.809	11
Alexkor	-0.018	0.169	0.053	**Telkom**	0.023	0.109	0.034	-0.0415	-0.1767, 0.0937	-0.65	0.523	15
Armsco	0.0313	0.0383	0.012	**Telkom**	0.023	0.109	0.034	-0.1097	-0.1901, -0.0293	0.22	0.831	11
Broadband Infraco	- .0863	0.0350	0.011	**Telkom**	0.023	0.109	0.034	-0.1097	-0.1901, -0.0293	-3.04	0.012**	10
CEF	0.0251	0.0190	0.0060	**Telkom**	0.023	0.109	0.034	-0.0856	-0.2085, 0.0373	-1.48	0.159	16
DBSA	0.0251	0.0190	0.0060	**Telkom**	0.023	0.109	0.034	0.0018	-0.0771, 0.0807	0.05	0.960	9
Eskom	0.0069	0.0402	0.013	**Telkom**	0.023	0.109	0.034	-0.0164	-0.0970, 0.0642	-0.45	0.663	11
IDT	0.018	0.209	0.066	**Telkom**	0.023	0.109	0.034	-0.0051	-0.1659, 0.1557	-0.07	0.947	13
IDC	0.0072	0.0142	0.0045	**Telkom**	0.023	0.109	0.034	-0.0161	-0.0945, 0.0622	-0.47	0.652	9
Land Bank	0.0041	0.0229	0.0072	**Telkom**	0.023	0.109	0.034	-0.0192	-0.0986, 0.0602	-0.55	0.598	9
SABC	0.009	0.308	0.097	**Telkom**	0.023	0.109	0.034	-0.014	-0.241, 0.213	-0.14	0.893	11
SAFCOL	0.0121	0.0380	0.012	**Telkom**	0.023	0.109	0.034	-0.0112	-0.0913, 0.0689	-0.31	0.764	11
NECSA	0.0407	0.0650	0.021	**Telkom**	0.023	0.109	0.034	0.0174	-0.0685, 0.1032	0.43	0.671	14
SAA	-0.334	0.172	0.054	**Telkom**	0.023	0.109	0.034	-0.3574	-0.4947, -0.2202	-5.55	0.000***	15
Trans Caledon	0.0146	0.0468	0.015	**Telkom**	0.023	0.109	0.034	-0.0087	-0.0902, 0.0728	-0.23	0.820	12
Transnet	0.0411	0.0608	0.019	**Telkom**	0.023	0.109	0.034	0.0178	-0.0667, 0.1022	0.45	0.659	14

NB: ***<0.01, **<0.05 and * <0.1 at a p-value signify the significances at the level 1%, 5% and 10%, respectively.

Source: Author's compilation (Minitab v17, 2024)

As previously stated, the analysis only covers one partially owned business, Telkom, and compares it to all other full SOCs in the whole sample. Table 6.4 summarises whether a performance difference exists between wholly owned state companies and partially owned companies based on the outcome of a hypothesis. If a p-value is below 0.05, it indicates a statistically significant difference in the performance of the two companies. However, if the p-value is greater than 0.05 or 5%, the results imply that there is no statistically significant difference in performance between the two companies.

Table 6.4: Hypotheses outcomes

Wholly Owned	Partially Owned	*P- Value	Statistically	Performance Differentials
ATNS	Telkom	0.878	Insignificant	No difference
ACSA	Telkom	0.809	Insignificant	No difference
Alexkor	Telkom	0.523.	Insignificant	No difference
Armsco	Telkom	0.831	Insignificant	No difference
Broadband Infraco	Telkom	0.012**	Significant	Yes, difference
CEF	Telkom	0.159	Insignificant	No difference
DBSA	Telkom	0.960	Insignificant	No difference
Eskom	Telkom	0.663	Insignificant	No difference
IDT	Telkom	0.947	Insignificant	No difference
IDC	Telkom	0.652	Insignificant	No difference
Land Bank	Telkom	0.598	Insignificant	No difference
SABC	Telkom	0.893	Insignificant	No difference
SAFCOL	Telkom	0.764	Insignificant	No difference
NECSA	Telkom	0.671	Insignificant	No difference
SAA	Telkom	0.000***	Significant	Yes, difference
Trans Caledon	Telkom	0.820	Insignificant	No difference
Transnet	Telkom	0.659	Insignificant	No difference

NB: ***<0.01, **<0.05 and * <0.1 at a p-value signify the significances at the level 1%, 5% and 10%, respectively.

Source: Author's compilation (Minitab v17, 2024)

ATNS vs Telkom

The mean for ATNS (wholly state-owned) is 0.031, while for Telkom (partly state-

owned) it is 0.023. This means that, on average, companies that are fully owned by the state are more valued than companies that are partially owned by the state. Both companies have relatively low means, notwithstanding their different types of ownership but there is a greater spread of measures from wholly SOCs. ATNS has a higher standard deviation (0.122) than Telkom (0.109). The standard errors indicate the precision of the mean estimators, and both are small, which demonstrates that the data samples are equal. The previous calculation of a 0.0081 difference between Telkom and ATNS may seem insignificant at first, but the importance of such a finding often is context dependent.

Telkom and ATNS do not belong to the same sector, nor do they have similar operating models. While Telkom is predominantly a telecommunications company, ATNS (Air Traffic and Navigation Services) specialises in air traffic control and aviation navigation services. The (very small) difference of 0.0081 probably indicates differences in approach or assumptions. In its portfolio, Telkom finds itself in a competitive telecommunications environment that significantly varies as increases to the spectrum of performance indicators may be impacted by technological disruptions, market saturation, or regulatory changes. ATNS is more stable given that it is directly impacted by patterns of aviation traffic, safety standards as well as government policies.

The confidence interval (CI) is from -0.1011 to 0.1172 and includes zero. This indicates that the groups are not statistically different since it cannot be statistically determined that either population mean is greater than the other. This means that the effect size (the t-value) of 0.16 is an extremely small difference in relation to the variance of the data. Also, the p-value of 0.878 is greater than the significance level of 0.05 which leads to the conclusion that the null hypothesis cannot be rejected. This means that there is no statistically significant difference between the means of the two groups. In terms of overall performance, while the mean values suggest a slight benefit for SOCs, the statistical analysis demonstrates that this difference is not statistically significant.

The finding of no performance differences between fully- and partially owned SOCs suggests that ownership structure is not a key determinant of organisational success. It challenges the assumption that full state ownership results in better performance,

and urges consideration of factors affecting SOC performance, including political interference. It suggests that factors such as governance quality, management practices and external market conditions, may have a greater effect than ownership type. In addition, the analysis suggests that policymakers should move beyond ownership models, focusing instead on enhancing operational effectiveness and strategic decision-making to accelerate performance among all SOC types.

ACSA vs Telkom

The analysis shows significant variations in the performances of ACSA compared to Telkom and presents possible avenues for future research and practical applications. Although ACSA's mean (0.0325) is higher than Telkom's (0.023) and therefore suggests a slightly better performance, ACSA has a lower standard deviation (0.0434 vs 0.109) meaning ACSA's performance is more stable and less volatile. The estimated difference (0.0092) and the 95% confidence interval (-0.0723 to 0.0906) that contains zero indicates that the performance difference between the two organisations is statistically insignificant at the 5% level.

It also presents some avenues to explore stability and performance differences by sector, as well as possible enhancements for both organisations. Further research can examine the reasons for volatility in the performance of Telkom and the practical implications could be the use of stability as an operational parameter in the organisational benchmarking by other companies in similar businesses. The t-value of

0.25 and p-value of 0.809 strongly indicate that Telkom and ACSA perform similarly, and the statistical test does not find a significant difference between them. While ACSA's mean value is higher, in comparison to Telkom, the very small t-value indicates that the difference is small in relation to the variation from the data.

A p-value greater than a significance level of 0.05 supports the conclusion that the null hypothesis is true, in other words, that there is no significant differences between the two organisations' performances. That is bolstered by the confidence interval which also contains zero, suggesting that the real difference in performance could well be and might actually be zero. These findings indicate that ACSA and Telkom are similar

in terms of the variable measured, and thus ripe for further exploration into what other variables might explain differential performance or how the measurement can be made even more exact.

Alexkor vs Telkom

Alexkor has a mean of 0.018, and Telkom has 0.023. Alexkor is slightly underperforming vs Telkom. This means that Telkom is, on average, performing better than Alexkor. In addition, Telkom has a lower standard deviation (0.109) compared to

0.169 for Alexkor, implying that Telkom's data performance was more consistent than that of Alexkor. The estimated difference of -0.0415 means that, on average, Alexkor is lower than Telkom by this amount. The associated 95% confidence interval of 0.1767, 0.0937 contains 0. This means that, although Alexkor's mean it is less than Telkom’s, it may have little to no difference, favouring Alexkor. This means that the true mean is less than the difference.

The t-value of -0.65 suggests that the mean difference is small with respect to the variance of the data. The lack of statistical significance means that the true difference, if any exists, is likely to be very small, and could conceivably be in favour of Alexkor, not Telkom. A p-value of 0.523 is far from the usual 0.05 threshold to reject the null hypothesis. It indicates that Alexkor and Telkom have the same level of performance and that there is no statistically significant difference between them although, on average, Alexkor's performance is marginally worse than Telkom's. Given the nature of the data, this difference (which is not meaningful in a statistical sense) is the reason that Alexkor's performance is not significant when compared against Telkom's.

This result is supported by the broad confidence interval [-0.1767 to 0.0937] which encompasses the null point of the difference between means, demonstrating a lack of certainty surrounding the true difference in means. As the p-value is larger than similar information indicates, the confidence interval is wide, indicating that, despite the quantitative differences found in average performances, there is no strong evidence to believe that one company performs better than the other. This means that both Alexkor’s and Telkom’s performances are almost similar for the indicator variable.

Armsco vs Telkom

Telkom's average value is 0.023 which is lower than Armsco's average of 0.0313. This implies that, on average, Armsco performs slightly better compared to Telkom. This means that Armsco has a relatively smaller (0.0383) standard deviation than Telkom (0.109) which shows that Armsco's performance is much more stable, while Telkom's results are more spread. The estimated difference of the two means is 0.0080, which is small and suggests a marginally positive advantage for Armsco. However, as indicated by the 95% confidence interval for this difference, which ranges from -0.0722 to 0.0881, zero is included as a value in this range, meaning the true difference could also be small or even favour Telkom.

The t-test statistic is 0.22 and the p is 0.831, which is higher than the alpha level, usually 0.05, hence showing no significance of the result observed. This explains the reason for not rejecting the null hypothesis, as there is no significant difference between the performance of Armsco and Telkom. The conclusion is that, while Armsco has a slightly better mean and a more stable performance, statistics indicate that the difference is not meaningful. Not only is there a high p-value, but there is also a wide confidence interval suggesting that, based on the available data, nothing separates the performances of these companies.

Broadband Infraco vs Telkom

The performance analysis shows that Broadband Infraco and Telkom have vastly different outcomes. The mean value for Broadband Infraco is -0.0863 which shows underperformance in comparison to the mean value of 0.023 for Telkom exhibiting superior performance when looking at the key metric of revenue. This shows that, on average, Broadband Infraco underperforms against Telkom. Additionally, the standard deviation of Broadband Infraco is 0.0350, which is much smaller than Telkom's 0.109, indicating a more consistent performance path by Broadband Infraco than for Telkom which shows high variability in its performance results. The difference in mean performance is calculated to be -0.1097, indicating that, on average, Broadband Infraco’s performance is significantly less than Telkom’s.

This difference is statistically significant. The estimated gap in performance is -.1901, -0.0293 with 95% confidence, and since the confidence interval does not include zero, it indicates that the difference is statistically significant. This underscores the finding that, on average, the performance of Broadband Infraco is far worse than that of Telkom. In conclusion, the results show that, although Broadband Infraco's performance is lower than Telkom's, according to balanced scorecard, it is also less erratic. As confirmed by statistical tests, the magnitude of negative performance gap indicates that Broadband Infraco is less efficient and effective than Telkom.

Central Energy Fund (CEF) vs Telkom

Comparing the performance of CEF with Telkom suggests more nuanced outcomes. The mean value of CEF is 0.0251, slightly higher than Telkom's mean of 0.023 making CEF, on average, a better performer than Telkom but, on a standard deviation level, CEF is by far the more consistent performer, having a standard deviation of 0.0190, to Telkom's staggering 0.109. This means CEF's performance metrics are consistent while Telkom's results are fluctuating and show more variability. While CEF has a marginally higher mean, the resulting performance difference of -0.0856 shows that CEF's performance is, on average, slightly worse than Telkom's.

This result is not statistically significant, as the 95% confidence interval for the difference (-0.2085, 0.0373) includes zero, meaning the true difference in performance can be negative, as well as positive. This result is supported by further statistical analysis. The t-value of -1.48 suggests a significant but average difference between means, with CEF experiencing a lower mean than Telkom; however, the value of 0.159 suggests a higher p-value than is conventionally accepted (closer to 0.05).

Hence, the observed difference is not statistically significant, and the null hypothesis that the two companies do not differ significantly in terms of their performance cannot be rejected. CEF's performance is generally better, but not significantly so, when compared to Telkom. The confidence interval is focused on both positive and negative space, and the p-value is well above 0.05 (the threshold for significance), indicating that performances between CEF and Telkom are statistically indistinguishable on the metric tested.

DBSA vs Telkom

There are only slight differences between the performances of DBSA and Telkom without statistical significance. DBSA's mean is 0.0251, compared to Telkom's 0.023, indicating that DBSA is slightly better, on average. However, DBSA shows far greater consistency of performance in terms of its much lower standard deviation of 0.0190 versus Telkom at a far higher 0.109 standard deviation implying that DBSA has more consistent results and Telkom demonstrates a wider performance range.

The estimated mean difference between the DBSA and Telkom is 0.0018, which means that the DBSA performs slightly better. The associated 95% confidence interval for this difference is -0.0771 to 0.0807, which contains zero. Since the actual differences in performance could be above or below zero, it raises questions about the practical significance of the observed difference. The significance of the results compared against a t-table (assuming the usual 0.5 for p-level) gives a t-value of 0.05, indicating little variance and performance difference, especially considering the variance in the data.

The p-value of 0.960 is sufficiently greater than the alpha level of 0.05 (the common threshold for rejecting the null), so the null hypotheses are not rejected. This means that there are no significant differences between the performances of DBSA and Telkom. In conclusion, even though DBSA has a higher mean than Telkom, the statistical analyses show that the difference in performances between DBSA and Telkom is negligible. Likewise, the wide confidence interval and p-value above the threshold of 0.05 provide evidence that there is no significant performance gap between the two companies. Accordingly, DBSA and Telkom perform on the same level with respect to the parameter measured.

Eskom vs Telkom

Eskom has a mean of 0.0069 and Telkom 0.023, although this is not substantial and rather highlights the difference in output levels. This indicates that, on average Eskom trails behind Telkom in performance. On the contrary, Eskom has a lower standard deviation of 0.0402, indicating more consistent performance than Telkom that has a

much higher standard deviation at 0.109. That means Eskom's results are less variable and less volatile than Telkom's much more lumpy performance. This supports the view that Eskom's average performance is slightly below that of Telkom, with the difference in mean values (Eskom - Telkom) being equal to -0.0164.

However, the difference is 0.0441, and its 95% confidence interval from -0.0970 to 0.0642 also covers 0, meaning that the true difference is at least potentially negative, or at least potentially positive, and thus it is difficult to detect a significant difference. A deeper statistical analysis gives more insight. A t-value of -0.45 indicates that the difference between the two companies is small compared to the variability in the data. This value is vastly greater than the common alpha value (0.05) for significance and thus, this difference in performance between Eskom and Telkom is not statistically significant.

Therefore, the null hypothesis is not rejected, which means that there is no difference between the two companies. As explained, Eskom's mean performance is marginally lower than Telkom's performance, but the statistical analysis does not indicate, with confidence, that one is significantly better than the other. The wide confidence interval that crosses zero and the high p-value indicate that any difference in performance is negligeable. This shows that Eskom and Telkom perform roughly similar on the metrics assessed.

Independent Development Trust (IDT) vs Telkom

The performance between the IDT and Telkom shows only minor differences as the IDT's mean is 0.018 lower than the mean of Telkom which is 0.023 indicating that the IDT is slightly inferior to Telkom, on average. On the other hand, the IDT shows a far higher performance variability, as evidenced by its standard deviation of 0.209, almost twice that of Telkom's standard deviation of 0.109. This implies that the IDT's performance differs from Telkom's more consistent results.

The estimated difference in means between the IDT and Telkom is -0.0051, which further reinforces that IDT is performing a little worse. The 95% confidence interval for this difference is -0.1659 to 0.1557, which contains zero. What this means is that the

actual difference in performance could be either negative or positive, which adds a level of uncertainty about the practical significance of the observed difference.

A t-value of -0.07 (with a correct interpretation, given the linear regression equation) means that there is very little effect compared with the data noise, while the p-value of 0.947 is much larger than the widely accepted $p < 0.05$ alpha level. The null hypothesis is not rejected, implying that there is no statistically significant difference between the means of IDT and Telkom.

To summarise, even if the IDT has a negative mean with respect to Telkom, the result of the statistical test indicates that the difference in performance of the firms is insignificant. This results in a wide confidence interval and a high p-value suggesting that there is no statistically significant difference in performance between the IDT and Telkom, implying that they are performing similarly on the relevant metric being measured.

Independent Development Corporation (IDC) vs Telkom

A comparison between the IDC and Telkom shows that the IDC's performance is slightly different from Telkom. The mean for the IDC is 0.0072 and for Telkom it is 0.023, showing that IDC performs worse than Telkom, on average. Yet, the IDC shows more consistent performance at a standard deviation of 0.0142, whereas Telkom's higher standard deviation of 0.109 is much higher. This implies that the IDC's results are more stable, while Telkom's performance has more fluctuations. The mean difference calculated for IDC and Telkom is -0.0161, suggesting that the average performance of IDC, in comparison, is worse than that of Telkom.

However, a 95% confidence interval for this difference is -0.0945 to 0.0622 that includes zero. It therefore follows that the true difference might hold (i.e., a negative or positive difference), and the observed difference does not have practical significance. This conclusion is further supported by statistical analysis. The t-value of

-0.47 indicates a small difference considering the variability of the distributions in the population, and the p-value of 0.652, much greater than the threshold alpha of 0.05

commonly used, which indicates that the difference in performance between IDC and Telkom is not statistically significant at the conventional level.

Therefore, the null hypothesis is accepted, which suggests no significant difference in performance between the IDC and Telkom. Overall, even though the IDC has a slightly worse mean than Telkom's, as implied in the statistical analysis, their performances do not deviate significantly. Additionally, a wide CI which includes zero and a high p-value indicates that there is no statistically significant difference between the IDC's and Telkom's performances. On the reviewed metric, these companies have a similar rate.

Land Bank vs Telkom

The mean of the Land Bank is lower than the mean of Telkom, which is 0.0041 and 0.023 respectively, so that it can be concluded that the performance of the Land Bank is worse than the performance of Telkom. On the other hand, the Land Bank's performance is more stable because the standard deviation is lower at 0.0229, whereas the standard deviation of Telkom is higher at 0.109. This indicates that the Land Bank's performance measures are more stable, whereas Telkom's results are more volatile. The analysis difference-in-means from the Land Bank to Telkom is -0.0192, showing that the Land Bank's performance is, on average, worse than Telkom's.

The 95% confidence interval for this difference is: [-0.0986, 0.0602], which includes zero. This indicates that this performance difference could be lower than zero with a risk equal to 0.025 (i.e., had the comparison been an average investigation, this difference would be at least 2 times out of 10 and the difference could also have been higher than 0 up to this risk), and which adds doubts about whether this difference is really content. More statistics lend credence to this uncertainty. In this case, it shows that the t-value is -0.55 which means the difference between two companies is relatively small compared to the variability between the two results of these companies.

Because the p-value for this test, 0.598, is much larger than the alpha level typically

set at 0.05, it fails to reject the null hypothesis. This means that the performances of the Land Bank and Telkom are not statistically significantly different. To conclude, even though the Land Bank's mean is slightly lower than Telkom's, the statistical indication does not support a difference in performance. The wide CI that crosses zero, coupled with the high p-value, indicates no significant difference in performances between the two companies. In this respect, the Land Bank and Telkom have similar performances on the metric used.

SABC vs Telkom

The performance comparison shows a performance contrast between the SABC and Telkom by a close proximity in their mean values. The SABC has a mean value of

0.009 compared to Telkom's mean value of 0.023. This means, on average, the SABC does marginally worse than Telkom. The performance of the SABC exhibits a standard deviation of 0.308 similar to that of Telkom 0.109. This suggests that the SABC's results are significantly variable, with a greater range of performance outcomes; in comparison, Telkom's performance is more consistent.

The mean difference of -0.014 between SABC and Telkom indicates that the SABC performance is lower than Telkom's performance on average. However, the corresponding 95% confidence interval for the difference is -0.241 to 0.213, which includes zero. This means that the actual difference may be negative or positive and exacerbates doubts about the practical significance of the noted difference.

The t-value of -0.14 reflects a small deviation in comparison to the total variability useful to these data. Moreover, the p-value of 0.893, far above the normal alpha level of 0.05, suggests that we do not reject the null hypothesis. In terms of standard error,SABC, outperform Telkom in this aspect; however, the difference is insignificant.

Overall, the SABC does not perform significantly worse than Telkom, suggesting that the SABC's mean performance, lower though it is, is not a signal of any poor data quality. The fact that the confidence interval is so wide and includes zero and that the p-value is so high implies that the difference is not meaningful. The SABC and Telkom,

therefore, seem to rank equally well on this metric.

SAFCOL vs Telkom

The comparison of SAFCOL vs. Telkom shows minor differences of SAFCOL compared to Telkom; the SAFCOL mean of 0.0121 is about 4% smaller than the Telkom mean at 0.023, which for the overall performance shows that SAFCOL performs a little worse than Telkom. However, the standard deviation of 0.0380 for SAFCOL was above that of 0.109 for Telkom indicating that SAFCOL is very stable compared to Telkom. This also means that the SAFCOL performance is much less sensitive, while Telkom performance results have more variability.

The mean difference between SAFCOL and Telkom is -0.0112, indicating that SAFCOL exhibits lower performance relative to Telkom. However, the 95% confidence interval for this difference, ranging from -0.0913 to 0.0689, includes zero, suggesting that this difference is not statistically significant. That means that the actual difference can be negative or positive and there may be uncertainty about the real significance of the growing discrepancy. This result is supported by further statistical analysis. The t-value of -0.31 suggests that the difference is negligible, considering the spread in the data. As the p-value of 0.764 is not less than the typical alpha level of 0.05, the null hypothesis is not rejected.

This implies that SAFCOL and Telkom are not statistically different. Despite the slightly lower mean of SAFCOL compared to Telkom, the distribution of performance differences is not statistically significant. The broad confidence interval that includes zero and the high p-value indicate that the difference in performance is not substantial. So, on the assessed metric, SAFCOL and Telkom performance appear similar.

NECSA vs Telkom

The comparison of mean values indicates that NECSA has an advantage over Telkom (mean value NECSA 0.0407; mean value Telkom 0.023). This implies that NECSA does better than Telkom, in an average sense. On the other hand, NECSA has a more stable performance with a standard deviation value of 0.0650 while Telkom's standard

deviation value is higher, i.e., 0.109 This also shows that NECSA's performance is consistent, while Telkom's performance varies.

The estimated mean difference of 0.0174 means that NECSA's average performance is marginally better than Telkom's. However, its 95% confidence interval, -0.0685 to 0.1032, contains zero. That means that the actual difference in performance could be either negative or positive. This casts doubt about the practical significance of this difference.

This uncertainty is further reinforced by statistical analysis. A 0.43 t-value indicates a small change with respect to how variable the data are. In fact, the p-value (0.671) is greater than the common alpha level of 0.05, therefore the null hypothesis is not rejected. This indicates that the performance difference between NECSA and Telkom is non-significant.

In conclusion, while NECSA had a marginal mean performance higher than Telkom, the statistical evaluation suggests this difference is not statistically significant. The high p-value and the wide confidence interval, which contains zero, indicate that the two companies have equivalent performance that indicates that NECSA and Telkom seem to be related to the current metric.

SAA vs Telkom

The results of statistical analysis further support the performance comparison where the average of SAA = -0.334 is much lower than the average of Telkom = 0.023. That means that for the average number of times SAA flies, its performance is vastly inferior to that of Telkom. Moreover, SAA has a higher standard deviation than Telkom (0.172 and 0.109, respectively), but SAA's standard deviation is low, which means that SAA's performance is spread out around the mean value, but not as much as Telkom's performance. The mean difference of -0.3574 confirms that, on average, SAA has performed significantly worse than Telkom.

This difference's 95% confidence interval (-0.4947 to -0.2202) excludes the value 0, suggesting the difference is statistically significant. That provides some confidence

that the true performance gap between SAA and Telkom is meaningful. This t-value is

-5.55, indicating that the contents in the data differ greatly especially for SAA and Telkom. So, the null hypothesis is rejected with the p-value (0.000) being very low compared to the default alpha p-value (0.05). This correlates with the significant difference in performance of SAA versus Telkom.

The mean for SAA is significantly lower than for Telkom which implies a performance difference. Because the confidence interval does not include zero, along with the very low p-value, shows that SAA is worse than Telkom at the measured metric. The disparity in performance between SAA and Telkom is meaningful, with SAA virtually always at the bottom end of the band (the absolute bottom end in most years) that is likely a function of SAA's unique issues in the past. These challenges have played a role in the airline's persistent underperformance, both financially and operationally, that may shed light on why SAA's overall score is significantly lower than Telkom's.

So, the comparative performance of SAA versus Telkom shows that SAA's performance is worse by a magnitude of order due to several factors including severe financial distress and operational inefficiencies, management instability as well as external pressure, e.g., COVID-19 and competition. These challenges have been compounded over time with SAA finding it increasingly more difficult to compete, innovate or operate efficiently leading to ongoing poor performance. On the other hand, Telkom, in a far less volatile sector and with a healthier financial position and strategic posture, has managed to outperform SAA despite the challenges in its own sector.

Trans Caledon vs Telkom

Trans Caledon had an average performance of 0.0146 compared to 0.023 for Telkom, meaning that Trans Caledon does worse than Telkom on average. By looking into the standard deviation, the performance across time is highly variable for Telkom (0.109) but very stable for Trans Caledon (0.0468), which indicates that Trans Caledon is relatively stable in its performance and does not fluctuate as much across observations.

The difference in means calculated (-0.0087) reinforces the idea that Trans Caledon's performance is somewhat worse on average, than Telkom's. However, its 95% confidence interval (which ranges from -0.0902 to 0.0728) contains zero, suggesting the true difference in means might be nil. The t-value of -0.23 can also confirm this, indicating that the data are very close to the null hypothesis. The p-value of 0.820, which is much larger than the usual level of significance at 0.05, indicates that the null hypothesis cannot be rejected. This means that, on average, the two firms are indistinguishably far from their optimal performance as measured by the set metric.

In summary, although the base figures suggest that Trans Caledon can perform marginally better, this difference is not statistically significant, implying that the results may be indicative of any instance where Telkom performs worse than the average performance. Since the confidence interval contains zero, and the p-value is high, this suggests that the variance may be due to random variation rather than a true difference in performance. Thus, for the variables measured, the performance of Trans Caledon and Telkom are statistically equal.

Transnet vs Telkom

Transnet has a mean of 0.0411 which is higher than the Telkom's mean (0.023), hence, Transnet has a better performance than Telkom, on an average. Moreover, Transnet has a lower standard deviation (0.0608) compared to Telkom’s 0.109. This shows that the performance of Transnet is stable and has less variance between observations.

Several of the earlier summary statistics are comparable and easily accessible means that can provide clarity on the performance of Telkom or Transnet. The estimated difference in means suggests a discrepancy of up to 0.0178, indicating a slight improvement in performance compared to previous data. However, the 95% confidence interval for this difference, ranging from -0.0667 to 0.1022, includes zero, implying that the true difference could be either positive or negative. This uncertainty reflects the limited practical significance of the observed performance difference.

The t-value is 0.45, which indicates that the difference is not statistically significant

with respect to the variance in the data. Also, because the p-value = 0.659 is much greater than the alpha of 0.05, this retains the null hypothesis. This result suggests that, statistically, Transnet and Telkom do not differ significantly in terms of their performance.

In short, Transnet is, on average, better than Telkom, but this is not statistical evidence for a significant difference between the two. The confidence interval contains zero and the high p-value indicates that the observed difference may not be statistically significant or even meaningful. Consequently, the firms exhibit similar levels of performance on the evaluated metric.

6.3.1 Summary of Research Objective 2

This study used a regression t-test model to evaluate performance differences between wholly owned and partially owned enterprises, and this research objective was achieved. Ninety-five percent (95%) of the performance comparisons were statistically insignificant, which implies that there are no performance differences between SOCs that are wholly and partially owned by the state. On the other hand, 5% of comparisons showed statistically significant differences, especially between two wholly owned SOCs, Broadband Infraco and SAA and Telkom.

These findings are consistent with the findings reported by Ahmed and Alam (2018), Berg and Kvidal (2017), and Bhatt (2015), who also found no performance differences between partially and fully owned SOCs. The presence of ownership structure effects, where the nature of ownership is public or private, plays a role beyond just a direct effect on corporate performance. Performance is influenced by multidimensional interactions between contextual elements, industry characteristics and companies' unique factors. The South African context shows results that are consistent with the body of evidence that exists in the literature. This validates the claim that the adoption of the PCI could be leveraged to improve the performance of SOCs.

In contrast, the remaining 5% claim and present that there is a performance difference between completely government owned and partially government owned SOCs. According to ownership theory, private companies perform better than SOCs (De

Wenter & Malatesta, 2001; Kikeri, 2018; Kabaciński, Kubiak & Szarzec, 2020; Soejono & Heriyanto, 2018; Eforis, 2018; Vrhovnik, 2016; Astami et al., 2010). Phi et al. (2021) also revealed strong evidence that SOCs are less lucrative than privately owned firms.

To conclude, this study, supported by the literature, found that there are no performance differentials between fully and partially owned SOCs provided that SOCs apply the PCI. Policymakers should, therefore, move beyond ownership models, focusing instead on enhancing operational effectiveness and strategic decision-making to accelerate performance among all SOC types. This includes governance quality, management practices, and external market conditions, which may have a greater effect than ownership type.

In summary, both fully and partially, SOCs stand to gain from implementing the PCI and from focusing on key aspects, such as contextual factors, collaboration, and the adoption of best practices, all of which contribute to economic growth and sustainability. The results from this study question the standard assumptions that link ownership structure and operational efficiency of SOCs. While ownership type is not a significant predictor of performance in this study, the results highlight the most important predictor, which is context that includes features of organisational culture, the quality of leadership, and regulatory frameworks, which affect SOC performance.

In conclusion, the findings of this study contribute to the existing knowledge in the literature that produced conflicting results. However, what sets this study apart is that it has added a novel dimension that cuts across all performance indicators. This study proposes that PCI, as a proper performance framework, can be used to assess and improve the performance of SOCs. This study argues that no genuine performance differentials can be noted without the application of PCI. Evaluations of performance without PCI may be biased or inaccurate as they would lack the dimension of performance development, as proposed by this research.

6.4 Research objective 3: to compare and contrast the performance differentials of major SOCs under the Department of Public Enterprises (DPE) and Non-Department of Public Enterprises (DPE) ones

In this objective, the study compared the performance of SOCs classified under the DPE against those that are not. A t-test was employed to assess the performance differences between these two groups. The following hypotheses were also tested to explore the potential performance differentials between the two sets of SOCs.

- H_0: There are no performance differences between SOCs under the DPE and those that are not.
- H_1: There are performance differences between SOCs under the DPE and those that are not.

The results are presented in Table 6.5. by evaluating the two hypotheses listed below:

Table 6.5: DPE SOCs vs non-DPE SOCs (difference μ - μ): N=10

DPE - SOCs				Non-DPE - SOCs				Key-Findings				
SOC	Mean	St Dev	SE Mean	SOCs	Mean	St Dev	SE Mean	Est Diff - Mean	CI	T-Value	*P-Value	DF
Alexkor	-0.018	0.169	0.053	ATNS	0.031	0.122	0.039	-0.0495	-0.1892, 0.0901	-0.75	0.463	16
Alexkor	-0.018	0.169	0.053	ACSA	0.0325	0.0434	0.014	-0.0506	-0.1733, 0.0721	-0.92	0.379	10
Alexkor	-0.018	0.169	0.053	Armsco	0.0313	0.0383	0.012	-0.0495	-0.1732, 0.0743	-0.90	0.389	9
Alexkor	-0.018	0.169	0.053	CEF	-0.062	0.148	0.047	0.0441	-0.1055, 0.1937	0.62	0.542	17
Alexkor	-0.018	0.169	0.053	DBSA	0.0251	0.0190	0.0060	-0.0433	-0.1647, 0.0781	-0.81	0.441	9
Alexkor	-0.018	0.169	0.053	IDT	0.018	0.209	0.066	-0.0364	-0.2155, 0.1427	-0.43	0.673	17
Alexkor	-0.018	0.169	0.053	IDC	0.018	0.209	0.066	-0.0253	-0.1464, 0.0957	-0.47	0.647	9
Alexkor	-0.018	0.169	0.053	Trans Caledon	0.0146	0.0468	0.015	-0.0328	-0.1561, 0.0905	-0.59	0.567	10
Alexkor	-0.018	0.169	0.053	NECSA	0.0407	0.0650	0.021	-0.0589	-0.1847, 0.0669	-1.03	0.325	11
Alexkor	-0.018	0.169	0.053	Land Bank	0.0041	0.0229	0.0072	-0.0223	-0.1440, 0.0995	-0.41	0.688	11
Alexkor	-0.018	0.169	0.053	Broadband Infraco	-0.0863	0.0350	0.011	0.0682	-0.0550, 0.1914	1.25	0.242	9
Alexkor	-0.018	0.169	0.053	SABC	0.009	0.308	0.097	-0.027	-0.267, 0.213	-0.25	0.810	13

Transnet	0.0411	0.0608	0.019	ATNS	0.031	0.122	0.039	0.0097	-0.0837, 0.1031	0.22	0.826	13
Transnet	0.0411	0.0608	0.019	ACSA	0.0325	0.0434	0.014	0.0086	-0.0415, 0.0587	0.36	0.721	16
Transnet	0.0411	0.0608	0.019	Armsco	0.0313	0.0383	0.012	0.0098	-0.0387, 0.0583	0.43	0.673	15
Transnet	0.0411	0.0608	0.019	Telkom	0.023	0.109	0.034	0.0178	0.0667, 0.1022	0.45	0.659	14
Transnet	0.0411	0.0608	0.019	CEF	-0.062	0.148	0.047	0.1034	-0.0078, 0.2146	2.05	0.065	11
Transnet	0.0411	0.0608	0.019	DBSA	0.0251	0.0190	0.0060	0.0159	-0.0290, 0.0609	0.79	0.447	10
Transnet	0.0411	0.0608	0.019	IDT	0.0072	0.0142	0.0045	0.0339	-0.0108, 0.0786	1.72	0.120	9
Transnet	0.0411	0.0608	0.019	IDC	0.018	0.209	0.066	0.0228	-0.1304, 0.1761	0.33	0.747	10
Transnet	0.0411	0.0608	0.019	Trans Caledon	0.0146	0.0468	0.015	0.0265	-0.0250, 0.0779	1.09	0.292	16
Transnet	0.0411	0.0608	0.019	NECSA	0.0407	0.0650	0.021	0.0004	-0.0590, 0.0598	0.01	0.989	17
Transnet	0.0411	0.0608	0.019	Land Bank	0.0041	0.0229	0.0072	0.0370	-0.0083, 0.0822	1.80	0.100	11
Transnet	0.0411	0.0608	0.019	Broadband Infraco	-0.0863	0.0350	0.011	0.1274	0.0798, 0.1750	5.74	0.000***	14
Transnet	0.0411	0.0608	0.019	SABC	0.009	0.308	0.097	0.0320	-0.1924, 0.2565	0.32	0.754	9
Eskom	0.0069	0.0402	0.013	ATNS	0.031	0.122	0.039	-0.0245	0.1152,	-0.60	0.561	10

									0.0663			
Eskom	0.0069	0.0402	0.013	ACSA	0.0325	0.0434	0.014	-0.0256	-0.0651, 0.0139	-1.37	0.190	17
Eskom	0.0069	0.0402	0.013	Armsco	0.0313	0.0383	0.012	-0.0244	-0.0614, 0.0127	-1.39	0.183	17
Eskom	0.0069	0.0402	0.013	Telkom	0.023	0.109	0.034	-0.0164	-0.0970, 0.0642	-0.45	0.663	11
Eskom	0.0069	0.0402	0.013	CEF	-0.062	0.148	0.047	0.0692	-0.0387, 0.1771	1.43	0.183	10
Eskom	0.0069	0.0402	0.013	DBSA	0.0251	0.0190	0.0060	-0.0182	-0.0489, 0.0124	-1.30	0.219	12
Eskom	0.0069	0.0402	0.013	IDT	0.0072	0.0142	0.0045	-0.0003	-0.0299, 0.0294	-0.02	0.985	11
Eskom	0.0069	0.0402	0.013	IDC	0.018	0.209	0.066	-0.0113	-0.1634, 0.1408	-0.17	0.870	9
Eskom	0.0069	0.0402	0.013	Trans Caledon	0.0146	0.0468	0.015	-0.0077	-0.0489, 0.0334	-0.40	0.697	17
Eskom	0.0069	0.0402	0.013	NECSA	0.0407	0.0650	0.021	-0.0338	-0.0856, 0.0181	-1.40	0.184	14
Eskom	0.0069	0.0402	0.013	Land Bank	0.0041	0.0229	0.0072	0.0028	-0.0286, 0.0342	0.19	0.851	14
Eskom	0.0069	0.0402	0.013	Broadband Infraco	-0.0863	0.0350	0.011	0.0933	0.0577, 0.1288	5.53	0.000***	17
Eskom	0.0069	0.0402	0.013	SABC	0.009	0.308	0.097	-0.0021	-0.2242, 0.2199	-0.02	0.983	9
Safcol	0.0121	0.0380	0.012	ATNS	0.031	0.122	0.039	-0.0193	-0.1096, 0.0710	-0.48	0.645	10

Safcol	0.0121	0.0380	0.012	ACSA	0.0325	0.0434	0.014	-0.0204	-0.0589, 0.0181	-1.12	0.280	17
Safcol	0.0121	0.0380	0.012	Armsco	0.0313	0.0383	0.012	-0.0192	-0.0552, 0.0168	-1.12	0.277	17
Safcol	0.0121	0.0380	0.012	Telkom	0.023	0.109	0.034	-0.0112	-0.0913, 0.0689	-0.31	0.764	11
Safcol	0.0121	0.0380	0.012	CEF	-0.062	0.148	0.047	0.0744	-0.0331, 0.1819	1.54	0.154	10
Safcol	0.0121	0.0380	0.012	DBSA	0.0251	0.0190	0.0060	-0.0130	-0.0421, 0.0160	-0.97	0.350	13
Safcol	0.0121	0.0380	0.012	IDT	0.0072	0.0142	0.0045	0.0049	-0.0233, 0.0332	0.38	0.708	11
Safcol	0.0121	0.0380	0.012	IDC	0.018	0.209	0.066	-0.0061	-0.1579, 0.1457	-0.09	0.929	9
Safcol	0.0121	0.0380	0.012	Trans Caledon	0.0146	0.0468	0.015	-0.0025	-0.0428, 0.0377	-0.13	0.896	17
Safcol	0.0121	0.0380	0.012	NECSA	0.0407	0.0650	0.021	-0.0286	-0.0797, 0.0225	-1.20	0.250	14
Safcol	0.0121	0.0380	0.012	Land Bank	0.0041	0.0229	0.0072	0.0080	-0.0221, 0.0381	0.57	0.578	14
Safcol	0.0121	0.0380	0.012	Broadband Infraco	-0.0863	0.0350	0.011	0.0984	0.0640, 0.1329	6.03	0.000***	17
Safcol	0.0121	0.0380	0.012	SABC	0.009	0.308	0.097	0.0030	-0.2188, 0.2249	0.03	0.976	9
SAA	-0.334	0.172	0.054	ATNS	0.031	0.122	0.039	-0.3655	-0.5072, -0.2238	-5.47	0.000***	16
SAA	-0.334	0.172	0.054	ACSA	0.0325	0.0434	0.014	-0.3666	-0.4918,	-6.53	0.000***	10

									-0.2414			
SAA	-0.334	0.172	0.054	Armsco	0.0313	0.0383	0.012	-0.3654	-0.4916, -0.2391	-6.55	0.000***	9
SAA	-0.334	0.172	0.054	Telkom	0.023	0.109	0.034	-0.3574	-0.4947, -0.2202	-5.55	0.000***	15
SAA	-0.334	0.172	0.054	CEF	-0.062	0.148	0.047	-0.2718	-0.4232, -0.1204	-3.79	0.001**	17
SAA	-0.334	0.172	0.054	DBSA	0.0251	0.0190	0.0060	-0.3592	-0.4832, -0.2353	-6.55	0.000***	9
SAA	-0.334	0.172	0.054	IDT	0.0072	0.0142	0.0045	-0.3413	-0.4649, -0.2176	-6.24	0.000***	9
SAA	-0.334	0.172	0.054	IDC	0.018	0.209	0.066	-0.3523	-0.5329, -0.1717	-4.12	0.001**	17
SAA	-0.334	0.172	0.054	Trans Caledon	0.0146	0.0468	0.015	-0.3487	-0.4745, -0.2230	-6.18	0.000***	10
SAA	-0.334	0.172	0.054	NECSA	0.0407	0.0650	0.021	-0.3748	-0.5029, -0.2466	-6.44	0.000***	11
SAA	-0.334	0.172	0.054	Land Bank	0.0041	0.0229	0.0072	-0.3382	-0.4625, -0.2139	-6.15	0.000***	9
SAA	-0.334	0.172	0.054	Broadband Infraco	-0.0863	0.0350	0.011	-0.2478	-0.3735, -0.1220	-4.46	0.002**	9
SAA	-0.334	0.172	0.054	SABC	0.009	0.308	0.097	-0.343	-0.582, -0.104	-3.08	0.008**	14

NB: ***<0.01, **<0.05 and * <0.1 at a p-value signify the significances at the level 1%, 5% and 10%, respectively.

Source: Author's compilation (Minitab v17, 2024)

Table 6.5 illustrates the performance differential of companies across distinct clusters. In particular, it compares the performance of companies in the DPE cluster versus non-DPE cluster companies.

Alexkor vs ATNS

The sample took two ten-observation companies that can offer balanced sample sizes to make good inferences about similarities (or differences) in group means. The mean for the Alexkor group was found to be -0.018, while that of the ATNS group was higher at 0.031. The standard deviation of Alexkor (0.169) was much greater than the standard deviation of ATNS (0.122). This suggested that there was more spread/variation in the Alexkor group than in the ATNS group. However, the standard error of the means (Alexkor: 0.053; ATNS: 0.039) indicated that Alexkor's mean estimate is less precise than ATNS's.

The estimated mean difference between the two groups is -0.0495, implying that Alexkor is valued lower than ATNS, on average. The 95% confidence for this difference was -0.1892 to 0.0901, which included zero. This means that the large difference is not significantly different from the null hypothesis of no difference. In support of this claim, the t-statistic equal to -0.75 and the corresponding p-value equal to 0.463 confirm there is no statistically significant difference between the means, as the p-value is greater than the usual alpha level of 0.05.

As a result, the null hypothesis that shows that there is no difference between the two companies is supported. In other words, any difference between the means may be a result of random sampling variation and is not a real performance difference between Alexkor and ATNS. In sum, the statistics provided do not sufficiently prove that there is a notable difference between the companies.

Alexkor vs ACSA

The mean value of Alexkor was -0.018, and that of ACSA was 0.053, showing that ACSA's mean value was approximately 0.0506 more than that of Alexkor. Variability: Alexkor had a 0.169 standard deviation, which is significantly higher than ACSA's 0.0434 standard deviation. This means that ACSA's data are clustered significantly

closer to the mean, while Alexkor's data are more dispersed. These differences are further emphasised by the standard errors of the two groups. The standard error of Alexkor is 0.053 compared to 0.014 for ACSA, which is a much lower value, indicating a more accurate estimate of the mean, which indicated a smaller dispersion of data.

The estimated mean difference for Alexkor vs ACSA was -0.0506, indicating that the mean for Alexkor is lower than that for ACSA. The 95% confidence interval for this difference is -0.1733 to 0.0721, indicating that zero was included. This means that the difference seen in the groups may be due to random differences and may therefore be a statistically significant difference. A t-statistic of -0.92 and a p-value of 0.379 also support this conclusion due to the p-value surpassing the conventional 0.05 threshold.

This means that the null hypothesis cannot be rejected, and there is no statistically significant difference between Alexkor and ACSA means at a 5% significance level. These results indicate that, even though there is a small numerical separation in the means, it is not statistically strong enough to suggest there is a real difference between the two companies.

Alexkor vs Armsco

The analysis compared two groups, Alexkor and Armsco, with 10 observations each, maintaining the comparison on an equal level. The mean for Alexkor stood at -0.018, while for Armsco, it was 0.0313, which shows that Armsco's mean value is higher than Alexkor's by approximately 0.0495. As per the variability, Alexkor had a standard deviation of 0.169, which is very dispersed to a standard deviation of 0.0383. The disparity in standard deviations further indicates that the Armsco data points are more densely grouped around its mean, suggesting a tighter distribution around the mean and, thus, more consistency within the Armsco group.

Moreover, the standard errors for the two groups incorporate this variability. The standard error for Alexkor was 0.053 and that for Armsco was much smaller at 0.012 indicating that the estimate for Armsco mean is more precise as there was less variability. This means that Alexkor's mean is less than Armsco's, with an estimated difference in means between Alexkor and Armsco of -0.0495. But the 95% confidence interval for this difference was -0.1732 to 0.0743, which includes zero. Adding zero to

the confidence interval indicates that the observed difference was likely due to random variation rather than an actual underlying effect.

The t-statistic of -0.90 and the p-value of 0.389 provide evidence to support this conclusion, as the p-values are above the 0.05 significance level. As a result, the null hypothesis is not rejected, indicating that the means of Alexkor and Armsco do not differ statistically at the 5% significance level. Although the average of Armsco seems to be higher, the statistical evidence does not support the claim that there is an actual difference between the two groups. So, if a difference is detected, it is more likely due to random shifts in the data.

Alexkor vs CEF

This comparison creates a more manageable comparison between the clusters since Alexkor and CEF each contain 10 observations. Regarding volatility, Alexkor had a standard deviation of 0.169, higher than CEF's standard deviation of 0.148. This means that the data for Alexkor are more spread out, which means there is higher variability in its numbers when compared to CEF. Yet the standard errors for both groups (0.053 for Alexkor and 0.047 for CEF) are relatively similar, so the mean estimates for both groups have comparably high precision.

The difference in means between Alexkor and CEF at 0.0441 suggests that Alexkor’s mean is marginally higher than that of CEF. However, this difference is not statistically significant. The mean difference lies between -0.1055 and 0.1937 (95% confidence interval), a range that includes zero. The presence of zero in the CI for the observed effect indicates that any observed difference may be due to random error and therefore may not be a true difference between the populations. In addition, the t-value of 0.62 and the corresponding p-value of 0.542 indicate that there is no significant difference between the two groups at a 5% significance level.

In summary, the null hypothesis that says Alexkor is not statistically significantly different from CEF is accepted. Even though the means differ slightly, the statistics indicate there is no strong or reliable difference between the groups. If there is a difference, however, it is most probably due to random sample variation.

Alexkor vs DBSA

Both groups had ten observations, so they were balanced in the sense that they could be compared (Alexkor vs. DBSA). For Alexkor, the mean was -0.018, and for DBSA, the mean was 0.0251, which means DBSA has a higher average value than Alexkor, based on an estimated difference of -0.0433. This means that Alexkor's values are low, on average, relative to DBSA.

Regarding variability, Alexkor had a standard deviation of 0.169 and, therefore, more spread in its data than DBSA, which averages a significantly lesser standard deviation of 0.0190. This means that DBSA's data are more closely grouped around the average, indicating less variability in its numbers. The standard errors for the two groups were 0.053 for Alexkor and 0.0060 for DBSA. A much smaller standard error for DBSA means a more accurate estimate of its mean.

Despite the observed mean difference of -0.0433, indicating that Alexkor has a lower mean than DBSA, the 95% confidence interval for the mean difference ranged from -0.1647 to 0.0781, showing that the confidence interval includes zero. This means that the mean difference could easily be zero, so there is no statistically significant difference between the means of the two groups.

The t-value (-0.81) and its respective p-value (0.441, 0.05) indicate these results as well, as they are over 0.05, which suggests a lack of significance. So, therefore, the null hypothesis is accepted, and there is no significant difference between the means of Alexkor and DBSA. The difference is numerically high enough but not statistically stable enough to show underlying differences between the times of the two groups.

Alexkor vs IDT

There are ten observations each for Alexkor and IDT for purposes of comparison. The average of Alexkor was -0.018, while IDT had an average of 0.018, indicating, on average, that IDT has outperformed Alexkor by a large margin of about 0.0364. Alexkor 0.169 0.209 IDT 3.8. This signifies a wider spread of the values as well, therefore a higher dispersion and a larger variance for IDT as compared to Alexkor.

Likewise, Alexkor had a standard error of 0.053; by comparison, IDT had a standard

error of 0.066, meaning that the estimate for IDT's mean is less precise than that for Alexkor, as can be seen by the greater standard error. The difference in means was -0.0364 (meaning that IDT's mean was lower than Alexkor's), but the 95% confidence interval for the difference in means ranged from -0.2155 to 0.1427 and included zero.

The presence of zero in the CI indicates that the observed difference could be due to chance and that a significant difference cannot exist between the two groups. The t-value of -0.43 and its associated p-value of 0.673 corroborate this, especially since the p-value significantly exceeds the standard 0.05 significance level. Thus, the null hypothesis is not rejected, which indicates that, at the 5% significance level, there is no statistically significant difference between the means of Alexkor and IDT. This means that, while there is a measurable difference, it is not strong enough to represent a true difference between the two groups.

Alexkor vs IDC

A comparison between Alexkor and IDC, which is also comprised 10 observations, enables a fair comparison between the two entities. For Alexkor, the mean was -0.018 while the IDC mean was 0.0072, which produced a computed difference of -0.0253, which indicates that, on average, Alexkor's performance is lower than that of the IDC. The standard deviation for Alexkor was 0.169, with much higher variability in comparison to the IDC, which had only a 0.0142 standard deviation. This means that the IDC's values tend to be closer to its mean compared to Alexkor's data, which has far more variance.

Thus, the corresponding standard errors for both groups were 0.053 for Alexkor and 0.0045 for the IDC. Compared to the previously calculated IDC, which exhibited a higher standard error, the IDC was more properly estimated, with the data points being clustered closer together and the standard error thus being much smaller. Though an observed difference in means of -0.0253 (i.e., Alexkor's average is less than that of IDC) can be seen, the 95% confidence interval for the mean difference falls in the range of -0.1464 to 0.0957, including zero. Because zero is included in the CI, it means that the difference may result from variability due to random chance, and thus the null hypothesis (H0) is not rejected, i.e., that the means of the two groups are not

statistically different.

The t-statistic of -0.47 and its p-value of 0.647 provide strong evidence for this claim since the p-value is bigger than the 0.05 alpha level. Thus, the null hypothesis is not rejected, which means that Alexkor and IDC are not significantly different at 5% alpha for both, which is the 1st difference. So, while it can detect a numerical difference in means, the statistical evidence does not support a difference between the groups, so the variation observed is likely to be due to sampling error.

Alexkor vs Trans Caledon

Alexkor to Trans Caledon comparative analysis set provides a comprehensive overview of different aspects, allowing it to identify adjacent companies that can be compared. Alexkor (mean: -0.018) and Trans Caledon (mean: 0.0146) result in an average difference of -0.0328. This is evidence of Alexkor performing below Trans Caledon, on average. Alexkor also shows more variance, with a stdev of 0.169, which is higher than the stdev of 0.0468 from Trans Caledon. This means that the values of Trans Caledon are concentrated around its mean and that its data are much more consistent.

The standard errors for the groups were 0.053 for Alexkor and 0.015 for the Trans Caledon. Trans Caledon has a smaller standard error, so its mean is a more precise estimate. This is because fewer data points strain away from it. Although the means differ by -0.0328, indicating that the average for Alexkor is lower than the average for Trans Caledon, the 95% confidence interval for this difference is -0.1561 to 0.0905, which contains zero. The presence of zero means the observed difference could simply be due to random variation, and therefore it cannot be concluded that there is a statistically significant difference between the groups.

Such insignificant results are indicated by the t-value of -0.59 and its corresponding p-value of 0.567, both suggesting no statistically significant relationship (i.e., $p > 0.05$). Thus, the null hypothesis cannot be rejected as there is no statistically significant difference in the means of Alexkor and Trans Caledon at the 5% significance level. The statistical analysis does not have enough evidence to determine whether the difference is meaningful or persistent over time; thus, any observed difference is due

to random variation in the sample data.

Alexkor and NECSA

The comparison between Alexkor and NECSA, each consisting of 10 observations, provides a balanced basis for analysis. The mean for Alexkor is -0.018, while NECSA has a higher mean of 0.0407, resulting in an estimated difference of -0.0589. This suggests that, on average, Alexkor's performance is lower than NECSA's. Regarding variability, Alexkor exhibits a standard deviation of 0.169, which is notably higher than NECSA's standard deviation of 0.0650. This indicates that Alexkor's data are more spread out, while NECSA's values are more tightly clustered around the mean, suggesting greater consistency in NECSA's results.

Additionally, the standard errors for the two groups were 0.053 for Alexkor and 0.021 for NECSA, with NECSA's smaller standard error indicating a more precise estimate of its mean. Although the estimated difference of -0.0589 suggests that Alexkor's average is lower than NECSA's, the 95% confidence interval for the difference spans from -0.1847 to 0.0669, which includes zero. This inclusion of zero suggests that the observed difference could be due to random sampling variability, meaning that a statistically significant difference between the two groups cannot be confidently asserted.

The t-value of -1.03 and the corresponding p-value of 0.325 further support this conclusion, as the p-value exceeds the commonly used significance threshold of 0.05. As a result, the null hypothesis cannot be rejected, implying that there is no statistically significant difference between the means of Alexkor and NECSA at the 5% significance level. While there is a numerical difference between the means, the statistical evidence does not support the claim that this difference is meaningful or reliable. Therefore, any observed disparity is likely due to random fluctuations in the sample data.

Alexkor and Land Bank

Alexkor has a mean of -0.018, and the Land Bank has a mean of 0.0041, so their difference is estimated to be -0.0223, which suggests that Alexkor is, on average, less than the Land Bank by this amount. The standard deviation for Alexkor is given at

0.169, denoting a higher variation in the data, and for Land Bank, the standard deviation is much lower at 0.0229. That suggests that the Land Bank's data points are more tightly clustered around the mean, meaning there is more consistency in its results.

The standard errors for the two groups were 0.053 for Alexkor and 0.0072 for the Land Bank, the more minor standard error for the Land Bank indicating a more precise estimate of its mean. Although the observed difference in means is -0.0223, the 95% confidence interval for the difference in means is -0.1440 to 0.0995. Since this includes zero, the difference in means is not significant. Because this range includes zero, the difference can be attributed to random variation and cannot determine whether the difference is statistically significant.

With a t-value of -0.41 and p-value of 0.688, this indicates no significant result, which allows the null at a 0.05 threshold to be accepted. As a result, the null cannot be rejected and the means between Alexkor and the Land Bank are not statistically different at the 5% significance level. Although there are some numbers for both groups based on the statistical analysis, this difference is insignificant, and the variation is merely a random fluctuation of the data.

Alexkor and Broadband Infraco

A balanced comparison of the performance of Alexkor and Broadband Infraco is facilitated by the comparison of the 10 observations on each. For Alexkor, the mean is -0.018, while for Broadband Infraco it is -0.0863, which estimates a difference of 0.0682. In other words, Alexkor averages better than Broadband Infraco. On the variability spectrum, while Alexkor has a standard deviation of 0.169, showing much spread in its data, Broadband Infraco's standard deviation is only 0.0350. This suggests that Broadband Infraco's data points are closer in proximity to the mean but with more dispersion for Alexkor's data.

For the two groups, the standard errors are 0.053 for Alexkor and 0.011 for Broadband Infraco. Broadband Infraco thus has a smaller standard error than its mean that has been estimated with less precision. This means that, although the difference observed of 0.0682 suggests that Alexkor is greater than Broadband Infraco on average, the

95% confidence interval of the difference in means is between -0.0550 and 0.1914, which includes zero. The inclusion of zero means that the observed difference could be due to random variation, so there is not a statistically significant difference between the two groups.

Additionally, a t-value of 1.25 with a corresponding p-value of 0.242 further affirms this statement, as the p-value is greater than the significance level of 0.05. The null hypothesis thus cannot be rejected, indicating that there is not a statistically significant difference between the means of Alexkor and Broadband Infraco at the 5% level. Although there is a difference in the numbers, there is no statistical evidence to say that there is any difference at all and that anything observed was not down to random chance in the samples.

Alexkor and SABC

When comparing Alexkor and the SABC, there were ten shared observations that formed the basis for an unambiguous analysis. The mean for Alexkor is -0.018, and for the SABC, it is 0.009. The estimate for the difference is -0.027. On average, that means that Alexkor's performance is below that of the SABC. As for variability or spread, Alexkor has a standard deviation of 0.169, which is extensive for the data. The SABC has a higher standard deviation of 0.308, indicating that its values are even more varied from the mean.

This means the SABC's results are more spread out than Alexkor's. The standard error is 0.053 for Alexkor and 0.079 for the SABC. The standard error is a measure of the uncertainty in the estimate of the mean, and the standard error is larger for SABC than Alexkor, meaning the estimate of the mean for SABC is less reliable than Alexkor. However, the 95% confidence interval for the difference in means, -0.267 to 0.213, contains zero despite the observed difference of -0.027, indicating Alexkor's mean is less than that of the SABC.

The presence of zero suggests the practical null operational overlap in the range, which implies the observed difference may be random variability and that there is no statistically significant difference between the two groups. With an t-value of -0.25 and a p-value of 0.810, it does not provide statistical support for this statement as the p-

values greatly exceed the common 0.05 significance level. As a result, the null hypothesis is accepted; as a consequence, there is no statistically significant difference between the means of Alexkor and the SABC, with a 5% significance level. Although the means appear different, the statistical evidence is weak and indicates that the difference is not significant and may just be the result of variance.

Transnet and ATNS

The comparison between Transnet and ATNS (10 observations each) enables a direct comparison. The mean for Transnet is 0.0411, and ATNS is 0.031; the difference is thus calculated as 0.0097. This would imply that Transnet is doing marginally better than ATNS, on average. Transnet has lower variability with a standard deviation of 0.0608 and ATNS has a higher standard deviation of 0.122.

The standard errors are 0.019 for Transnet and 0.039 for ATNS. This smaller standard error of Transnet means that its mean estimate is more precise than ATNS's mean estimate. The smaller standard error of Transnet means that the mean for this variable is estimated more precisely than the mean for the variable of ATNS. While the difference in means (0.0097) does favour Transnet slightly, the observed means difference 95% confidence interval (-0.0837 to 0.1031) overlaps with zero. The inclusion of zero indicates that the difference may be due to chance, and that there is no statistically significant difference between the two companies.

Furthermore, the t-value of 0.22 and the associated p-value of 0.826 reinforce this notion, as the p-value is far outside the typical threshold significance of 0.05. Consequently, the null hypothesis was not rejected, indicating that there is no significant difference between the Transnet and the ATNS means at the 5% significance level. Although a numerical difference between the means is present, neither the statistical nor graphical analyses suggest that this difference is significant or consistent. So, any observed change is probably due to random variation in the data.

Transnet and ACSA

The comparison between Transnet and ACSA with 10 observations each, making it conducive to a level playing field for the analysis. This indicates that, on average, the

values associated with Transnet are slightly higher than those of ACSA by 0.0086 units. This difference, though relatively small, suggests a slight disparity between the two entities under consideration. To check the variability, Transnet has a standard deviation of 0.0608, which indicates moderate variability in its data, and ACSA has a lower 0.0434 standard deviation, which represents less information scatter. For Transnet and ACSA, the standard errors are 0.013 and 0.026, respectively.

Since ACSA's estimated mean had a smaller standard error than Transnet's, it is more precisely estimated. The estimated difference of 0.0086 indicates that Transnet's average is higher than ACSA's, but the 95% confidence interval for the mean difference, from -0.0415 to 0.0587, crosses zero in the range of the confidence interval. The t-value (0.36) and p-value (0.721) confirm this hypothesis since the p-value is much greater than the usual significance level of 0.05. Hence, the null hypothesis cannot be rejected, meaning that, at the 5% significance level, there is no statistically significant difference between the means of Transnet and ACSA. On the one hand, it seems there is a small difference in number, but on the other, the statistics state that the difference is not significant, and thus is mere random chance in the sample data.

Transnet and Armsco

Transnet and Armsco have 10 observations and the comparison is valid. The mean for Transnet is 0.0411 and for Armsco is 0.0313, with the difference between means being 0.0098. This means that, on average, Transnet is marginally better than Armsco. Transnet presents a standard deviation of 0.0608 and Armsco 0.0383, which suggests much variability in Transnet and less dispersion in Armsco data.

The standard error of Transnet and Armsco are, respectively, 0.019 and 0.012. The subsequent smaller standard error for Armsco suggests that the estimate of its mean is located more accurately than that of Transnet. Although a difference of 0.0098 is observed and implies that Transnet is better than Armsco, the confidence interval of the difference between means indicates that it can vary from -0.0387 to 0.0583 at the 95% confidence level, which includes zero. So, the presence of zero means that the observed difference may be due to random variation and is not a true difference between the groups.

With a t-value of 0.43 and a p-value of 0.673, these results also favour this conclusion since the p-value is well over 0.05, which is typically used as a significance point. Thus, as the null hypothesis cannot be rejected, there is no statistically significant difference between Transnet and Armsco means at a 5% significance level. Considering that the difference is only a few points at best, the difference in numbers does not appear strong enough to claim that this difference is meaningful or reliable.

Transnet and Telkom

Transnet and Telkom both have 10 observations, so the comparison between them provides for a clean and balanced standard. The mean for Transnet is 0.0411, and Telkom's mean is 0.023, giving an estimated difference of 0.0178. This means that, on average, Transnet performs slightly better than Telkom. The standard deviation for Transnet was 0.0608, suggesting that fragility is moderate. Telkom, meanwhile, has a greater standard deviation of 0.109, indicating a wider spread on its values.

Standard errors are 0.019 and 0.034 for Transnet and Telkom, respectively. The higher standard error for Telkom indicates that its mean is less accurately estimated than that for Transnet. So, even with an observed difference of 0.0178, which suggests a small benefit for Transnet, the 95% confidence interval for the difference in means between the two groups spans from -0.0667 to 0.1022, containing zero. The inclusion of zero implies that the detected difference may be due to random variation, and that a statistically significant difference due to treatment or group differences was not observed.

This conclusion is also supported by the t-value of 0.45 and p-value of 0.659, as the p-value is far above the 0.05 significance level normally acceptable. The null hypothesis cannot be rejected and concluded that Transnet means, and Telkom means have no significant difference at the 5% significance level. There is a clear difference, but the statistical evidence does not suggest that the difference is significant, and therefore, it seems that the difference is random.

Transnet and CEF

The analysis is balanced and based on 10 observations for Transnet and CEF. Transnet average = 0.0411, CEF average = −0.062, difference estimate = 0.1034. This

means that, on average, Transnet outperforms CEF by significant margins. Transnet has a 0.0608 standard deviation for variability, implying a dispersal in its data. On the other hand, CEF has a higher standard deviation value of 0.148, indicating more variability in that range of values.

The standard error of Transnet and CEF is 0.019 and 0.047, respectively, which indicates that the standard error of CEF is greater than that of Transnet. This indicates that CEF's estimate, on average, is less accurate than Transnet's. This puts Transnet much higher than CEF, given that it has 0.1034 estimates. Since the 95% confidence interval for the mean difference -0.0078 to 0.2146 overlaps zero, even if the means appear different, the difference might be due to random variability and is not confidently statistically significant. This can be confirmed by the t-value of 2.05 and the p-value of 0.065.

However, while the p-value is close to the conventional significance threshold of 0.05, it fails it, indicating an absence of evidence to reject the null hypothesis. Thus, the null hypothesis of having no statistically significant difference between Transnet and CEF at the 5% significance level is not rejected. Although the means look statistically different, the statistical evidence is not strong enough to make a conclusion about meaningful differences or that the true population parameters are not the same; so statistically, the difference might be just a result of randomness in the sample data.

Transnet and DBSA

Transnet and DBSA are compared (with 10 observations per entity each) to ensure an even breakdown of analysis. Transnet has a mean of 0.0411 and DBSA 0.0251, which yields an estimated difference of 0.0159. That puts Transnet slightly above DBSA on an average basis. Transnet's standard deviation is 0.0608, which suggests that its data are more dispersed around the dataset relatively. On the other hand, DBSA has a standard deviation of 0.0190, indicating that its values are relatively close to the mean.

Transnet has 0.019 standard errors and DBSA has 0.0060. DBSA achieved a smaller standard error, which means that its estimate of the mean is more precise than Transnet's. Although the estimated mean difference significantly indicates that

Transnet has a higher mean than DBSA (0.0159), the 95% confidence interval for the mean difference (-0.0290, 0.0609) contains zero. The inclusion of zero means that, although there is an observed difference, there is not have enough evidence to say the means are statistically different from each other.

A t-value of 0.79 and a p-value of 0.447 also confirm this finding. The p-value is much larger than the usual significance level considered (0.05), so the null hypothesis is not rejected. This indicates that, at a 5-significance level, there is no statistically significant difference between Transnet and DBSA. As a result, even though Transnet is almost meaningfully higher, it is statistically not different from DBSA. The difference between the two groups is probably just random sampling variation.

Transnet and IDT

The Transnet has a mean of 0.0411, and IDT has a mean of 0.0072; the difference is 0.0339. This means that, on average, IDT is higher than Transnet. Standard deviation Transnet: Transnet has a moderate standard deviation of 0.0608, showing moderate variability in its values. The standard deviation for IDT is only 0.0142, the lowest of the available features, which shows that the values are clustered closer to the mean.

Transnet and IDT have standard errors of 0.019 and 0.0045, respectively, which means IDT yields a smaller standard error than Transnet, implying a more accurate estimate of its mean. While the estimated difference of 0.0339 indicates that Transnet is higher than IDT, the 95% confidence interval for the difference in means is from -0.0108 to 0.0786 (which does include zero). The presence of zero shows that it cannot be concluded that there is a statistically significant difference between the two means.

The t-value of 1.72 with a p-value of 0.120 indicates evidence of a difference between the two groups; however, the p-value does not reach conventional levels of statistical significance (0.05). So, the null hypothesis cannot be rejected. On average, Transnet seems higher than IDT. However, it is not statistically significant at the 5% level.

Transnet and IDC

Transnet and IDC had a total of 10 observations each, allowing for a valid and relatively balanced analysis. The mean value of Transnet is 0.0411, while that for IDC

is 0.018. This gives an estimated difference of 0.0228 (Transnet is slightly better than IDC, on average). Transnet has a standard deviation of 0.0608, which suggests a little significance of variability in its data. On the other hand, the standard deviation for the IDC model is 0.209, showing greater inconsistency than with the IDC data.

Standard errors for Transnet and IDC are 0.019 and 0.066, respectively, the larger one for IDC indicating a less precise estimate of its mean. The 95% confidence interval for the mean difference goes from -0.1304 to 0.1761, implying that the data show a negligible edge for Transnet compared to IDC, but that difference is not statistically significant (p = 0.423). The fact that this interval contains zero implies that it cannot conclude a statistically significant difference between the two means.

The p-value of 0.747, together with the t-value of 0.33, shows that Transnet and IDC are not significantly different at the 0.05 significance level. The null hypothesis cannot therefore be rejected because the p-value is above the common threshold. The difference in means may be small and positive, but the results above suggest that it is not statistically different from zero, at least not when it comes to the difference between Transnet and IDC. This means that any differences between the two groups is most likely due to chance, not an actual difference.

Transnet and Trans Caledon

Both Transnet and Trans Caledon have 10 observations, which makes for a fair comparison. The mean for Transnet = 0.0411 and Trans Caledon = 0.0146, which indicates that compared to Trans Caledon, Transnet is, on average, performing slightly better perform with an approximate difference of 0.0265. Transnet's standard deviation of 0.0608 is a measure of how variable its data are. On the other hand, the standard deviation for Trans Caledon is 0.0468, which is much lower than that of the previous company, indicating that the data are much closer to the mean.

For Transnet and Trans Caledon, the standard errors are 0.019 and 0.015, respectively. The smaller standard error for Trans Caledon suggests a more accurate estimate of its mean, indicating that the data for Trans Caledon are less spread out and are more reliable overall. This confidence interval that ranges from −0.0250 to 0.0779 indicates that, despite an expected difference of 0.0265, the difference in

means may not be significant. Since this does not exclude 0, it means that there is no significant difference between the two means.

Both the t-value, 1.09 and the p-value, 0.292, confirm that the difference between Transnet and Trans Caledon is not significantly different at the 0.05 level of significance. Although Transnet performed better on average than Trans Caledon, the marginal difference is not significant. Thus, the null hypothesis cannot be rejected, meaning that it cannot conclude that Transnet and Trans Caledon fundamentally differ from each other in the sense of the mean ($p > 0.05$).

Transnet and NECSA

With 10 observations each for Transnet and NECSA, the fact that the means are almost the same is concrete. Transnet has a mean of 0.0411, whereas NECSA has a mean of 0.0407, which means that the difference is negligible, 0.0004. This means that the two groups do not differ in their central tendency much. Transnet has a standard deviation of 0.0608, which suggests moderate variability in the data. In contrast, NECSA has a slightly higher standard deviation of 0.0650, indicating a wider spread of values around its mean.

The two groups' standard errors (0.019 and 0.021, respectively) suggest their mean estimates have similar levels of precision. While there may be a positive difference of 0.0004 between the two, this number should have no real practical significance, being too low for most computations. Similarly, the 95% confidence interval for the difference in means ranges from -0.0590 to 0.0598, encompassing zero, lending additional evidence to the conclusion that the two groups are not significantly different.

Since the difference between Transnet and Necsa is not statistically significant at 0.05, it means that Transnet and Necsa are significantly equal. Since the t-value is 0.01 and the p-value is 0.989. As the p-value is considerably greater than 0.05, the null hypothesis cannot be rejected, and as such, there is no significant difference between the two groups. Thus, although the mean difference between Transnet and NECSA is very small, the mean difference is not statistically significant. Therefore, it can be concluded that, based on the data available, there is no significant difference between the two groups.

Transnet and Land Bank

Transnet and Land Bank each have 10 observations, showing a slight but statistically significant difference in the means. Transnet has a mean of 0.0411 compared to Land Bank at 0.0041, and the estimate of the difference is 0.0370, indicating that, on the whole, Transnet is above Land Bank. Transnet also has moderate variability over time with a standard deviation of 0.0608. Conversely, Land Bank has a standard deviation of 0.0229, indicating that its data points are clustered closely around the average.

Transnet and Land Bank have standard errors of 0.019 and 0.0072, respectively. A smaller standard error for Land Bank means it has a more precise estimate of its mean, the smaller the error, the more precise the estimate. Although the average difference of 0.0370 indicates a higher value for Transnet, it is not statistically significantly different. More specifically, the 95% confidence interval of the difference in means (-0.0083, 0.0822) includes zero, which suggests that it cannot be concluded that the difference in means between the two groups is statistically significant.

The t-value of 1.80 and the p-value of 0.100 provide some evidence suggesting a difference between the groups. However, this difference does not reach statistical significance at the 0.05 level. The p-value is close to the threshold for significance, indicating a 10% probability that the observed difference is due to random chance rather than a true effect. . The observed difference between Transnet and Land Bank may indicate that, on average, Transnet performs better. However, the difference is not significant at the 0.05 level. This would indicate no significant difference with the given p-value but may suggest a difference may arise from a larger sample.

Transnet and Broadband Infraco

A comparison of Transnet and Broadband Infraco, each with 10 observations, speaks clearly to the differences in performance. The Transnet mean is 0.0411, and the Broadband Infraco mean is -0.0863. The estimated 0.1274 difference indicates that Transnet is superior to Broadband Infraco on average by an economically sizeable amount. Relative to this, Transnet also has a standard deviation of 0.0608, meaning it also has moderate variability of data. On the other hand, Broadband Infraco has a lower standard deviation, 0.0350, indicating that the observations are closer to linear

regression.

At the same time, the standard error of Transnet is 0.019, while for Broadband Infraco it is only 0.011; this means that the mean estimate for Broadband Infraco should be a more accurate estimate because of a smaller standard error. The difference calculated of 0.1274 indicates Transnet's affairs are 8% more efficient than those of Broadband Infraco, and the confidence interval used (95%) does not include zero. This means that there is a statistically significant difference between the two groups.

The t-value of 5.74 and the p-value of 0.000 further support this, as both provide strong evidence in favour of rejecting the null hypothesis, thereby substantiating the fact that the difference between Transnet and Broadband Infraco is statistically significant. The analysis demonstrates a statistically significant disparity in performance between Transnet and Broadband Infraco. The null hypothesis is therefore rejected since the p-value is equal to 0.000, and we can say that Transnet performs better than Broadband Infraco.

Transnet and SABC

Transnet and SABC have 10 observations each, and therefore, these comparisons are reasonable. For Transnet, the mean is 0.0411, while it is 0.009 for SABC. The estimated difference of 0.0320 indicates a slight advantage of Transnet over SABC. Transnet has a standard deviation of 0.0608, suggesting a moderate variation of its information. On the other hand, SABC's Standard deviation is considerably higher at 0.308, indicating a high degree of variability and cycling in these values.

SABC (0.097) has a bigger standard error than Transnet (0.019), which means that the estimates for SABC mean are less certain due to higher data variability than Transnet. Therefore, the calculated difference of 0.0320 does show some advantage in favour of Transnet; however, the 95% confidence interval for the difference in means runs from -0.1924 to 0.2565 (zero included). This means that there is not enough evidence to say that the two groups' means are significantly different.

In addition, the t-value is 0.32 and the p-value is 0.754, demonstrating that the difference between Transnet and SABC is not significant at the 0.05 level. A broad conclusion could be that Transnet performs slightly better than SABC; however, the

mean difference is not statistically significant. Since the null hypothesis cannot be rejected, it can be concluded that there is not sufficient evidence to support that Transnet and SABC are meaningfully different.

Eskom and ATNS

Both Eskom and ATNS have 10 observations each, making comparison feasible. For Eskom, the mean is 0.0069 and for ATNS the mean is 0.031 which is higher. This difference of -0.0245 means that they perform, on average, worse relative to Eskom. In addition, a lower standard deviation, in this case 0.0402, indicates that Eskom data are of low variability. Conversely, ATNS has a higher standard deviation of 0.122, which suggests a higher dispersion of data and lesser consistency around its mean. For Eskom, the conventional mistakes are 0.013 and 0.039 for ATNS.

The larger standard error for ATNS suggests a less precise mean estimate than for Eskom as a result of higher variability in the data. Although the calculated means difference of -0.0245 indicates Eskom is slightly less than ATNS by 2.4%, the 95% confidence interval of the means difference [-0.1152, 0.0663] contains zero. This means that the difference between the two means is not statistically significant.

In addition, the t-value is -0.60 and the p-value is 0.561, which confirms this conclusion since the p-value is considerably greater than the significance level of 0.05. That would imply an absence of statistical significance between Eskom and ATNS. While Eskom has a lower mean than ATNS, the paired t-test demonstrates that the difference is not statistically significant. As a result, the null hypothesis would be accepted based on the confidence interval, t-value, and p-value. Hence, there is no evidence to conclude that Eskom is significantly different from ATNS in performance.

Eskom and ACSA

Ten observations each on Eskom and ACSA provide a balanced basis for analysis. The mean of Eskom is 0.0069, while that of ACSA is much higher at 0.0325. Based on the estimated coefficients, Eskom is marginally worse than ACSA, on average, with an estimated difference of -0.0256. Data for Eskom has a standard deviation of 0.0402. In contrast, ACSA has a standard deviation of 0.0434, indicating that its data have a slightly larger spread around the mean.

The errors for Eskom (0.013) and ACSA (0.014) are very close, suggesting the mean estimates of the two groups are equally precise. While the estimated difference of -0.0256 suggests that Eskom performed worse than ACSA, the 95% confidence interval for the mean difference ranges from -0.0651 to 0.0139 and thus contains zero. The difference between those means is not statistically significant.

Additionally, the t-value of -1.37 and the p-value of 0.190 indicate that the difference between the two means is not statistically significant at the 0.05 significance level. Thus, the null hypothesis cannot be used as the p-value is greater than the alpha (0.05). While the mean for Eskom is slightly lower than that for ACSA, the difference is not statistically significant. The results suggest that the null hypothesis cannot be rejected based on the confidence interval, t-value, or p-value. Thus, it can be concluded that Eskom and ACSA performances are not statistically significantly different.

Eskom and Armsco

A comparison between Eskom and Armsco, based on 10 observations from each entity, offers a reasonable assessment. The mean performance for Eskom is 0.0069, whereas Armsco exhibits a higher mean of 0.0313. The estimated difference of -0.244 suggests that, on average, Eskom's performance is slightly inferior to that of Armsco. Eskom's standard deviation of 0.0402 indicates relatively low variability in its data, while Armsco’s standard deviation of 0.0383, which is smaller than its mean, suggests that its performance values are also closely clustered around the mean. .

However, Eskom (0.013) and Armsco (0.012) are very close together, and this means that both means are estimated with equal precision. This improves from -0.0334 in the conjoined analysis with the 0.0049 upper limit for the Eskom average. A lower limit for the difference in averages of -0.0614, 95% confidence, means that Eskom is slightly lower than Armsco (0.0127 upper limit). This interval includes zero, so it can be concluded that the difference between the two means is not statistically significant.

The t-value of -1.39 and p-value of 0.183 also show that there was no statistically significant difference between groups at the 0.05 significance level. Because the p-value is greater than 0.05, the null hypothesis is not rejected. Eskom has a lower mean

(although the mean is still high) than Armsco, but this is not statistically significant. So, with this confidence interval and this p-value, the null hypothesis cannot be rejected, indicating no difference between the two groups.

Eskom and Telkom

Eskom's mean is 0.0069 and Telkom's is 0.023. The average difference is -0.0164, implying that Eskom underperformed compared with Telkom. Eskom's variability is evident with a standard deviation of 0.0402, which signifies a rather low variability among its data. Conversely, Telkom has a larger standard deviation of 0.109, signifying more variability and unpredictability in its values. In addition, the standard error of Eskom is 0.013, which indicates accuracy in its mean and agrees with Telkom by having a standard error of 0.034, which translates to less precision in its mean.

The difference estimate, -0.0164, also suggests that Eskom has a lower average performance than Telkom. However, the 95% confidence interval for the mean difference is -0.0970 to 0.0642, which includes zero. The actual performance gap between the two firms is not significantly different from zero, which means either of the firms is equally likely to outperform the other. The coefficient for the dummy variable in front of Eskom is, in addition, -0.45 with a p-value of 0.663; in other words, the difference between Eskom and Telkom is not statistically significant. So, the null hypothesis that there is no difference between the two cannot be rejected.

To conclude, despite the lower mean performance of Eskom compared to Telkom, the statistical tests indicated no significant difference between the two in performance. Since both the p-value is high and the confidence interval includes zero, there is no strong evidence to suggest that Eskom's performance is consistently worse than Telkom's. As a result, the findings are not definitive enough to substantiate favouring one company over the other concerning their performance metrics.

Eskom and CEF

Each entity is compared on 10 observations, allowing Eskom and CEF to be evaluated on the same number. The mean figure is 0.0069 for Eskom and -0.062 for CEF. This difference between Eskom and CEF is at a 0.0692 margin. Eskom has a standard deviation of 0.0402, meaning it has a relatively low amount of variability. Meanwhile,

CEF has a 0.148 standard deviation, which is a more uncertain and swinging performance. Since the standard error for Eskom (0.013) is less than that of CEF (0.047), the estimate for Eskom's mean is more precise than the estimate for CEF's mean.

The estimated mean difference of 0.0692 is positive, indicating that Eskom is, on average, better than CEF. The difference is 0.0692, but it is clear from the 95% CI [-0.0387, 0.1771] that it is not statistically significant. Furthermore, the t-value of 1.43 with an associated p-value of 0.183 suggests that the difference between the two means is not statistically different by common cutoffs such as 0.05. Thus, it cannot be rejected that Eskom and CEF were alike in terms of performance.

Overall, this analysis has shown that Eskom's mean performance is higher than CEF's mean performance, but the underlying statistical evidence does not support a difference between the two entities as statistically significant. A large confidence interval and a high p-value show that the difference is not statistically significant (it may have come about by accident), so it can be concluded that there is a significant performance gap between the two entities. In other words, it was unable to provide compelling evidence to conclude that Eskom consistently outperforms CEF.

Eskom and DBSA

The comparison of Eskom with DBSA is based on 10 observations for both, thus providing a direct comparison of their output performance. The mean of Eskom is 0.0069, and the mean of DBSA is higher at 0.0251, which indicates that, on average, the DBSA outshines Eskom. With respect to variability, Eskom shows a 0.0402 standard deviation, demonstrating significant volatility in its output. On the other hand, the standard deviation for DBSA is 0.0190, indicating that it has more stable and less variable results.

For Eskom, the standard error (SE) is 0.013, which is higher than that of DBSA which is 0.0060. This means the DBSA mean is more precisely estimated than the Eskom mean. Therefore, the mean difference estimated between DBSA and Eskom is -0.0182. However, the 95% confidence interval for the difference is -0.0489 to 0.0124, which ranges through zero. The confidence interval contains zero, showing that the

observed difference may not be significant.

Moreover, the calculated t-value (-1.30) and p-value (0.219) indicate that the difference in means of Eskom and DBSA is not statistically significant at usual significance levels (i.e., < 0.05). Thus, the null hypothesis, which states no difference in performance exists between the two organisations, cannot be rejected. On average, DBSA seems to be more efficient than Eskom. Nonetheless, the statistical analysis fails to prove a meaningful difference between the two convincingly. Also, the confidence interval, which contains zero, and the relatively high p-value suggest that differences in performance are attributed to chance rather than a genuine, systematic difference. There is thus no evidence that DBSA is outperforming Eskom.

Eskom and Independent Development Trust (IDT)

The number of observations in Eskom and IDT is equal, and they provide a fair assessment basis. Both groups have quite similar means, with Eskom at a mean of 0.0069 and IDT a bit higher at 0.0072. This close alignment indicates that, on average, the two groups are performing similarly. Notably, the Eskom standard deviation is 0.0402 and can also be considered to fluctuate at some average level. On the other hand, IDT has a standard deviation of 0.0142, which indicates that the performance of IDT is more uniform and consistent.

Eskom's standard error (SE) is 0.013, which shows it to be larger than IDT's SE of 0.0045; thus, Eskom's estimate is less precise than IDT's. The mean difference between the two groups is estimated at -0.0003, corroborating that Eskom and IDT perform roughly the same. But the 95% confidence interval for this difference is [-0.0299, 0.0294] and includes zero. Since zero is included in the interval, it suggests that the observed difference may not be statistically significant. That means that the level of significance is still the same (indicating no significant difference between the means), as indicated by the t-value of -0.02 and the p-value of 0.985.

Consequently, the null hypothesis, which states that Eskom is the same as the IDT, cannot be rejected due to the extremely high p-value high above the significance threshold of 0.05. In conclusion, the result of means for Eskom and for IDT is very close and the analysis shows that there is no significant difference between them. The

large confidence interval and very large p-values indicate that the bursts shown by the two groups are almost identical, and any perceived difference is likely due to stochastic variation based on some random factor unrelated to any true difference between groups.

Eskom and Independent Development Corporations (IDC)

Both Eskom and IDC use about 10 observations each, making it a fair comparison of their performances. The mean for Eskom is 0.0069, while IDC's is 0.018, indicating that the average performance is slightly higher for IDC. But that variance between the two cohorts varies greatly. This means that Eskom's standard deviation is at 0.0402, indicative of average dispersion, while IDC's standard deviation of 0.209 hints at a high degree of dispersion in performance, hence more variability and irregularity in its performance data. Eskom has a standard error (SE) of 0.013, smaller than IDC's SE of 0.066.

This means that the mean for Eskom is estimated more precisely than that of IDC, whose bigger SE indicates a less reliable estimate of the mean. The average difference between the two means is -0.0113, meaning that Eskom's average is less than IDC's. Since the delta is not even close to the total, it can be ignored. The 95% confidence interval for this difference is [-0.1634, 0.1408], so zero is included. This means that the difference in means in this case may be zero, and thus the observed difference is also not statistically significant.

Additionally, with a t-value of -0.17 and a p-value of 0.870, there is no significant difference between the two companies. A high p-value such as that, which is many times the 0.05 level usually used to decide if a null hypothesis can be rejected, will lead to not rejecting the null hypothesis, which states that the performance of Eskom and IDC are the same. While the mean performance of Eskom is marginally below that of IDC, statistical analysis does not provide sufficient evidence on which one can conclude a meaningful difference. This means that the estimated difference is close to zero, with a large confidence interval, a large p-value, and a small effect size, indicating that there is no real difference.

Eskom and Trans Caledon

Both Eskom and Trans Caledon had the same number of observations (10 observations in each group), providing a fair comparison. For Eskom, the mean is 0.0069, and for Trans Caledon, the mean is 0.0146, so the average performance of Trans Caledon is marginally better than Eskom. When looking for variation, Eskom outperformed the Trans Caledon and has a standard deviation of 0.0402, suggesting above-average variability. Trans Caledon, on the other hand, has a slightly higher standard deviation of 0.0468, which indicates that its performance value is more spread out and results are more unpredictable. The SE, namely, 0.013 and 0.015, to Eskom and Trans Caledon, respectively, are quite similar.

This means that the mean estimates are precise for both groups. The mean difference is estimated to be -0.0077, implying that, on average, Eskom underperforms Trans Caledon. However, due to the small magnitude of this difference, it is not likely to be of practical importance. The 95% confidence interval for this difference extends from [-0.0489 to 0.0334], which includes zero, indicating that this difference is not statistically significant. The negative t-value of 0.40 indicates that the difference in means is not statistically significant (column), and the corresponding p-value is 0.69711.

Because the p-value is above the common threshold of 0.05, there is no statistically significant evidence to reject the null hypothesis of no difference between the two groups. In summary, although Trans Caledon is slightly better than Eskom in terms of mean, the statistical testing confirms that the difference is not significant. Further signs that the two groups' performances are comparable are the wide confidence interval with the inclusion of zero and the even higher p-value.

Eskom and NECSA

The mean for Eskom is 0.0069, and the mean for NECSA is 0.0407, where NECSA has a higher value than Eskom on average. Regarding the spread, Eskom has a standard deviation of 0.0402, meaning that the data points are relatively close to the mean. For NECSA, the standard deviation is 0.0650 in contrast, meaning that there is a greater spread and higher variability in NECSA performance data. The SE values

for Eskom and NECSA are 0.013 and 0.021, respectively. Given that the standard error measures how much a given sample mean deviates from the true mean for the population, NECSA's larger SE means that NECSA's mean estimate was less precise than Eskom's (the values fluctuate more).

This suggests that Eskom's mean performance is lower than NECSA's by an estimated 0.0338. Nevertheless, this difference also has a 95% confidence interval from -0.0856 to 0.0181, which includes zero. The presence of zero in the CI indicates that there is no statistically significant difference between the two means at the 0.05 level. Additionally, the t-value of -1.40 and the p-value of 0.184 indicate that the difference between the two groups is not statistically significant.

A p-value greater than 0.05 indicates that the observed difference may just be an observation resulting from random chance rather than being indicative of a real effect. So, while NECSA has a higher mean than Eskom, the statistical test does not indicate that this difference is significant. The very wide confidence interval containing zero and the relatively high p-value indicate that there is no conceptual difference between the two groups, and any observed difference can probably be attributed to random variation. This means that the null hypothesis cannot be rejected and that the two companies have no performance difference.

Eskom and Land Bank

Since there are, on average, 10 observations per group, Eskom and Land Bank can be reasonably compared. The average of Eskom is 0.0069, and of Land Bank is slightly lower at 0.0041, indicating that Eskom outperforms Land Bank marginally on average. Eskom variance of 0.0402 means the average dispersion of values is moderate. On the other hand, Land Bank only presents a standard deviation of 0.0229, which proves that its data move around and are arguably more stable. The SEs for Eskom and Land Bank are 0.013 and 0.0072, respectively.

This lower variability in performance data means that the Land Bank has the smallest SE (meaning its mean is estimated with more precision). For Eskom vs. Land Bank, the estimated difference in means is 0.0028, suggesting that the average Eskom is larger than the average Land Bank. However, this difference's 95% confidence interval

is [-0.0286, 0.0342], which includes zero. If both endpoints are zero, the predicted interval is not statistically significant. The t-value of 0.19 and p-value of 1.0 strongly suggest that the populations from which the two samples come are effectively the same.

A p-value of 1.0 suggests that the observed difference is likely due to chance rather than a true effect. So, while Eskom's mean is marginally greater than Land Bank's, the statistical treatment shows that this difference is statistically insignificant. The large confidence interval that includes zero and the exceedingly high p-value implies that any differences noted between these two groups can be explained by chance and that there is insufficient evidence to reject the null hypothesis of no difference.

Eskom and Broadband Infraco

The Eskom and Broadband Infraco comparison is based on 10 common observations for both groups. The mean for Eskom is 0.0069, and the mean for Broadband Infraco is -0.0863, meaning that, on average, Broadband Infraco underperforms Eskom by a long way. The average Eskom wide standard deviation is 0.0402, which indicates a moderate variation in the distribution of wide values around the average score. In contrast, Broadband Infraco exhibits a lower standard deviation of 0.0350, signalling that its values are more closely clustered around the mean compared to Eskom. This suggests that Broadband Infraco has less variation or greater consistency in its values relative to Eskom.

The difference in standard deviations implies that the data for Eskom might exhibit more dispersion or unpredictability than the data for Broadband Infraco.The standard errors for the two means are 0.013 (Eskom) and 0.011 (Broadband Infraco), indicating there is similar precision in estimating the means. The mean difference estimate is 0.0933, suggesting there is a significantly higher average performance from Eskom compared to Broadband Infraco. The 95% confidence interval for this difference does not contain zero, which indicates that there is a statistically significant difference in means.

The t-value of 5.53, along with a p-value of 0.0003, suggests that there is enough evidence to reject the null hypothesis that the two groups do not differ. A p-value far

smaller than the conventional significance level of 0.05 implies that the difference was unlikely to have arisen by random chance. In summary, the quantitative analysis statistically proves that Eskom outclasses Broadband Infraco by orders of magnitude. The narrow confidence interval combined with the very low p-value provides strong evidence that this difference is not attributable to random variation; it suggests that the two companies' performances are meaningfully different.

Eskom and SABC

There are 10 comparisons each for Eskom and SABC, which is deliberate as the two groups have been compared evenly. The mean for Eskom is 0.0069, and that for SABC is 0.009, which indicates that SABC, on average, does slightly better than Eskom. With a standard deviation of 0.0402, Eskom has moderate variability around the mean. In comparison, SABC has a very high deviation standard of 0.308, which indicates SABC is unpredictable and there is more variation in performance data.

The SE for Eskom and SABC are 0.013 and 0.097, respectively. This is because SABC’s SE is much larger, meaning its mean is estimated a lot less precisely than Eskom's, probably because there is a lot more variability in SABC’s data. The mean difference between Eskom and SABC is estimated at -0.0021, indicating that Eskom’s mean performance is somewhat lower than that of SABC.

However, this difference's 95% confidence interval is from [-0.2242 to 0.2199], including zero in the range. This means that the difference between the means is not statistically significant ($p > .05$). Also, the t-value of -0.02 and the p-value of 0.983 show very strong evidence of no statistical difference between similar groups. A p-value of this magnitude, far above the standard cut-off point of 0.05 significance, suggests that the difference reported is due to chance rather than evidence of an effect.

Therefore, even if SABC has a higher mean than Eskom, the statistical analysis shows it cannot differ significantly. The wide confidence interval, which contains zero, and the very high p-value indicate that the differences are probably due to random variation, and there is no evidence to assume a performance difference between the two companies.

SAFCOL and ATNS

The mean of SAFCOL is 0.0121 and the mean of ATNS is 0.031, meaning that, on average, ATNS is doing better than SAFCOL. Having said that, SAFCOL has a standard deviation of 0.0380, indicating moderate variability in its values. On the other hand, ATNS has a standard deviation of 0.122, which suggests that its performance data are less consistent and vary over a wider range (SAFCOL SE=0.012; ATNS SE=0.039). The larger standard error of ATNS indicates that the mean estimate for ATNS is less precise, which can be expected given that the data for ATNS vary more than that for SAFCOL.

SAFCOL was estimated to be slightly lower than ATNS, with a mean difference between the two models equal to -0.0193. But this difference has a 95% confidence interval that includes zero, from [-0.1096 to 0.0710]. This implies that the confidence interval includes zero, which suggests no statistically significant difference. A sizeable difference between means is absent, as illustrated by a t-value of -0.48 and a p-value of 0.645. Its p-value of 0.645 therefore was far above the standard cut-off of 0.05.

ATNS has a higher mean than SAFCOL, but the statistical analysis above shows that this difference is not statistically significant. The large interval that surrounds zero, together with the extraordinarily high p-value, suggests that the observed difference is the consequence of random chance rather than a meaningful difference between the groups. As a result, the null hypothesis that both SAFCOL and ATNS perform equally cannot be rejected.

SAFCOL and ACSA

The mean for SAFCOL is 0.0121, and for ACSA, it is 0.0325, indicating that, on average, ACSA performs better than SAFCOL. So, regarding variability, SAFCOL translates into SD = 0.0380. SAFCOL has a small dispersion from the average. In contrast, ACSA has a marginally higher standard deviation of 0.0434, indicating slightly higher variability, though still quite low. The respective standard errors (SE) for SAFCOL and ACSA are 0.012 and 0.014. The values are close, implying that the mean estimates for both groups are equally reliable with no significant difference in the precision of the mean calculation.

The difference in means estimated between SAFCOL and ACSA is -0.0204. However, this difference has a 95% confidence interval from [-0.0589 to 0.0181] encompassing zero. The inclusion of zero indicates that the difference is not statistically significant. Finally, the t-value is -1.12 and the p-value is 0.280. This indicates that the difference between the two groups is insignificant. Thus, the p-value of 0.280, well beyond the typical 0.05 threshold, suggests that the observed difference was likely due to random variance rather than a real-world effect.

In summary, although the mean of ACSA is greater than the mean of SAFCOL, the statistical analysis of the data shows that this difference is not statistically significant. The broad range of the confidence interval, encompassing the possibility of zero difference, along with the relatively elevated p-value, indicate that the discrepancy that exists is just due to randomness or there is not enough evidence to go against the null hypothesis, claiming that there is no difference overall between the two firms. Thus, performance around SAFCOL and ACSA is virtually similar.

SAFCOL and Armsco

The comparison between the two groups, SAFCOL and Armsco, is based on 10 observations for each and thus has an equal number of facts in both discussions. The mean of SAFCOL is 0.0121, while Armsco has a mean value of 0.0313, which implies that Armsco, on average, performs better than SAFCOL. The variability of both groups is comparable, with SAFCOL's standard deviation being 0.0380 as opposed to Armsco's standard deviation being marginally larger at 0.0383. This indicates that both samples have a similar spread around their respective means. The standard error (SE) for both groups is 0.012, which suggests that the means for both groups are estimated precisely.

The mean difference between SAFCOL and Armsco is about -0.0192; this means that the average of SAFCOL is less than the average of Armsco. But its 95% confidence interval on this difference runs from [-0.0552 to 0.0168], which crosses zero which means that this difference is not statistically significant. The t-value of -1.12 for the t-test, along with the p-value of 0.277, suggests that the mean of one group is not statistically significantly different from the mean of the other. With a p-value of 0.277, the difference strays far beyond the frequently used 0.05 mark of significance, implying

that any difference is more likely due to chance than some real effect.

In summary, although the mean of Armsco is greater than that of SAFCOL, the analysis indicates that this difference is not significant. The wide confidence interval containing zero and the high p-value indicate that the difference observed is effectively due to random variation. Hence, there is no significant evidence the null hypothesis can be rejected, as there is no significant difference between the two groups. Statistically, SAFCOL and Armsco perform relatively equally.

SAFCOL and Telkom

SAFCOL and Telkom have means of 0.0121 and 0.023, respectively. On average, Telkom appears to do much better than SAFCOL. SAFCOL has a standard deviation of 0.0380, indicating that its returns are fair. Conversely, Telkom has a 0.109 standard deviation, showing larger variances, leading to lower data predictability. SAFCOL's and Telkom's values of standard error are 0.012 and 0.034, respectively. The standard error is higher than Telkom's estimated mean compared to SAFCOL's. This suggests that there is higher uncertainty in estimating Telkom's mean as compared to SAFCOL, perhaps due to the fact that Telkom's data have more variation compared to SAFCOL's.

The difference in means estimate of -0.0112 between SAFCOL and Telkom shows that SAFCOL's average is lower than Telkom's. However, the 95% confidence interval for this difference ranges from [-0.0913 to 0.0689], which crosses zero. Since the confidence interval ranges from a negative to a positive number, zero is included in the confidence interval, indicating that no statistically significant difference exists. The t-value is -0.31, and the p-value is 0.764, which gives a very high confidence in this observation. The p-value of 0.764 shows that the observed difference is due to random variance, not an underlying effect, a much larger number than the conventional cut-off of 0.05.

Overall, the mean of Telkom is marginally higher than the mean of SAFCOL; however, the statistical summary shows that the difference is not statistically significant. As a result, there is not have enough evidence to reject the null hypothesis, and to conclude that SAFCOL and Telkom's performances are not statistically different from each

other.

SAFCOL and CEF

The 10 observations per group can lead to a meaningful comparison between SAFCOL and CEF. This indicates that SAFCOL performs better than CEF as the average of SAFCOL is 0.0121 while CEF has a mean of -0.062. SAFCOL has a standard deviation of 0.0380, indicating low variability. Meanwhile, CEF has a far higher standard deviation of 0.148, suggesting more dispersion in value and higher variance in the data.

The SE is 0.012 for SAFCOL and 0.047 for CEF. However, a higher standard error for CEF means that the data are more widely spread out, leading to lesser accuracy/greater variability in estimating the mean compared to SAFCOL. This means the difference in means is clearly visible, as the SAFCOL mean is much greater than the CEF mean (0.0744 mean diff.). The 80% confidence interval for this difference: [-0.0331,0.1819] contains zero therefore the difference observed does not appear to be statistically significant.

The t-value of 1.54 and the p-value of 0.154 are sufficient to reject the null hypothesis. A p-value of 0.154 suggests that the difference between the groups is likely due to chance rather than a true effect. As with all p-values, this is only significant at $p < 0.05$. To conclude, while SAFCOL does have a higher mean than CEF, this does not represent a statistically significant difference between the two categories. The wide confidence interval (including zero) and the large p-value indicate that random variation can account for the observed difference in the mean. So, there are no conclusive grounds whether the delivery of returns of SAFCOL is better than CEF.

SAFCOL and DBSA

The average value of SAFCOL is 0.0121, whereas for DBSA, it is 0.0251, which shows that, on average, DBSA performs better than SAFCOL. According to the variability, the standard deviation of SAFCOL is 0.0380, which shows moderate variability. On the other hand, DBSA has a standard deviation of 0.0190, which means its average values are less variable and spread out from the mean, making it more predictable than the other company. The corresponding values of SAFCOL and DBSA are 0.012

and 0.0060. Compared with SAFCOL, DBSA has a higher nature than the estimated mean due to a lower deviation in data compared to SAFCOL, leading to a smaller standard error.

The mean difference between SAFCOL and DBSA is estimated to be -0.0130, indicating that SAFCOL's average is slightly lower than DBSA's. However, the 95% confidence interval for the difference is [-0.0421 to 0.0160] and contains zero. This makes it ambiguous whether the difference between the two means is statistically significant. Since the confidence interval contains zero, a null difference between the groups cannot be ruled out, and the observed difference between groups could be attributed to random variation rather than an underlying true effect. Hence, based on statistical analysis, there is no difference between them.

To sum up, even though the means of SAFCOL and DBSA differ greatly, they do not differ statistically at the 5% significance level. Having a confidence interval (95%) that contains zero and a p-value (calculated from that confidence interval) greater than 0.05, clinically, the difference is most likely random. This implies that the null hypothesis is not rejected, and it is concluded that the performances of SAFCOL and DBSA are statistically similar to each other.

SAFCOL and IDT

The comparison between SAFCOL and the IDT is made on the basis of 10 observations per group. SAFCOL (mean = 0.0121) has a stronger performance than IDT (mean = 0.0072). SAFCOL also displays a moderate spread around the mean, as evidenced by the standard deviation of 0.0380. In contrast, IDT has a lower standard deviation of 0.0142, indicating that its values are less spread out from the mean, which means lower variability.

The standard error for SAFCOL is 0.012 while for IDT it is 0.0045. The smaller standard error for IDT indicates that the mean is estimated with more precision; this is due to the reduced variability of the IDT data compared to the SAFCOL data. The difference in means estimate between SAFCOL and IDT is 0.0049. This confirms that the mean of SAFCOL is slightly larger than that of IDT. However, the 95% confidence interval for this difference is [-0.0233 to 0.0332], which includes zero that indicates that

the difference observed is not statistically significant.

Furthermore, the t-value of 0.38 and the p-value of 0.708 provide strong evidence that the difference between the two groups is not statistically significant. A p-value of 0.708, which is much higher than the typical threshold of 0.05, indicates that the observed difference is more likely due to random fluctuation than a true effect.

Overall, the fact that SAFCOL's average is higher than IDT's is not significant because the difference is statistically insignificant. At the same time, the wide confidence interval that spans around zero, alongside the high p-value, further confirms that the observed difference between the two groups is due to random chance and reflects no real effect. So, it demonstrates that the null hypothesis cannot be rejected, signifying there is no significant difference in performance between SAFCOL and IDT.

SAFCOL and IDC

This is a comparison of 10 observables for each group and the SAFCOL vs. IDC. SAFCOL's mean is 0.0121 and IDC's mean is 0.018, implying that, on average, IDC performs better than SAFCOL. SAFCOL is moderately dispersed, as the standard deviation is 0.0380 whereas IDC has a standard deviation of -0.209 meaning there are variations in its observation that shows that the data of IDC are more highly dispersed than the mean.

The SE for SAFCOL and IDC are 0.012 and 0.066, respectively. The larger standard error of IDC suggests less precision in the mean estimate, probably because of variable data as compared to SAFCOL, whose lower standard error indicates a more accurate estimation of its mean. This means that the estimated difference in means is -0.0061, indicating that SAFCOL's average is lower than IDC's. However, the 95% CI for this difference runs from [-0.1579 to 0.1457], which contains zero. This indicates that the difference between the two means is not statistically reliable.

Using the same analysis (t-value of -0.09 and p-value of 0.929) does not favour statistical significance. With a p-value of 0.929, well above the typical cut of 0.05, it is far more likely that the difference observed is due to chance than a true signal. Therefore, even though IDC has a higher mean than that of SAFCOL, the statistical analysis shows that this is not significant. The wide confidence interval (which includes

zero) and the high p-value indicate that random fluctuation (rather than a true effect) might explain the difference. Thus, there is not enough evidence to reject the null hypothesis, implying that there is no statistically significant difference between SAFCOL's and IDC's performance.

SAFCOL and Trans Caledon

SAFCOL and Trans Caledon were compared based on 10 observations each. The mean of SAFCOL is 0.0121 which is less than the mean of Trans Caledon (0.0146). This shows that Trans Caledon performs better than SAFCOL, on average. For variability, SAFCOL has a standard deviation of 0.0380, indicating moderate dispersion around the mean. For Trans Caledon, the standard deviation is 0.0468, meaning that it has a wider spread and the readings are less predictable than those of Eskom.

The SEs for SAFCOL and Trans Caledon are 0.012 and 0.015, respectively. Trans Caledon has a larger standard error, indicating that the estimate of its mean is less precise, which is likely because its data are more variable than SAFCOL's data. The mean difference (between SAFCOL and Trans Caledon) is estimated to be -0.0025, indicating that the average for SAFCOL is just lower than that of Trans Caledon. However, the 95% confidence interval for this difference is [-0.0428 to 0.0377], which includes zero. This means that the p-value for the observed difference is greater than the critical value.

Furthermore, the t-value of -0.13 and p-value of 0.896 support the conclusion that there is no statistical difference between the two groups. A p-value of 0.896, much higher than the common cutoff of 0.05, indicates that the difference between groups will likely occur by chance and not by a true effect. However, the statistical analysis indicates that there is no significant difference between the two companies, even though the mean of Trans Caledon is higher than that of SAFCOL. The fact that the confidence interval is so wide that it includes zero and a high p-value suggests that the difference is due to chance rather than a real difference between groups. Hence, there is enough evidence to reject the null hypothesis and to conclude that there is a statistically significant difference between the performance of SAFCOL and Trans Caledon.

SAFCOL and NECSA

The comparison analyses for SAFCOL and NECSA are derived from 10 observations for each group. The mean for SAFCOL is 0.0121, which is low, but for NECSA, this mean is 0.0407; therefore, NECSA ranks higher than SAFCOL. For variance, the standard deviation for SAFCOL is 0.0380, which means it has some spread around the mean. On the other hand, the standard deviation of NECSA is higher (0.0650), indicating a high variation in the output of NECSA as the data points span around the mean of NECSA.

SAFCOL and NECSA have standard errors of 0.012 and 0.021, respectively. The standard error of NECSA is higher than that of SAFCOL, which means NECSA's mean estimate is less accurate than that of SAFCOL, presumably due to a higher dispersion of NECSA data compared to SAFCOL. A 95% confidence interval for the mean difference, which indicates that, at the 95% level, the mean of SAFCOL must be less than the mean of NECSA with an estimated mean difference of -0.0286. However, the 95% confidence interval for the difference is [-0.0797 to 0.0225], which includes the null. In fact, the 95% confidence interval for the difference between both means is too wide (-500, 1000) and includes zero.

Thus, the t-value of -1.20 with a p-value of 0.250 reinforces the conclusion that no significant event exists. A p-value of 0.250, far exceeding the conventional cutoff of 0.05, indicates that the observed difference is due to random fluctuation rather than a true effect. Thus, NECSA has a greater mean than SAFCOL, but this difference is not statistically significant. Because the confidence interval is so wide that it includes zero, along with the p-value of 0.250, there is no difference, and any difference could result from random variation. So, there is not sufficient evidence to reject the null hypothesis and to state that there is a statistically significant difference between the performance of SAFCOL and NECSA.

SAFCOL and Land Bank

The comparison of SAFCOL and the Land Bank had 10 observations each. SAFCOL has a mean of 0.0121; however, the Land Bank has a mean of 0.0041. This means that SAFCOL performs better than the Land Bank. SAFCOL has a low degree of

volatility, with a standard deviation of 0.0380. In comparison, the standard deviation for the Land Bank is only 0.0229, which means that the figures are less dispersed and consistent with the mean.

The SE for SAFCOL was found to be 0.012, while for the Land Bank, it was 0.0072. However, the Land Bank has fewer standard errors than SAFCOL, so it may provide a better estimate of its mean, possibly because it tends to vary less. The estimated mean difference is 0.0080, with SAFCOL having a larger mean average than the Land Bank. However, the 95% confidence interval for the difference in means is [-0.0221 to 0.0381]. As this range includes zero, it indicates little evidence of a statistically significant difference.

The 0.57 t-value and 0.578 p-value also provide powerful support for this difference, which is not significant. A p-value of 0.578, well above the usual threshold of 0.05, means that any difference observed between the two groups is probably due to chance, not a genuine effect. According to the statistical review, SAFCOL has a slightly higher average value than the Land Bank, which is insignificant. Since the confidence interval includes the null value of zero and the p-value of 0.578, which indicates no significant difference between means, the null hypothesis cannot be rejected, assuming both averages are from the same population. It indicates that the performances of SAFCOL and the Land Bank are not statistically different.

SAFCOL and Broadband Infraco

The comparison of SAFCOL and Broadband Infraco had 10 observations each. For SAFCOL, the mean is equal to 0.0121, whereas for Broadband Infraco, the value is considerably lower than -0.0863. This indicates that, on a symmetrical basis, SAFCOL performs significantly better than Broadband Infraco. SAFCOL has a relatively high standard deviation of 0.0380, which indicates moderate variability in data. The difference here is that the data have fewer observations spread further away from the mean, i.e., SAFCOL has a standard deviation of 0.0763 while Broadband Infraco has a standard deviation of 0.0350. Both had similar levels of variation, as their standard deviations were close.

SAFCOL only has a standard error of 0.012, and Broadband Infraco has a standard

error of 0.011. The fact that these values are almost identical indicates that the mean estimates of both groups are similar. The difference in means is estimated at 0.0984 (SAFCOL has a significantly higher average than Broadband Infraco). The 95% confidence interval of the difference is [0.0640, 0.1329]. As this range does not contain zero, it means that the gap between the two groups is statistically significant.

The t-value of 6.03 and the p-value of 0.000 strongly confirm the null hypothesis. A p-value of 0.000 indicates that the probability of observing such a large, computed difference randomly is extremely low. The null hypothesis can therefore be rejected, as there is no difference and SAFCOL's mean is significantly greater than Broadband Infraco's. Thus, there is no strong evidence against a null hypothesis, as the differences are due to random variations.

SAFCOL and SABC

SAFCOL has a mean of 0.0121, and the mean for SABC is 0.009. This indicates that the average worth of SAFCOL is slightly better than the average worth of SABC. SAFCOL has a standard deviation of 0.0380, which shows a moderate variability of its data. SABC, however, has a smaller standard deviation of 0.115, indicating that the SABC data are widely distributed around the mean. In contrast, SAFCOL data are much tighter around the mean; however, it is based on the same mean as the SABC. The standard errors, too, reflect this difference in variability.

The Standard Error of SAFCOL is 0.012 and that of the SABC is 0.095, which means the mean of SABC is less reliable than that of SAFCOL due to higher randomness in the data of SABC. The differences between the means are around 0.0030 (SAFCOL tends to be larger than SABC). But that difference is not meaningfully different. The 95% confidence interval for the difference of means is [-0.2188, 0.2249] which is statistically not significant. Because the confidence interval for the difference includes zero, that suggests that the difference may be random.

A t-value of 0.03, accompanied by a p-value of 0.976, strongly suggests that the difference is not statistically significant. In this case, the very high p-value indicates no major difference between the groups. The result is almost certainly due to random fluctuation, which is not a true effect. Although SAFCOL exhibits a slight average

greater than SABC, the difference is marginal and does not imply statistical significance. A high p-value (0.976) and wide confidence interval (including zero) show that the difference between treatments is likely the result of chance. Thus, there is insufficient evidence to reject the null hypothesis. Based on these data, SAFCOL and SABC perform comparably.

SAA and ATNS

The differences between SAA and ATNS are remarkable, with -0.334 mean for SAA and 0.031 mean for ATNS. The independence of the means of the two variables implies an inherent differentiation of phenomena represented by SAA and ATNS. For instance, the SAA negative mean shows that SAA is statistically significantly poorer (or has lower values) than ATNS.

The two companies' standard deviations show the spread of the data. The standard deviation for SAA is greater (0.172) than the standard deviation for ATNS (0.122), meaning that the results for SAA are more spread out from the mean than for ATNS. This indicates greater variability in the SAA data compared to the ATNS data. This may also represent heterogeneous or varied results as the SAA measure relates.

The mean difference had a 95% confidence interval of -0.5072 to -0.2238 and did not cross zero, supporting the statistical significance of the difference. This means that the difference resulting from random chance is small. On the other hand, since the p-value of the t-value of -5.47 is 0.000, the difference between means is statistically significant. The extremely small p-values indicate good evidence against the null hypothesis and that the difference between SAA and ATNS is not due to sampling variation. This implies that there is a performance difference between the two companies, and ATNS performs much better than SAA.

SAA and ACSA

The analysis by the SAA and ACSA groups compares with other means and averages. SAA's mean is -0.334, and ACSA's is 0.0325, indicating that the average of SAA's value is less than ACSA's. The difference in means shows that the two groups have different performance outcomes. At SAA, however, the standard deviation is 0.172 compared to ACSA's 0.0434, suggesting more variation. In other words, the SAA

values have a very wide distribution around the mean, while the ACSA ones are much closer to the mean.

That means that there is a difference between the two groups. As the 95% confidence interval for the mean difference [-0.4918 to -0.2414] excludes zero, there is a significant difference between the means reflecting that SAA is at a significantly lower mean than ACSA. The evidence against the null hypothesis is strong (t-value = -6.53 for p = 0.000). Importantly, the p-value is well below the 0.05 threshold, showing that the differences were not simply the results of random chance. Overall, ACSA performs better than ACSA.

SAA and Armsco

The SAA group has a mean of -0.334 and the Armsco group a mean of 0.0313, reflecting a large difference between these groups. In particular, SAA has a significantly lower mean value than Armsco, indicating that the two categories have notably different features or results. In addition, SAA's standard deviation (0.172) was higher than that of Armsco (0.0383), which means that the data of SAA were more dispersed and showed more variability than Armsco, which was more concentrated around the average data.

The confidence interval for the difference in means at a 95% level, with a lower bound of -0.4916 and an upper bound of -0.2391, does not include zero, which clearly points out a statistically significant difference between the two groups. This result illustrates that SAA has a consistently lower median than Armsco. The t-value of -6.55, along with the p-value of 0.000 is evidence that proves against the null hypothesis. Such a low p-value indicates that the means that belong to the score distributions are statistically significantly different, and this is not caused randomly. In conclusion, Armsco performs better than SAA.

SAA and Telkom

The average of SAA is -0.334, and Telkom is 0.023, which means the average SAA value is much lower than Telkom. This disparity indicates a substantial divergence in the outcomes evaluated between the groups. On the other hand, Telkom has a standard deviation of 0.109, meaning the SAA standard deviation of 0.172 is higher,

which determines that data points are more spread out over the mean in the case of SAA. On the other hand, Telkom's results show more consistency, with its scores closely clustered around the mean.

The fact that the 95% confidence interval of the difference in means [-0.4947, -0.2202] does not include zero also supports this conclusion, as it shows that the difference between the two groups is not just random. This shows that the mean of SAA is lower than that of Telkom. Moreover, the t-value, set at -5.55, proves that the null hypothesis can be rejected at 0.000, revealing that the difference is not random. The p-value is less than 0.05, which is the conventional cut-off point, indicating that the two means are statistically significantly different. Thus, the two companies have a performance

This difference was significant, as indicated by a 95% confidence interval for the difference in means [-0.582; -0.104]. Because the interval does not include zero, there are a range of plausible differences between the two groups. Further, because the t-value of the student t-test is -3.08 and the p-value is equal to 0.008, the null hypothesis, which states that there is no difference between the two groups, is rejected and that the differences are unlikely to be due to random chance, meaning that the results are statistically significant. The high level of difference between the averages of the two groups, their spread and the statistical significance of the tests indicate that SAA and SABC are different. Therefore, the null hypothesis is rejected in favour of the alternative hypothesis that shows a statistically significant difference.

6.4.1 Summary of the results of research objective 3

The primary objective of this research was to evaluate and compare the performance differentials of major SOCs within the DPE with those outside the DPE. A comparison was made between five SOCs under the DPE, including Alexkor, Transnet, Eskom, SAFCOL, and SAA, against the other major SOCs listed under Schedule 2 of the PFMA operating outside the DPE. A t-test formula was used to assess whether there are performance differences between those two sets of SOCs.

This study concludes with a very clear result: three quarters (75%) (49 out of 65) of the SOCs examined did not differentiate in performance based on whether they are operating under the DPE or not. This analysis gives enough evidence to reject the

alternative hypothesis (H1) that there are performance differences between these two groups. The evidence is consistent with the alternative hypothesis (H0) that no performance differentials exist. These results indicate that implementation of the PCI formulated in this study on SOCs, regardless of classification, ownership or governance structure, would yield enhanced performance outcomes.

This challenges the widely accepted view that state control and ownership of SOCs implicitly undermine corporate governance or enable government misuse to achieve political benefit (Lim, 2021). In contrast, they are congruent with Limbo's (2019) empirical study that suggests that the underperformance of SOCs can be attributed to governance mechanisms rather than state ownership per se. Effective management, governance, transparency, and accountability in compliance with the PCI could significantly reduce agency costs and enhance operational efficiency. They all have the potential to drive improvement in the overall SOC performance in South Africa.

On the contrary, the analysis identifies a few cases (16 out of 65, or 25%) where DPE-regulated and non-DPE SOCs seemed to behave differently. During the analysis, Transnet, Eskom, and SAFCOL, all SOCs under DPE, outperformed Broadband Infraco. On the contrary, SAA consistently performed lower than all other non-DPE SOCs. This result is consistent with the alternative hypothesis (H1), as the two groups performed differently. Therefore, the alternative hypothesis (H1) is partially rejected.

This performance differentials reported (in 25% of cases, with SAA in particular) may be due to a range of complex factors, many of them attributable to agency costs. These include the divergence of interests between the agent and the principal, where many issues arise, such as inflated costs, state capture, mismanagement, and the negative socio-economic effects of the COVID-19 pandemic. However, sustained practice of the PCI as a mechanism of oversight may mitigate some of these challenges by facilitating better accountability mechanisms between agents and principals, ultimately benefiting both firms and society. Furthermore, the findings show that limiting political influence on high-level policy formulation rather than interfering with day-to-day operational decision-making could greatly improve SOC overall effectiveness.

In summary, the findings of this study reject the alternative hypothesis (H_1), which suggests a considerable performance difference between DPE-regulated SOCs and

those operating outside the framework of DPE. Instead, the study validates the null hypothesis (H0), showing no significant performance differences between the two groups. These findings provide sufficient empirical evidence for using the PCI as a strategic tool to develop governance systems and improve the performance of SOCs in South Africa.

6.5 Research objective 4: to determine the drivers of the performance of major SOCs in South Africa.

This goal provides insights on the key drivers of organisational performance for South Africa's major SOCs. This proposal expands the current body of knowledge through the establishment of new constructs for performance drivers in these organisations. This analysis elucidates these drivers' effects on organisational performance and how they can be mitigated to deliver positive outcomes for SOCs. Beyond identifying some of these drivers and potential solutions, this study informs the development of strategies to enhance operational efficiency and long-term sustainability of South African SOCs.

This objective has three independent variables: unauthorised, irregular, fruitless, and wasteful expenditures (UIFWE) (a proxy of political interference and corruption), CEO remuneration, transparency and accountability. In this model, the dependent variable is the ROA, which is a proxy for the SOC's performance. Statistically, the regression model can be defined as:

$$Y_{it} = \alpha_1 + \beta_1 + \beta_2 + \beta_3 + \varepsilon_{it}$$

Then $\text{ROA} = \alpha_1 + \text{UIFWE} + \text{CR} + \text{TC} + \varepsilon_{it}$

This objective provides insights into the drivers that affect the performance of SOCs and recommendations for improving their performance by analysing the relationships between these variables. As a result, Table 6.6 below gives the results of the ANOVA on this objective.

Table 6.6: Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	*P-Value
Regression	3	0.03298	0.010992	0.53	0.661
S_UIFWE	1	0.00077	0.000774	0.04	0.847
S_CEO	1	0.02448	0.024476	1.18	0.278
S_Trans and Acc	1	0.00847	0.008466	0.41	0.523
Error	176	3.63654	0.020662		
Total	179	3.66952			

NB: ***<0.01, **<0.05 and * <0.1 at a p-value signify the significances at 1%, 5% and 10% levels, respectively.

Source: Author's compilation (Minitab v17, 2024)

UIFWE has an F-value of 0.04 and a p-value of 0.847, so UIFWE does not significantly impact ROA. The CEO's remuneration has an F-value of 1.18 and a p-value of 0.278, indicating that it has no statistically significant impact on the ROA. On the other hand, TC has an f-value of 0.41 with a corresponding p-value of 0.523, indicating that TC do not have a statistically significant effect on SOC performance (ROA).

The error sum of squares (3.63654) is high, indicating that the amount of variation this model can explain in the dependent variable is small. The regression results gave an F-value of 0.53 and a p-value of 0.661, meaning that the model does not explain the variance of the dependent variable. The p-value consists of various methods, with a common one being 0.05 or lower, which implies that the independent variable influences the dependent variable significantly. The descriptive data is summarised in Table 6.7.

Table 6.7: Summary of the Regression Model

S R-sq R-sq(adj) R-sq(pred)					
Term	Coef	SE Coef	T-Value	*P-Value	VIF
Constant	0.0191	0.0162	-1.18	0.241	
S_UIFWE	0.0021	0.0108	0.19	0.847	1.01
S_CEO	0.0118	0.0108	1.09	0.278	1.01
Trans and Acc	0.0075	0.0117	0.64	0.523	1.00
Yit = -0.0191 + 0.0021 S_UIFWE + 0.0118 S_CEO + 0.0075 Trans & Acc					

NB: ***<0.01, **<0.05 and * <0.1 at a p-value indicate the significances at the levels of 1%, 5% and 10%, respectively.

Source: Author's compilation (Minitab v17, 2024)

The regression output provides various insights into the relationship between the independent variables UIFWE, CEO, Trans and Acc, and the dependent variable. The key findings are summarised and compare with contemporary research. The R-squared, adjusted R-squared, and anticipated R-squared values (not provided) show how the model describes the variation in the dependent variable. However, given the insignificant results of the earlier variance analysis, these values are probably symbolic of a model that is an inadequate fit.

The constant term is -0.0191, implying that if all independent variables (UIFWE, CEO, Trans and Acc) are equal to zero, the corresponding value of ROA is negative. The standard error of the constant (0.0162) shows the variability of the estimate. The t-value of -1.18 shows that the constant does not statistically differ from zero. Generally, a t-value less than ±2 indicates non-significance. The particular p-value (0.241) signals that the constant is not statistically meaningful on a 5% alpha (0.05) level. The implication of this is that the constant is not significant in determining the ROA.

6.5.1 Unauthorised, irregular, fruitless, and wasteful expenditures (UIFWE) on the performance of SOCs

The coefficients revealed that UIFWE had a coefficient of 0.0021, which signifies a

slight positive effect on ROA. This means there is an ROA increase of 0.0021 for each cent growth in UIFWE, but the effect is small in this case, with a coefficient estimate of 0.0480 and a standard error of 0.0108. Receiving a low standard error vis-à-vis the coefficient suggests that the estimate has some precision. The coefficient does not seem significant (t-value = 0.19) as t-values of ±2 indicate significance, while t-values as low as 0.19 suggest there is no meaningful association.

In addition, a VIF of 1.01 was found, suggesting there is no multicollinearity with the other independent variables. This indicates that UIFWE has no substantial impact on the model predictions. The significance level was determined from the p-value of this variable, which was 0.847, indicating that UIFWE does not satisfy the common significance level (0.05). Consequently, no multicollinearity with other independent variables is the concern, which indicates that UIFWE is not statistically significantly associated with the other predictors in the model. In other words, the results show that UIFWE (a measure in this case of political interference and corruption) does not significantly impact SOCs' performance.

The overarching hypothesis presented here is that UIFWE does not directly impact SOC performance in the context of PIC. It conflicts with the conventional wisdom that PIC is the primary impediment to carrying out SOC functions efficiently. While this may be a major factor within the setting of SOC functioning or dysfunctioning, these results suggest that, in this study, PIC may not be as impactful as it is believed to be. PIC matters, but their impact may be less linear or immediate than previously assumed. Results from the analysis indicate that the extent of the association between political interference and SOC performance may vary across countries or types of industries. Other SOCs may or may not experience the same types or degrees of political pressure.

While accepting that PIC factors do not drive SOCs' performance, other studies presented findings. For instance, Ding et al. (2014) discuss the link between political alignment and company performance, claiming that if a firm has politically well-connected CEOs, its performance could improve as long as the ultimate control is still in the hands of the government. This study identifies the benefits that political connections may create for companies, especially regarding governmental ownership

arrangements. This supports the notion that political connections are an asset in some governance structures.

Alsmady (2023) found that political relationships moderate the effects of tax avoidance on corporate performance in Jordanian companies (specifically, the relationship turns from positive to negative as political connections strengthen). From the perspective of Islamic governance, grounded in Sharia teachings, these insights reveal the complexities of the relationship between politics and business performance. The ethical and moral life must give a basis for Sharia, whose emphasis on justice, transparency, and accountability fundamentally lays the foundation for the interest of ownership structure and business practices (Farhan, Farhan, Kusumawardani, Kusumawardani & Lakilaki, 2024: 3892).

Inoue (2020) found that political connections positively impact SOC performance, which indicates that SOCs' financial performance can be increased through political connections. This is consistent with research suggesting a more nuanced role of political connections in corporate governance. Although political connections can positively moderate the impact of independent commissioners on earnings management reductions, they have no effect on the improvement of AC expertise for the alleviation of real and accrual earnings management (Auliana, Subroto & Subekti, 2023). These results illustrate that political interference impact corporate outcomes as some literatures have addressed the issue using political agency theory to reduce agency costs in SOCs (Jin, Xu, Xin & Adhikari, 2022; Sidki, Boerger & Boll, 2023).

While evidence shows political connections increase corporate performance, other research suggests PIC decreases SOCs' performance. Baum, Hacknay, Medas, and Sy (2024) show that both SOCs and private enterprises perform better in less corrupt environments but underperform dramatically in corrupt environments. More specifically, Shaikh (2022) argues that SOCs are prone to political interference and interference that can manifest as inefficiency, fraud, waste, and errors (UIFWE). Their analysis showed that just 1% of SOC disclosures included these challenges, indicating that some businesses may skirt around this issue of being transparent in their disclosures due to reputational concerns.

These findings are consistent with studies by Mutize (2018), Andres, Garcia-

Rodriguez, Romero-Merino and Santamaria-Mariscal (2021), Ali, Iftikhar, Ahmad, Hussain and Ali (2022), and Aniobi, Solanke and Olawhinde (2023) who identified a negative relationship between political interference, corruption, and company performance. Qhobosheane (2018) explored the effect of political interference on the SABC and found that corruption and a lack of accountability derail corporate governance, which in turn leads to performance degradation. Moreover, a study conducted by Martin and Solomon (2016) revealed that the misappropriation of funds due to corruption not only adversely affected the performance of SOCs but also resulted in unfavourable audit opinions such as qualified or disclaimed reports.

The performance of SOCs is also influenced by PIC as the impacts of these issues can vary dramatically based on the political, cultural, and economic systems of various regions, shaped partly by governance models. A deep tolerance for corrupt practices within SOCs promotes inefficiency and poor performance (Farhan et al., 2024: 3903); in Islamic states, corruption can be further amplified by political interference arising from religious or ideological interests. Secular countries, on the other hand, typically separate religious influence from governance. Accountability, through legal and institutional frameworks designed to counteract corruption, is at the heart of secular governance models.

This weakens secular governance models considerably in BRICS countries by making transparency, accountability, and public trust victims of robbing. PIC do not only undermine the rule of law but also prevent democratic processes from functioning by concentrating power in the hands of corrupt elites and promoting political instability. This phenomenon does not go unpunished; in Brazil, the maximum punishment for corruption is 12 years, and in Russia, it is up to 15 years. In India, these crimes can draw sentences of between three and seven years; in China, the maximum penalty is usually 10 years.

In South Africa, the punishment is ambiguous as it is based on the severity of the offence. Authorities handle corruption cases individually, often without imposing jail sentences. For example, despite the widespread state capture scandal, those responsible for this major act of corruption have not faced significant legal consequences or imprisonment. This lack of consistent legal repercussions for

corruption in South Africa raises concerns about the effectiveness of the country's anti-corruption measures and its commitment to accountability.

Although this study found that UIFWE does not have a direct effect on organisational performance, its findings contrast with those of other studies, which suggest that UIFWE negatively impact performance, particularly in SOCs (Mutize, 2018; Andres et al., 2021; Ali et al., 2022; Aniobi et al., 2023). This study did not apply stewardship theory to explain how PIC impact organisational performance because it suggests that political pressures induce appropriate incentives for corrupt behaviour, threatening the steward's role in preserving trust and integrity in the public.

The absence of a noticeable impact of PIC on performance could be that restrictions on data are patchy or incomplete, and political interference is not about direct performance changes. Such interference may not be immediately apparent in standard performance indicators but will slowly erode the organisation's efficacy over time. The analysis demonstrates that standard indicators of performance cannot capture more nuanced impacts of political pressures and that there is a need for greater developmental measures of governance and performance within SOCs.

The overall conclusion corroborates the long-held argument that PIC have a negative effect on performance and further conflict (agency costs) between the agent and principal. This highlights the necessity of a clear definition of roles and a common interest, which aligns with agency theory's core principles concerning the risks involved in principal-agent conflicts, especially in political environments. Therefore, agency theory grounds this study in an understanding of the dissonance that political intervention and corruption can create regarding how the organisation is intended to function and the actions of its agents.

6.5.2 CEO remuneration

The regression analysis of CEO remuneration produced a coefficient of 0.0118, with an associated standard error of 0.0108. This coefficient indicates a positive, though minimal, relationship between CEO remuneration and Return on Assets (ROA), suggesting that increases in ROA may be associated with modest increases in executive compensation. However, the small magnitude of the coefficient, coupled

with its relatively comparable standard error, reflects a high degree of uncertainty surrounding the estimate. The computed t-value of 1.09 further supports this interpretation, as it does not exceed the conventional thresholds for statistical significance. Therefore, these results indicate that there is not enough evidence to claim that CEO pay has a significant impact on ROA in this model.

Moreover, the results showed a VIF of 1.01; this implies that the independent variable has a statistically insignificant relationship with the dependent variable. Thus, the model is stable, and the coefficient projection is accurate. The results demonstrated a p-value of 0.278, which is greater than 0.05. This p-value indicates that there is insufficient evidence to support the conclusion that the coefficient is substantially different from zero. As a result, the independent variable (CEO remuneration) has no statistically significant effect on the dependent variable (ROA). This means there is substantial evidence to reject the hypothesis that says the two have a significant association.

This finding is consistent with a few studies that have also failed to identify a significant correlation between CEO remuneration and company performance in both international and domestic literature. For instance, Ayodele (2021), Bezuidenhout (2016), Bussin and Nel (2015) and Bradley (2013) note no correlation with respect to CEO remuneration and company performance. More recently, Siwendu, Swanepoel and Stumke (2024) note weak-to-strong correlations (range of possible relationships between two variables) between CEO compensation and company financial performance. However, Bezuidenhout and Bussin (2020) found an inverse relationship between CEO remuneration and SOC performance, highlighting a strong correlation between turnover and both fixed and total compensation.

A considerable body of literature has established a positive correlation between CEO remuneration and company performance (Ohidoa & Kolade, 2024; Okpo et al., 2023; Rahayu, Harymawan, Nasih & Nowland, 2022; Wang et al., 2021; Ndlovu, Mutambara & Assensoh-Kodua, 2017). Similarly, a recent study by Özer, Aktaş and Merter (2024) corroborates these findings, revealing a positive and statistically significant relationship between board members' remuneration and company performance. Thus, proponents of this correlation argue that competitive and attractive remuneration plays

a significant role in attracting competent individuals, particularly in leadership positions, which, in turn, drive the improvement of the company.

On the other hand, studies by Kyalo (2015), Ngwenya (2016), Aduda and Musyoka (2011), Tariq (2010), Jiang, Habib and Smallmon (2009), and Akter, Ali, Abedin and Hossain (2020) also discovered strong negative associations between remuneration and firm performance. They argue that such a compensation structure does not provide an incentive for optimal performance. These findings were further corroborated by a recent study by Mohammed (2023), who noted that salaries, bonuses, and stock-based compensation negatively affect the ROE of the non-financial listed companies in Nigeria.

While existing literature shows a divergence in findings regarding the effect of ER and company performance, this study contributes to the novel insight by presenting the most recent developments in SOCs within the sector that imply that high executive pay does not necessarily translate into improved company performance. An example of this is the case of Eskom, where, despite executives receiving a substantial total remuneration package of R12.5 million, the power utility struggled to maintain consistent service delivery, resulting in a loss during the 2023 financial year. This case demonstrates how this disconnect can happen, reinforcing the argument that higher compensation may not always translate into improved performance.

In conclusion, the compensation packages for executives should be linked to performance outcome measures on financial, non-financial, and developmental aspects together with a clean audit to make a tangible impact on performance. Such a multi-faceted approach will decrease agency costs and encourage a more cooperative agent-principal relationship that promotes a shared interest in collaborating and subsequently enhancing SOCs' overall performance. In light of these findings, the study contends that, to build a strong, performance-based executive pay structure, SOCs must include additional performance criteria that represent both developmental growth and the achievement of clean audit results. This strategy will ensure that executive compensation is both a driver of corporate success and a mechanism for greater accountability in the management of SOCs.

6.5.3 Transparency and accountability

The results for this variable transparency and accountability, show a Coef (coefficient) of 0.0075 and a SE Coef (standard error of coefficient) of 0.0117. Thus, Coef predicts that the independent variable (transparency and accountability) is expected to increase by 0.0075, assuming that all other factors are unchanged. The reduced SE Coef error of 0.0017 indicates a more precise estimate. The displayed t-value of 0.64 determines the coefficient's importance calculated by dividing the coefficient by the standard error. A t-value of zero indicates that the coefficient is not substantially different from zero.

In addition, the outcome showed a VIF of 1.00, the absence of multicollinearity as a transparency and accountability variable. So, the VIF 1.00 indicates that there is no correlation between transparency and accountability with other predictors in the variable. Lastly, the p-value was 0.523, meaning there is a 52.3% chance that we would observe this data if the null hypothesis (that the coefficient is equal to zero) was true. Hence, the high p-value of 0.523 indicates that transparency and accountability are statistically insignificant to the performance (ROA) of SOCs in South Africa.

The results are consistent with those of Agustiawan and Halim (2019), who observed that transparency and accountability did not influence the performance of public sector companies. Mwayungu (2021) found no significant correlation between corporate social responsibility (CSR) disclosure and company performance as assessed by profitability. Desi, Heriningsih and Windyastuti (2021) discovered that accountability did not affect budget performance concerning the notion of value for money. The findings suggest that SOCs are not required to report certain non-financial information, as it does not impact their performance. This contradicts specific legal requirements that mandate SOC disclosure of non-financial performance information, which aligns with legitimacy theory.

Other researchers indicated positive results regarding the effect of transparency and accountability on company performance. For instance, Olwol, Mpora, Kayongo and Benson (2022) demonstrated that accountability has a positive and significant impact on the performance of the National Water and Sewerage Corporation in Uganda. Scholars, including Emodia and Mwanzia (2021), Laimaru (2018), Andriana,

Pituringsih and Surasni (2018), Agwor and Akani (2017), Mutegi and Ombui (2016), and Ullah, Rehman and Waheed (2016) made similar findings. The positive influence of transparency and accountability on financial performance is that, in the long run, accountability could boost financial performance and mitigate potential risks resulting from unappealing management behaviours (Bett, Andemariam & Abraham, 2024).

In contrast to the positive effect, Selcuk and Kiymaz (2017) found a negative relationship between CSR (proxy of transparency and accountability) and financial performance, implying that firms that disclose more information about CSR initiatives in their annual reports have a lower ROA. Bird, Hall, Momente and Reggiani (2007) had similar findings, while Peloza (2009) discovered an inverse finding in a meta-analysis of 128 empirical studies. Most studies show a positive relationship between CSR and financial performance (63%); 15% of studies report a negative relationship, and 22% report a neutral or mixed relationship.

Although there has been considerable research on this topic, there is no agreement on how transparency and accountability affect company success. However, most empirical literature provided strong evidence supporting a positive effect, the perspective consistent with stakeholder and legitimacy theory. This study is consistent with these findings, underscoring the multifaceted implications of transparency. Transparency has a variety of consequences, such as corruption avoidance, identification of weaknesses and strengths in the implementation of public policies, accountability of an organisation that is more achievable, enhancements of trust in the commitment of the organisation, improvements in social cohesion based on public trust, and the creation of a better environment for investigation and increasing business certainty (Andrianto & Wahyudi, 2007).

South Africa could leverage the oversight capacities of Chapter 9 institutions, especially the Public Protector, the South African Human Rights Commission and the Auditor-General, to enhance the role of TC in improving SOC performance. These agencies play a pivotal role in ensuring the adherence of SOCs to governance norms and the availability of financial and operational data for the public domain. The institutions collectively, including SOCs, can build good governance, accountability, integrity and ethical behaviour in the public sector. These characteristics should

extend through all tiers of the organisation, from the top to the bottom, the final link of the chain (Thusi & Mashabela, 2023: 175).

Although the analysis found that TC did not affect the performance of SOCs, this study emphasis the effect noted by others. In this context, the theory of legitimacy posits that, when public trust and accountability are very high, transparency is the indicator of legitimacy, meaning what they do follows the nature of the society and meets the legal demands. Transparent financial reporting, decision-making processes and operational strategies will build stakeholder trust and improve performance. This aligns with stakeholder theory, which proposes that, for organisational success, the entity needs to handle stakeholders effectively. A lack of transparency breeds mistrust and disengagement among stakeholders.

6.6 Chapter conclusion

This chapter presented the results of the panel data regression models used to address secondary research objectives 1–4. The quantitative analysis covered the years 2013 to 2022. First, the PCI, developed in the main research objective, was applied to present the results of the secondary research objective 1 (RO1). The PCI resulted in some salient insights, indicating that it can generate positive outcomes. More specifically, applying the PCI offered validated the importance of making observations and correlations to deepen insight into performance compliance and its implications. This highlights the usefulness of the PCI as a novel resource for assessing the association between performance indicators and organisational results.

Additionally, this chapter presented the performance differentials between SOCs that are wholly and partially state-owned, as described in RO2. It applied t-test model analysis to allow subsequent comparisons between the two groups from a statistical point of view. Ninety percent (90%) of the cases analysed showed no performance differentials between the two groups of companies, while 10% had divergences in performance. A comparative analysis in RO3 was also performed with regard to major SOCs that fell into these DPE subcategories and those that did not. Thus, 75% of the results showed no performance differentials between the two groups; the remaining 25% showed significant differences in performance.

Ultimately, the findings of RO4 were revealed, whereby three predictors (UIFWE, CEO pay, and accountability and transparency) were examined to evaluate their impact on the performance of SOCs. The findings provide compelling evidence that these three variables don’t significantly drive organisational performance within SOCs. Specifically, the analysis demonstrates that a robust financial and ethical work environment, aligned executive compensation, and enhanced accountability and transparency contribute to improved performance outcomes. Outcomes reinforce these variables' important role in driving organisational performance for SOCs. Chapter 7 presents a summary of the main findings, recommendations, contribution of the study, limitations of the study, and future areas of research.

CHAPTER 7: SUMMARY OF KEY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

7.1 Introduction

The aim of this study was to develop a Performance Compliance Index (PCI) to assess and improve the performance of major SOCs in South Africa. Historically, there has not been a universal, objective measurement for SOC performance compliance to facilitate monitoring and improve operational efficiency, which is critical to the national economy. The study was motivated by the absence of a comprehensive performance compliance tool or framework for assessing and improving the performance of SOCs. Thus, the aim and objectives of this study were achieved and supported by the following secondary objectives:

1) RO1: to evaluate the performance levels of major SOCs in South Africa.
2) RO2: to assess and compare the performance differences between wholly owned and partially owned SOCs in South Africa.
3) RO3: to compare the performance differences between major SOCs that were part of the DPE and those that were not.
4) RO4: to identify the key drivers that influence the performance of major SOCs in South Africa.

The achievement of the above secondary objectives (RO2-RO5) was achieved by a methodologically rigorous and analytically robust approach that allowed for a full review of South African SOCs.

This chapter is organised to synthesise the core findings of the research, appraise its scholarly relevance, and communicate its practical and theoretical implications. Section 7.2 presents a concise summary of the important findings, demonstrating a thematic reflection on the results discussed in previous chapters and highlighting how these findings agree with, challenge, or extend current understandings in the relevant field. Following this, section 7.3 discusses the study's contributions to both existing and emerging bodies of knowledge.

Section 7.4 discusses the study's limitations, including methodological, conceptual, and contextual constraints that may have influenced the extent or generalisability of the findings. Section 7.5 of the chapter provides specific recommendations based on the study's findings, aimed at stakeholders such as policymakers, practitioners, and institutions in the research setting. Finally, section 7.6 provides recommendations for future research and suggests areas that require further research.

7.2 Summary of the key findings

This section presents the summarised research findings based on the aim and objectives of this study.

7.2.1 Primary objective

The development of the PCI was informed by inputs gathered from a panel of experts via the Delphi technique. Using this method, the experts advised which performance indicators should be included and which to exclude based on four important components: the PFMA, corporate governance, human capital, and the developmental checklist. The experts rated each indicator on a binary scale; a "1" was assigned if an indicator should be reported, and a "0" was allocated if the indicator should not be reported. This Delphi technique was performed over two consecutive iterations to reach saturation and to reach a consensus on the final set of indicators.

The Delphi technique carefully developed the PCI while considering the expert agreement in the field, increasing its validity and reliability in SOC performance evaluation. The Delphi technique unfolded in two separate rounds, with a 14-day period for the first round when the questionnaire was closed and a 10-day period for the second round to achieve saturation and consensus. For both rounds, a threshold of 51% agreement among the experts was used to include an indicator for consideration. This threshold served as the minimum criterion for determining the relevance and applicability of each indicator, ensuring that only those deemed critical to the assessment of performance compliance were incorporated into the final index.

After soliciting the input from the second round, a Z-score algorithm was incorporated into the final PCI. This resulted in a standardised performance measure for three performance aspects: financial, non-financial, and developmental. This approach

examined the overall performance of SOCs and confirmed that the PCI was robust, reliable, reached by professional consensus, and empirical statistical verification. Therefore, the final developed PCI consists of a total of 43 indicators.

These indicators were distributed across four key domains in the PCI: the PFMA, which includes 12 indicators; the CGI, which includes nine indicators; the HCI, which includes 10 indicators; and the DPI, which includes 12 indicators. The financial performance of the PCI is assessed through a Z-score, i.e., 1.2A × 1.4B × 3.3C × 0.6D × 0.99E. This formula assesses the financial health of SOCs. Thus, the PCI is presented in Appendix A.

7.2.2 RO_1

The assessment of the performance levels of SOCs in South Africa was successfully accomplished through the application of the PCI developed in RO1. The four performance indices, PFMAi, CGI, HCI, and DPI, were employed as independent variables to examine their relationship with the performance of SOCs. ROA was used as a proxy for the performance of SOCs. Thus, the next subsections provide a summarised overview of the results for each variable and how they contribute to the performance outcome as reflected in the ROA.

Using the Z-score index as a proxy for financial performance revealed a statistically significant negative correlation on ROA. This result implies that the major SOCs classified in Schedule 2 of the PFMA in the study period (2013-2022) were driven by a greater risk of financial distress or insolvency. Conversely, the weak negative correlation of the two variables reveals that these SOCs had a substantially higher risk of financial distress or insolvency. This state of financial vulnerability led to their failure to deliver on the imperatives and obligations of service delivery, leading to these companies' financial health declining even more.

The analysis of the effect of the PFMAi on the performance of SOCs revealed a positive relationship between the two variables. While the results indicate a positive correlation between the PFMAi and performance, this relationship was statistically insignificant. This means that, although the adoption of the PFMA does not directly impact the financial performance of SOCs, it is an essential element driving adherence to the

regulatory environment that originated from the Treasury Regulations (TR). By promoting compliance with such rules, the PFMAi supports sound financial management, transparency, and accountability, which are the pillars of good governance. Though the PFMAi's impact on performance may be limited, the PFMAi improves and sustains the establishment and operational environment for SOCs to be successful over the long term in South Africa.

Examining the impact of the CGI on the performance of SOCs provided a statistically significant positive relationship. This means that adopting and applying CGI to measure and enhance the performance level of SOCs yields good results. Specifically, as proxied by the CGI, corporate governance practices are associated with increased operational efficiency, strategic alignment, and improved financial performance of SOCs. Initiatives, such as CGI, that significantly impact sustainability highlight the need for strong governance frameworks as a prerequisite for organisational success, compliance, and sustainability of SOC performance in South Africa. Such a shift will enable SOCs to fulfil their strategic purpose and satisfy public expectations, ultimately contributing to more effective public sector management in South Africa.

The analysis of the HCI and its effect on the performance of SOCs was found to have a positive correlation and to be statistically insignificant. The significance of HCI on performance is not strong enough to be the definitive factor of SOC performance level. However, HCI positively affects SOC performance. Despite the statistical correlation between human capital and performance being questioned, investment in training, skills, and employee engagement are proven drivers of operational effectiveness and long-term sustainability. Thus, SOCs need to nurture the recruitment and retention of human capital to enhance their overall organisational effectiveness.

Analysis of the impact of the DPI on performance (assessed by ROA) indicates a significant negative relationship. However, this study encourages the adoption of the DPI as a tool to assess and improve the performance of SOCs towards achieving developmental goals. As a result, the DPI enhances legitimacy with stakeholder groups and builds public trust by clarifying whether SOCs fulfill their social and developmental mandates. SOCs can, therefore, hold themselves accountable for their socioeconomic responsibilities by tracking their developmental performance, even if

such measures do not immediately translate into financial success.

7.2.3 RO_2

The empirical research used a t-test to determine the difference in performance between wholly owned SOCs and partially owned SOCs in South Africa. The results showed that 95% of the analyses supported the null hypothesis (H0) that there is no performance difference between the two types of companies. It implies that the SOCs' performance outcomes are not defined by the ownership model, either wholly or partly. The remaining 5% of the analysis identified statistically significant differences in performance between certain SOCs supporting the alternative hypothesis (H1), This implies that while ownership structure may not be a decisive factor in performance at the aggregate level, specific cases may exhibit differential outcomes due to other variables.

7.2.4 RO_3

The empirical study used an independent samples t-test to compare performance differences between major SOCs under the Department of Public Enterprises (DPE) and those outside of its authority. The research found that, in 75% of the cases, there were no statistically significant differences in performance between the two groups, demonstrating that DPE membership does not have a consistent impact on performance results. These findings supported the decision to reject the alternative hypothesis (H_1) of performance differences and accepting the null hypothesis (H_0) of no differences. Therefore, 25% of these diverged findings suggest that while DPE affiliation alone may not be a crucial determinant, other variables, such as sector classification and operational context, may have a significant impact on shaping SOC performance patterns.

7.2.5 RO_4

In analysing the key drivers of the performance of SOCs, the study used three factors to determine if they are drivers of the organisational performance of SOCs, including unauthorised, irregular, fruitless and wasteful expenditures (UIFWE) (proxied by political interference and corruption), CEO remuneration, and accountability and

transparency (proxied by corporate social responsibility (CSR), enterprise and supplier development (ESD), and environmental, social and governance (ESG). These factors were selected based on their potential to significantly impact the environmental, operational space, socioeconomic impact, and long-term sustainability of SOCs. Thus, the findings of the individual factors' impact on performance are presented below.

When assessing the relationship between political interference and corruption and performance, as measured by return on assets (ROA), the results revealed that no statistically significant relationship exists between the two variables. This finding implies that, within the scope of this study, political interference and corruption do not appear to influence the performance of SOCs directly. However, the absence of this relationship does not disqualify the large body of literature that has identified a consistent negative correlation between political interference, corruption and organisational performance.

In fact, much of the existing literature and their key findings indicate that such factors are detrimental to the effectiveness, transparency, and accountability of SOCs and lead to poor performance. Therefore, while this study's findings do not support a direct link, they do not dismiss the broader theoretical understanding that political factors may, over time, contribute to performance challenges in SOCs.

When assessing the relationship between CEO remuneration and the performance of SOCs, the results show that there is no statistically significant relationship between the two variables. These results indicate that CEO remuneration is not a key determinant of SOC performance. In other words, high-level executive compensation does not result in better company performance (as measured by ROA).

This implies that factors other than executive pay, such as management practices, governance structures, or external market conditions, are more influential in shaping the performance outcomes of SOCs. In conclusion, although CEO remuneration is indeed a relevant consideration for talent attraction and retention, it cannot be viewed as a direct lever for enhancing organisational performance in the context of SOCs.

When assessing the relationship between transparency and accountability on the performance of SOCs, the analysis shows that there is no statistically significant

relationship between the variables. The findings of this study imply that transparency and accountability do not directly drive organisational performance in the context of SOCs. Nevertheless, the lack of a statistically significant relationship in this study does not call into question the significant amount of literature that consistently identifies a relationship between these variables and performance.

Evidence shows that transparent and accountable governance practices promote stakeholder trust, improve organisational legitimacy, and ultimately lead to better performance. As a result, SOCs are constitutionally mandated to serve socioeconomic and developmental objectives, and that appropriate governance-related disclosures and reporting are important enough to maintain public trust and stakeholder buy-in.

7.3 Contributions to new and existing bodies of knowledge

The study contributes significantly to both the existing and emerging body of knowledge in the public sector in three dimensions, including the empirical, theoretical, and methodological contributions.

7.3.1 Empirical contribution

This study makes a valuable contribution to the body of knowledge by developing the study and providing empirical evidence on the development and application of the PCI to improve the performance of major SOCs through the analysis of performance differentials and drivers. This research bridges the gap in existing literature, which has predominately focused on limited or isolated dimensions of performance, by introducing the PCI as a comprehensive and integrative tool for evaluating the performance metrics in more complex and interrelated forms.

The second contribution of this study to the empirical literature is providing evidence of applying the PCI to analyse the performance levels of SOCs. Utilising a holistic and multifaceted instrument, this paper reveals a new understanding of the assessment process. It provides a wider perspective on the performance indicators than the historically used financial and non-financial measures.

The third empirical contribution is the revelation that the application of PCI does not result in performance differences and levels among SOCs, regardless of their

classification (wholly owned vs. partially owned). These findings challenge conventional assumptions about the impact of ownership structure on the performance of SOCs; instead, the finding implies that factors, such as ownership structure, are not critical in determining the success or failure of SOCs.

Finally, the study adds to the existing literature by presenting fresh evidence on the drivers of organisational performance of SOCs in South Africa, supporting the work of Limbo (2019) and Mbo (2017). This study builds a historical context for understanding SOC performance using performance drivers covering unauthorised, irregular, fruitless, and wasteful expenditure (UIFWE), CEO remuneration, transparency, and accountability.

7.3.2 Theoretical contribution

This thesis makes a valuable contribution to the body of knowledge by providing a theoretical framework (see Table 7.1) to assess and improve the performance of SOCs. Previous literature has proposed a range of theoretical frameworks that provide valuable insights into the performance of SOCs, including agency theory, stakeholder theory, legitimacy theory, accountability theory, resource dependency theory, and stewardship theory (Adebayo & Ackers, 2024; Mulenga, 2024; Mpete & Maier, 2024; Kaunda & Pelser, 2023; Tanwer & Garg, 2024). However, the most important theoretical contribution of this study lies in applying four major theories to assess and explain SOC performance: stakeholder theory, agency theory, stewardship theory, and legitimacy theory. Table 7.1 summarises the theoretical contribution of this study.

Table 7.1: Theoretical contribution of this study

Theoretical framework	Relationship between theory and performance factors	Supporting or refuting
Stakeholder theory	• Developmental performance index (DPI) [Corporate social responsibility (CSR); Enterprise supplier development (ESD); Environmental, social and governance (ESG)] • Accountability and transparency	Supported
Agency theory	• CEO remuneration • PIC • DPI (ESD)	Supported
Stewardship	• DPI (ESG & CSR)	Supported
Legitimacy	• Accountability and transparency • DPI (CSR; ESD; ESG) • HCI • CGI • PFMAi	Supported

Source: Researcher's compilation (2024)

Table 7.1 illustrates that this study applied a multi-theoretical approach to explaining the performance drivers and performance differentials of SOCs. The study's findings support the relationship and application of the four theories: legitimacy, stakeholder, agency, and stewardship. This study builds on the work of Tjano (2021), which is the only existing research to date that has utilised multiple theoretical frameworks in the context of SOCs in South Africa. However, the application of the multi-theoretical approach of this study is premised on the pragmatic paradigm foundation.

The analysis supported the applicability of stakeholder theory to two performance factors (developmental performance Index (DPI), and accountability and transparency), highlighting how diverse stakeholders and their interests must be effectively managed to achieve better organisational performance. Conversely, agency theory was also supported by three performance factors (CEO remuneration, PIC and DPI). This shed light on how governance structures, principal-agent dynamics, and alignment of interests between managers and the state shape the performance of SOCs.

Stewardship theory is also supported by performance factors (DPI), which demonstrates a relationship in which the impact of managerial stewardship on long-term organisational success will remain positive when trust and autonomy are properly maintained. Legitimacy theory is overwhelmingly supported by five performance factors (accountability and transparency, DPI, HCI, CGI and PFMAi). Therefore, this study recognises legitimacy theory as the dominant and most suitable theory to underpin the analysis of SOC performance. This aligns with Matakanye (2022) and Nemes et al. (2022) who argue that legitimacy plays a critical role in holding companies accountable, driving transparency, and aligning with the public's expectations.

However, the overwhelming support for legitimacy theory does not negate the assertion that no single theory can describe the complexity of the research problem or capture all hypothesised relationships among variables (Tjano 2021: 172-173). Each theoretical framework has its pecuniary limitation; therefore, by adopting a multi-theoretical perspective, the study provides a holistic view of the dynamics that influence SOC performance. Thus, the theoretical framework of this study supports the use of multiple theories, with legitimacy theory serving as a crucial lens for explaining and assessing the performance of SOCs. This multiple theoretical lens explains the performance and performance differential between SOCs more holistically, emphasising a coalition of all factors driving organisational performance in the public sector.

7.3.3 Methodological contribution

The contribution of this study to the methodological approach aligns with previous research, particularly the work of Matemane et al. (2022), Ambe (2021), Jamil et al. (2020), and Chikutuma (2019), who also applied the Delphi technique in similar contexts. These studies have demonstrated the effectiveness of the Delphi technique in soliciting expert opinions and achieving consensus on complex issues. Thus, Table 7.2 summarises the Delphi techniques applied by the studies cited above, comparing how this method has been used to generate performance indices, assess organisational efficiency, and improve governance practices in various contexts.

Table 7.2: Summary of Delphi techniques applied in previous studies

Study	Objective	Delphi technique	Key findings
Matemane et al. (2022)	Rank the importance of ESG-based indicators using analytical hierarchical process and Delphi techniques	Used the Delphi technique to identify and refine key indicators.	Expert consensus led to a refined set of hierarchical ESG indicators.
Ambe (2021)	To develop a Public Accountability Disclosure Index (PADI) and Annual Report Quality Index (ARQI)	Used a weight of disclosure and quality categories weights from the two Delphi sequential rounds.	Resulted in the development of a robust accountability index (PADI) and annual report quality index (ARQI)
Jamil et al. (2020)	To develop a non-financial risk disclosure index	Used the Delphi technique to develop a non-financial risk disclosure index	Resulted to non-financial risk disclosure index.
Chikutuma (2019)	To apply a weighted polychotomous accountability index (PAI)	Used the Delphi inquiry technique to develop the PAI	Consensus of experts led to the development of PAI

Source: Researcher's own compilation (2025)

This table illustrates how the Delphi technique has been employed across different studies to solicit expert inputs and offer insights on a particular matter.

First, this study presents a valuable methodological approach suitable for developing a PCI. This approach uses the Delphi technique to solicit expert inputs in two sequential rounds for developing the PCI. This approach is well-designed to ensure the capture of expert consensus by refining the performance indicators and ensuring that the PCI represents the inputs and views of knowledgeable professionals in the field. This methodological approach builds on previous work, such as that by Ambe (2021), who employed a similar Delphi-based method to generate a Public

Accountability Disclosure Index (PADI).

However, what distinguishes this study from previous research is its adoption of an exploratory sequential mixed-method approach, which sets it apart from previous studies in developing the PCI. Therefore, the methodological innovation of this study provides assistance in developing the PCI into a sound assessment tool for SOCs in South Africa, not solely in the context of SOCs, but also in the broader field of public sector performance measurement.

A further contribution of this study is combining two distinct techniques: the Delphi technique questionnaire and content analysis of annual reports. The findings benefit from a multi-method perspective of SOCs in different dimensions, as the methodological integration strengthens their robustness. Using expert consensus, the Delphi technique can be used to identify relevant performance indicators. On the other hand, content analysis of annual reports using archival data can provide empirical data that reflects the actual performance of SOCs over time.

Using a combination of methods adds depth and richness to the findings so the results from one method can be used to explain and contextualise the findings of the other. For instance, expert opinions during the Delphi rounds provided a theoretical basis for understanding the performance indicators derived from the content analysis of the annual reports. The reported performance data, in turn, served as a real-world validation of the expert-sourced PCI framework. This cross-method validation further contributes to the robustness of the findings, as cross-validating the results through such different methodologies allows for greater confidence in the conclusions drawn from them while simultaneously providing a more profound insight into the conditioning factors (Chikutuma, 2019: 313).

7.4 Limitations of the study

Like any research, this study has certain limitations. A primary limitation lies in the potential subjectivity involved in the development of the PCI and the coding procedures applied during the content analysis. To mitigate this, efforts were made to address this using the Delphi technique by interactively engaging a panel of experts to reach a consensus. Thus, some degree of subjectivity may have influenced the

selection of indicators and the interpretation of data.

An additional limitation was based on the use of financial and non-financial process data, mainly from annual reports, which may be difficult to access. While annual reports are data sources, they can also vary in terms of transparency and completeness. Therefore, at least three of the 21 Schedule 2 SOCs were omitted from this study, as their complete annual reports for the study period were not accessible. Despite this limitation, the results obtained in this study present valuable insights and lessons learnt that may be beneficial for future research and practical improvements.

While this study used data from the 2013-2022 period, prior to the dissolution of the Department of Public Enterprises (DPE) and the subsequent reassignment of State-Owned Companies (SOCs), the findings still provide useful historical context and baseline insights into SOC performance trends and governance practices. To address the limitations of not capturing post-restructuring dynamics, the study focuses on long-term patterns and systemic difficulties that are likely to continue after administrative changes. Furthermore, the data can be used for comparison analysis in future research on the impact of post-2022 governance improvements, including as changes in board composition, management, and shareholder involvement.

7.5 Recommendations of the study

Based on the findings, this study makes the following findings available to various stakeholders, including the National Treasury, government departments, policymakers, researchers, the public, and other interested parties in SOCs:

7.5.1. The National Treasury and policymakers should actively encourage SOCs to adopt and apply the PCI recommended by this study to assess, monitor, and improve the performance of SOCs. The PCI integrates and evolves a comprehensive and multidimensional approach to performance evaluation and propels beyond the traditional financial and non-financial metrics to include novel developmental performances. Thus, instituting such a tool will put the National Treasury and policymakers in a better position to initiate meaningful reforms towards improving the efficiency, effectiveness, and sustainability of SOCs to deliver the country's socio-economic development objectives.

Therefore, such strategies should include broader developmental imperatives and short-term financial outcomes, enabling SOCs to balance fiscal discipline and sustained societal impact. Integrating these dimensions into performance assessment is not simply recommended for this critical sector but is essential for developing sustainable growth and enhancing the organisation's overall effectiveness.

A critical policy discussion is suggested on promoting knowledge sharing, adopting best practices, and implementing a universal approach across SOCs to mitigate the detrimental effects of interference factors, such as political interference and state capture, at the strategic and operational levels. This discussion should stimulate cross-functional interaction and collaboration between SOCs to help them gain organisational autonomy. This degree of independence is essential for the operational functionality and strategic direction of SOCs, allowing them to concentrate on their long-term goals without interference from outside forces.

Therefore, the empirical findings of this study show that the absence of statistically significant performance differences between SOCs, regardless of ownership structure or classification, highlights factors in the wider system beyond ownership. Thus, it is essential to emphasise policies promoting autonomy, governance frameworks, and operational independence as practices and procedures that will standardise and provide cohesion, protect against external interference, and promote the long-term viability of all SOCs.

The National Treasury, government, and policymakers may develop a standardised, performance-based remuneration system incorporating SOCs' overall performance and executives within SOCs. Such a framework should clearly tie compensation (salary packages, bonuses, and increments) to achieving a wider range of performance outcomes (financial, non-financial, and developmental) and a clean audit opinion. Ultimately, this remuneration framework should be a policy, not simply a regulation or a directive, to guarantee consistency and minimise the risk of (differentiation in) application across SOCs, considering the need for consistency and alignment to strategic goals. Such a policy approach will also drive better performance and enhance accountability and transparency in SOCs, which will be foundational to better governance and operational efficiency.

7.6 Recommendations for further research

Due to the findings of this research, it is recommended that future research could be conducted focusing on the following areas:

More research will need to prioritise a greater diversity of input by multiple expert panels from different areas of knowledge to better contextualise the findings. Such studies would build on this work, for example, by expanding the PCI and enhancing understanding of key issues by synthesising socially shared perspectives from diverse experts within the SOC sector, thereby contributing to validation and broader applicability.

Future research may assess the plausibility of broadening the timeframe within the data collection well beyond the 10-year period after the DPE was dissolved and SOCs were reassigned to different arms of government. Combining the data with a broader post-dissolution timeframe would allow for more intricate analyses to be conducted, to map the dynamics of SOC performance across settings and organisational parameters.

Future research could consider a comparative study between two jurisdictions, such as benchmarking South Africa against other developed countries and using the Delphi technique to develop a standardised CEO and executive remuneration framework.

Future research efforts should be initiated, extending beyond the 10-year data period, to develop a more comprehensive and robust performance technique. These models should tie together tight financial controls, corporate governance, financial stability, and developmental goals to optimise both short-term profitability and long- term sustainability for SOCs. In this sense, a concerted, multi-disciplinary effort is required to address existing performance evaluation systems' existing limitations, enhance governance frameworks, and develop more integrated strategic approaches.

7.7 Summary

In conclusion, this study has developed a comprehensive PCI as an innovative framework to enhance the performance of SOCs in South Africa. This study fills an important gap in how we measure performance by going beyond just financial and

non-financial indicators to include the aspect of developmental performance. By identifying important differences and factors that affect performance, the study provides a complete and varied way to assess how well SOCs are doing and how they meet their goals in line with national development aims. This synthesis of diverse performance metrics not only elevates accountability and transparency but also ensures that SOCs are evaluated in a manner that reflects their broader societal impacts. The resulting index contributes to both theory and practice by offering policymakers, regulators, and managers a robust, contextually relevant tool to monitor, guide, and enhance the strategic orientation of SOCs toward sustainable and inclusive development.

REFERENCES

11th International Anti-Corruption Conference Report. 2003. Corporate governance in the post-Enron era, political party finance, recovery of stolen assets, money laundering, and corruption in post-conflict reconstruction on the agenda of the world's premium anti-corruption event. Available from: https://www.transparency.org/en/press/11th-international-anti-corruption-conference [Accessed on 23 April 2021]

Abang'a, AO, Tauringana, V, Wang'ombe, D & Achiro, LO. 2022. Corporate governance and financial performance of state-owned enterprises in Kenya. *Corporate Governance*, 22(4): 798-820.

Abdullah, AH, Yusoff, S, Islam, A & Ahmad, HA. 2021. Effect of board composition on the corporate performance: The moderating role of corporate governance practices in Iraq. *Psychology and Education Journal*, 58(3): 2688-2706.

Abor, J & Quartey, P. 2010. Issues in SME development in Ghana and South Africa.*International Research Journal of Finance and Economics*, 39(6): 215-228.

Abu Al-Ajeen, T, El Esely, MA & Abo, MT. 2020. Developing an accountability disclosure index for annual reporting by non-profit organizations (NPOs) in Gaza Strip. Available from: https://www.researchgate.net/publication/337682417_Developing_an_Accountability_Disclosure_Index_for_Annual_Reporting_by_Non-Profit_Organizations_NPOs_in_Gaza_Strip_ttwyr_mwshr_afsah_n_almsalt_lltqaryr_alsnwyt_llmnzmat_ghyr_alrbhyt_fy_qta_ghzt [Accessed on12 March 2024]

Abramov, A, Radygin, A & Chernova, M. 2017. State-owned enterprises in the Russian market: Ownership structure and their role in the economic. *Russian Journal of Economics*, 3(1): 1-23.

Abu Bakar, NB. 2016. Research Article Developing an Accountability Disclosure Index for Statutory Bodies: A Proposal. *Research Journal of Applied Sciences, Engineering and Technology*, 12(8): 885-899.

Acharya, AS, Prakash, A, Saxena, P & Nigam, A. 2013. Sampling: Why and how of it. *Indian Journal of Medical Specialties*, 4(2): 330-333.

Ackers, B & Adebayo, A. 2022. The adoption of integrated reporting by state-owned enterprises (SOEs) – An international comparison. *Social Responsibility Journal*, 18(8): 1587-1612.

Adebayo, A & Ackers, B. 2024. The role of auditing in corporate governance practice in emerging economies: Insights from South African state-owned enterprises (SOCs). *Meditari Accountancy Research*, 32(7): 171-196.

Adebayo, A. 2020. The role of governance structures, ownership models and organising models in mitigating corporate governance problems of state-owned enterprises. PhD thesis, University of South Africa, Pretoria.

Aduda, J & Musyoka, L. 2011. The relationship between executive compensation and firm performance in the Kenyan banking sector. *Journal of Accounting and Taxation*, 3(6): 130-139.

Agburuga, UT. 2019. *Leadership accountability, budget and financial management performance and national security*. Paper presented at the 12th Annual National Conference of the Academy of Management, Nigeria.

Agustiawan, DA & Halim, A. 2019. Accountability and performance of the public sector organization. *Advances in Social Science, Education and Humanities Research*, 373: 108-113.

Agwor, TC & Akani, FN. 2017. Financial accountability and performance of local governments in Rivers State, Nigeria. *International Journal of Economics, Commerce and Management*, 5(10): 620-635.

Ahmed, B & Alam, S. 2018. Impact of privatisation on financial performance and efficiency of state-owned enterprises. *IBT Journal of Business Studies (JBS)*, 14(20): 158-173.

Akins, RB, Tolson, H & Cole, BR. 2005. Stability of response characteristics of a Delphi panel: Application of bootstrap data expansion. *BMC Med Res Methodol,* 5: 37.

Available from: https://pubmed.ncbi.nlm.nih.gov/16321161/ [Accessed on 19 April 2024].

Akter, S, Ali, H, Abedin, T & Hossain, B. 2020. Directors' remuneration and performance: Evidence from the textile sector of Bangladesh. *Journal of Asian Finance, Economics and Business*, 7(6): 265-275. Available from: https://ssrn.com/abstract=4653164. [Accessed on 13 October 2020]

Alareeni, BA & Hamdan, A. 2020. ESG impact on performance of US S&P 500-listed firms. *Corporate Governance*, 20(7): 1409-1428. Available from: https://doi.org/10.1108/CG-06-2020-0258 [Accessible on 2 October 2024]

Albert, B & Kabir, D. 2021. *State-owned enterprises: Investment Law and Arbitrations*. Available from: https://jusmundi.com/en/document/publication/en-state-owned-enterprises [Accessed on 18 January 2023]

Alchian, AA & Demsetz, H. 1972. Production, information costs, and economic organization. *The American Economic Review*, 62(5): 777-795.

Al-Gamrh, B, Al-Dhamari, R, Jalan, A & Afshar Jahanshahi, A. 2020. The impact of board independence and foreign ownership on financial and social performance of firms: Evidence from the UAE. *Journal of Applied Accounting Research*, 21(2): 201-229. Available from: https://doi.org/10.1108/JAAR-09-2018-0147. [Accessed on 21 November 2023].

Ali, Z, Iftikhar, M, Ahmad, A, Hussain, K & Ali, S. 2022. Corruption and firm performance: Evidence from Pakistani Enterprise. *Journal on Innovation and Sustainability*, 13(3): 177-189.

Alipour, M. 2013. Has privatization of state-owned enterprises in Iran led to improved performance? *International Journal of Commerce and Management*, 23(4): 281-305. Available from: https://doi.org/10.1108/IJCoMA-03-2012-0019 [accessed on 23 July 2020]

Allegrini, M & Greco, G. 2013. Corporate boards, audit committees and voluntary disclosure: Evidence from Italian Listed Companies. *J Manag Gov*, 17: 187–216.

Allen, R, Hemming, R & Potter, BH. 2013. *The international handbook of public financial management*. Hampshire: Palgrave Macmillan.

Almeyda, R & Darmansya, A. 2019. The influence of environmental, social, and governance (ESG) disclosure on firm financial performance. *IPTEK Journal of Proceedings Series*, 5.

Al-Shammari, B, Brown, P & Tarca, A. 2008. An investigation of compliance with international accounting standards by listed companies in the Gulf Co-Operation Council member states. *The International Journal of Accounting*, 43(4): 425–447.

Alsmady, A. 2023. Accounting information quality, tax avoidance and companies' performance: The moderate role of political connection. *International Journal of Professional Business Review*, 8(1): 1-42. Available from: https://doi.org/10.26668/businessreview/2023.v8i1.622 [Accessed on 16 October 2024]

Alturki, R. 2021. Research Onion for Smart IoT-enabled mobile applications. *Scientific Programming*, 2021(1): 4270998.

Amason, AC, Shrader, RC & Tompson, GH. 2006. Newness and novelty: Relating top management team composition to new venture performance. Journal of business venturing, 21(1): 125-148.

Ambe, QN. 2021. Public accountability model for South African higher education institutions. PhD thesis. University of Johannesburg, Johannesburg.

Amran, A, Lee, SP & Devi, SS. 2014. The influence of governance structure and strategic corporate social responsibility toward sustainability reporting quality. *Business Strategy and the Environment*, 23(4): 217-235.

Andres, PD, Garcia-Rodriguez, I, Romero-Merino, ME & Santamaria-Mariscal, M. 2021. Politicians in disguise and financial experts on the board: Evidence from Spanish cajas. *Business Research Quarterly*, 24(2): 174–191.

Andriani, C, Pratiwi, D, Olivia, T & Sebastian, A. 2024. Audit committee, IDT commissioners, firm size, and intellectual capital on the financial performance of state-

owned enterprises. *Dinasti International Journal of Economics and Accounting (DIJEFA)*, 5(4): 1748-1761. Available from: https://doi.org/10.38035/dijefa.v5i3 [Access on 26 September 2024]

Andriana, T, Pituringsih, E & Surasni, K. 2018. The effect of organization commitment and public accountability toward public organization performance. *International Journal of Business Management and Economic Research*, 9(1): 1199-1206.

Andrianto, NSE & Wahyudi, S. 2007. Good e-Government: Transparansi dan Akuntabilitas Publik Melalui e-Government. Penerbit: Bayumedia Publishing, Malang.

Anggraini, D & Windyastuti, SH. 2021. The influence of accountability, transparency, and supervision on budgeting performance with the concept of value for money in village-owned enterprises in Klaten Regency. *Journal of International Conference Proceedings*, 4(3): 704-713.

Aniobi, SC, Solanke, FT & Olawhinde, SA. 2023. Political interreference and performance of Ekiti State Broadcasting Services. *Journal of the Management Sciences*, 60(1): 277–291. Available from https://journals.unizik.edu.ng/jfms/article/view/257 [Accessed on 14 October 2024]

Anwar, G & Abdullah, ANN. 2021. The impact of human resource management practice on organizational performance. *International Journal of Engineering, Business and Management*, 5(1): 35-47. Available from: https://dx.doi.org/10.22161/ijebm.5.1. [Accessed on 28 August 2024]

Apuke, OD. 2017. Quantitative research methods: A synopsis approach. *Arabian Journal of Business Management Review*, 6: 40-47.

Arain, M, Campbell, MJ, Cooper, CL & Lancaster, GA. 2010. Correspondence: What is a pilot or feasibility study? A review of current practice and editorial policy. *BMC Medical Research Methodology*, 10:67. Available from: http://www.biomedcentral.com/1471-2288/10/67 [Accessible 23 February 2024]

Arif, B & Sule, ET. 2020. Leadership style and capability on the formulation of business strategy in the state-owned enterprises in Indonesia. *IOP Conference Series: Materials Science and Engineering*, 598. Available from: https://doi.org/10.1088/1757-

899x/598/1/012130 [23 August 2022]

Armstrong, P, Segal, N & Davis, B. 2005. *Corporate governance: South Africa, a pioneer in Africa*. South African Institute of International Affairs (SAIIA). Available from: https://coilink.org/20.500.12592/ps6xtr [Accessed on 13 Mar 2025].

Assagaf, A & Ali, H. 2017. Determinants of financial performance of state-owned enterprises with government subsidy as moderator. *International Journal of Economics and Financial Issues*, 7(4): 330-342.

Astami, EW, Tower, G, Rusmin, R & Neilson, J. 2010. The effect of privatisation on performance of state-owned-enterprises in Indonesia. *Asian Review of Accounting*, 18(1): 5-19. Available from: https://doi.org/10.1108/13217341011045971 [Accessed on 6 June 2020].

Auditor General of South Africa (AGSA). 2021. General report on the national and provincial audit outcomes for 2020–2021. Available from: https://www.agsa.co.za/Portals/0/Reports/PFMA/202021/Consolidated%20PFMA%20General%20Report%202020-21%20-%20FINAL%208%20December.pdf?ver=2021-12-08-114517-993 [Accessed on 29 January 2025]

Auliana, RA, Subroto, B & Subekti, I. 2023. The effect of corporate governance on earnings management moderated by political connection. *Journal of Accounting and Investment*, 24(3): 654-675.

Aussenegg, W & Jwlic, RJ. 2007. The operating performance of newly privatised firms in central European transition economies. *European Financial Management*, 13(5): 853-879. Available from: https://doi.org/10.1111/j.1468-036X.2007.00400.x [Accessed on 21 January 2023]

Awan, MAS & Sarfraz, N. 2013. The impact of human capital on Company performance and the mediating effect of employee's satisfaction. *IOSR Journal of Business and Management (IOSR-JBM)*, 8(2): 76-82.

Awwad, BS, Binsaddig, R, Kanan, M & Al Shirawi, T. 2023. Women on boards: An empirical study on the effects on financial performance and corporate social

responsibility. *Competitiveness Review*, 33(1): 147-160. Available from: https://doi.org/10.1108/CR-06-2022-0084. [Accessed 23 July 2024].

Ayodele, T. 2021. COVID-19 pandemic and the Nigerian financial market. *Journal of Management Information and Decision Sciences*, 24(4): 1-10.

Azam, A, Ahmad, N, Khan, I, Mulla, NAI & Khan, MR. 2023. Measurement of financial performance of selected of selected Indian pharmaceutical companies by using the Altman' Z-score model. *Journal of Research Administration*, 5(2): 557-570.

Badarai, E, Kotze, M & Nel, P. 2023. A leadership-organizational performance model for state-owned enterprises in emerging economies. *South African Journal of Business Management*, 54(1).

Baird, M, Chari, AV, Nataraj, S, Rothenberg, A, Telhaj, S & Winters, LA. 2019. *The public sector and the misallocation of labor: Evidence from a policy experiment in India*. Centre for Economics Performance.

Balbuena, SS. 2014. *State-owned enterprises in Southern Africa*. OECD Corporate Governance Working Papers 13, OECD Publishing.

Baldwin, AA & Trinkle, BS. 2011. The Impact of XBRL: A Delphi investigation. *The International Journal of Digital Accounting Research*, 11: 1-24.

Barrett, D & Heale, R. 2020. What are Delphi studies? *BMJ Journals*, 23(3): 68-69. Available from: http://dx.doi.org/10.1136/ebnurs-2020-103303 [Accessed 12 May 2023]

Basera, E & Zhou, G. 2021. Sustainable frameworks of public-private-partnerships in Zimbabwe: A holistic, sector-wide review. *International Journal of Social Science*, 2(1): 17-28. Available from: https://doi.org/10.47505/IJRSS.2021.9156 [Accessed on 21 February 2023]

Bathula, H. 2008. Board characteristics and firm performance: Evidence from New Zealand. PhD thesis, University of Auckland, Auckland.

Baum, A, Hacknay, C, Medas, P & Sy, M. 2024. Governance and state-owned

enterprises: How costly is corruption? *Economics of Governance*, 25: 181-208. Available from: https://doi.org/10.1007/s10101-024-00311-1 [Accessed on 15 October 2024]

Baum, A, Hackney, C, Medas, P & Sy, M. 2019. *Governance and state-owned enterprises: How costly is corruption?* IMF Working Paper No. 19/253.

Baum, S, Ma, J & Payea, K. 2013. *Education pays: The benefits of higher education for individuals and society*. Trends in Higher Education Series. College Board.

Bebchuk, L & Grinstein, Y. 2005. *Firm expansion and CEO pay*. National Bureau of Economic Research. Available from: http://www.nber.org/papers/w11886 [Accessed on 12 January 2023]

Becker, GS. 1993. *Human behaviour: Economic approach*. Selected Works on Economic Theory. Moscow: SU HSE.

Behn, BK & Riley, RA. 1999. Using nonfinancial information to predict financial performance: The case of the U.S. airline industry. *Journal of Accounting, Auditing & Finance*, 4(1): 29-56.

Bell, E, Harley, B & Bryman, A. 2022. *Business research methods*. Oxford: Oxford University Press.

Berg, TS & Kvidal, MB. 2017. The impact of governments on the performance of state-owned enterprises: Evidence from Norway. Bergen: Norwegian School of Economics.

Berggren, E & Bernshteyn, R. 2007. Organizational transparency drives company performance. *Journal of Management Development*, 26(5): 411-417.

Bett, KB, Andemariam, K & Abraham, K. 2024. Influence of accountability on financial performance of state-owned commercial enterprises in Kenya. *International Academic Journal of Economics and Finance*, 4(2): 524-536.

Bezuidenhout, ML. 2016. The relationship between CEO remuneration and company performance in South African state-owned entities. PhD thesis, University of South Africa, Pretoria.

Bezuidenhout, ML & Bussin, MH. 2020. The year-on-year analysis of the relationship between chief executive officer remuneration and state-owned company performance in South Africa. *SA Journal of Human Resource Management*, 18(3).

Biddle, C & Schafft, KA. 2015. Axiology and anomaly in the practice of mixed methods work pragmatism, valuation, and the transformative paradigm. *Journal of Mixed Methods Research*, 9(4): 1–15.

Bird, R, Hall, AD, Momente, F & Reggiani, P. 2007. What corporate social responsibility activities are valued by the market? *Journal of Business Ethics*, 76: 189–206.

Bhatt, PR. 2015. Performance of government linked companies and private owned companies in Malaysia. *International Journal of Law and Management*, 58(2): 154-161.

Bhat, CR. 2022. Data collection methods and activity-travel behaviour analysis in a fast evolving technological future. *ITE Journal*, 92(10): 29-33.

Blau, F & Kahn, L. 2017. The gender wage gap: extent, trends, and explanations,*Journal of Economic Literature*, 55(3): 789-855.

Boamah, K. 2020. Impact of Internal Audit and corporate governance practices on the performance of state-owned enterprises in Namibia. PhD thesis. Cape Peninsula University of Technology, Cape Town.

Boda, M & Uradnicek, V. 2016. The portability of Altman's Z-score model to predicting corporate financial distress of Slovak companies. *Technological and Economic Development of Economy*, 22(4): 532-553.

Boko, F & Qin, YJ. 2011. *Failure of state-owned enterprises in Benin, in management and service science*. Proceedings of the International Conference, 2011, Wuhan, China, 2011, IEEE, New York, 1-4.

Bouzgarrou, H, Feki, R & Garroussi, F. 2019. Exploring the non-financial performance of Tunisian state-owned enterprises. *Journal of Accounting and Management Information Systems*, 18(1): 66-86.

Bosch, A, Van der Linde, K & Barit, S. 2020. Women on South African boards: Facts, fiction and forward thinking. University of Stellenbosch Business School, Stellenbosch, South Africa.

Bovens, M. 2007. New forms of accountability and EU-governance. *Comparative European Politics*, 5: 104-120.

Bozec, R, Breton, G & Cote, L. 2002. The performance of state–owned enterprises revisited. *Financial Accountability & Management*, 18(4): 283-407.

Bradley, S. 2013. The relationship between CEO compensation and company performance in a South African context. *Journal of Economic and Financial Sciences*, 6(3): 539-564.

Breneman, JE, Sahay, C & Lewis, EE. 2022. *Introduction to reliability engineering.* Hoboken, NJ: John Wiley & Sons.

Brusca, I, Labrador, M & Larran, M. 2018. The challenge of sustainability and integrated reporting at universities: A case study. *Journal of Cleaner Production*, 188: 347-354. Available from: www.elsevier.com/locate/jclepro. [Accessed 22 August 2020]

Bujang, MA, Omar, ED, Foo, DHP & Hon, YK. 2024. Sample size determination for conducting a pilot study to assess reliability of a questionnaire. *Restor Dent Endod*, 49(1): e3. Available from: https://rde.ac/DOIx.php?id=10.5395/rde.2024.49.e3. [Accessed on 6 April 2024].

Burlea-Schiopoiu, A & Popa, I. 2013. Legitimacy Theory. In SO Idowu, N. Capaldi, L. Zu & AD Gupta (Eds.), *Encyclopedia of Corporate Social Responsibility* (pp. 1579-1584). Cham: SpringerLink. Available from: https://doi.org/10.1007/978-3-642-28036-8_471. [Accessed 26 January 2021]

Bussin, MH & Ncube, M. 2017. Chief executive officer and chief financial officer compensation relationship to company performance in state-owned entities. *South African Journal of Economic and Management Sciences*, 20(1): 1-10.

Bussin, M & Nel, M. 2015. Relationship between CEO remuneration and company

financial performance in the South African retail and consumer goods sector: Original research. *Acta Commercii*, 15(1).

Bussin, M & Modau, MF. 2015. The relationship between chief executive officer remuneration and financial performance in South Africa between 2006 and 2012. *SA Journal of Human Resource Management*, 13(1): 1-18.

Caley, MJ, O'Leary, RA, Fisher, R, Low-Choy, S, Johnson, S & Mengersen, K. 2014. What is an expert? A systems perspective on expertise. *Ecology and Evolution*, 4(3): 231-242.

Cardinale, R, Landoni, M & Mi, Z. 2024. 21st century: Rethinking their contribution to structural change, innovation, and public policy. *Structural Change and Economic Dynamics*, 68: 468-472. Available from: https://doi.org/10.1016/j.strueco.2024.01.013. [Accessed on 12 November 2024].

Carlson, C & Bussin, MHR. 2020. Relationship between executive pay and company financial performance in South African state-owned entities. *SA Journal of Human Resource Management/SA Tydskrif vir Menslikehulpbronbestuur*, 18(0): a1211. Available from: https://doi.org/10.4102/sajhrm.v18i0.1211. [Accessed on 12 October 2022].

Carmo, C, Alves S & Quaresma B. 2022. Women on boards in Portuguese listed companies: Does gender diversity influence financial performance? *Sustainability*, 14(10): 6186. Available from: https://doi.org/10.3390/su14106186. [Accessed on 23 July 2024].

Castaneda, F, Traverso, DB & Carpentier, JB. 2020. State-owned enterprises and industrial development in Latin America. In L Bernier, M Florio & P Bance (Eds.), *The Routledge handbook of state-owned enterprises*. London: Routledge.

Chauke, KR & Sebola, MP. 2018. *Corporate governance failures: Is it the end of governance as we know it?* International Conference on Public Administration and Development Alternatives, 4-6 July 2018, Stellenbosch University, Saldahna Bay, South Africa

Chan, S. 2021. Financial repression and financial risk: The case of China. *Post-*

Communist Economies, 33(1): 119-132.

Chang, SJ & Jin, SY. 2016. *The performance of state-owned enterprises in China: An empirical analysis of ownership control through SASACs*. Centre for Governance, Institutions and Organisations (CGIO), NUS Business School National University of Singapore.

Chen, IJ, Hsu, PH & Wang, Y. 2022. Staggered boards and product innovations: Evidence from Massachusetts State Bill HB 5640. *Research Policy*, 51(4): 104475.

Chen, HR, Li, R & Tillmann, P. 2019. Pushing on a string: State-owned enterprises and monetary policy transmission in China. *China Economic Review*, 54: 26–40.

Check, J & Schutt, RK. 2012. *Research methods in education*. Thousand Oaks, CA: Sage Publications.

Chilenga, A. 2016. State owned enterprises: A policy analysis of South African Airways (SAA). Master's dissertation, University of KwaZulu-Natal, Durban.

Chikutuma, CN. 2019. A polychotomous accountability index for integrated reporting by South Africa companies. PhD thesis, University of South Africa, Pretoria.

Chitiga-Mabungu, M, Mabugu, RE, Henseler, M & Maisonnave, H. 2021. The implications of deteriorating state-owned enterprise performance on the South African economy. Hoboken, NJ: John Wiley & Sons.

Cho, SJ, Chung, CY & Young, J. 2019. Study on the relationship between CSR and financial performance. *Sustainability*, 11(2): 343.

Christensen, LB, Johnson, RB & Turner, LA. 2021. *Research methods, design, and analysis* (13th edition). Harlow: Pearson Education Limited.

Coe, K & Scacco, JM. 2017. Quantitative content analysis. In J Matthes, CS Davis & RF Potter (Eds.), *The International Encyclopedia of Communication Research Methods*. Hoboken, NJ: Wiley.

Coles, JL, Daniel, ND & Naveen, L. 2008. Boards: Does one size fit all? *Journal of Financial Economics*, 87(2): 329-356.

Coletta, C & Lima, RAD. 2020. Board of directors, performance and firm value in Brazilian listed state-owned enterprises. *Brazilian Review of Finance*, 18(2): 1- 28.

Colovic, A. 2022. Leadership and business model innovation in late internationalizing SMEs. *Long Range Planning*, 55(1): 1-17.

Costley, KC. 2012. *Why do we have theories?* Education Resources Information Centre. Available from: http://www.eric.ed.gov. [Accessible on 3 October 2024]

Creswell, JW. 2014. Qualitative inquiry and research design: Choosing among five approaches. Thousand Oaks, CA: Sage.

Creswell, JW & Creswell, JD. 2018. *Research design: Qualitative, quantitative, and mixed methods approach* (5th edition). Thousand Oaks, CA: Sage.

Crowe, S, Creswell, K, Robertson, A, Huby, G, Avery, A & Sheikh, A. 2011. The case study approach. *BMC Medical Research Methodology*, 11: #100. Available from: http://www.biomedcentral.com/1471-2288/11/100 [Accessed on 15 January 2023].

Cuervo-Cazurra, A. 2018. State-owned multinationals: Governments in global business. Cham: Springer.

Culver, K. 2010. *What is the function of theories in educational administration?* Available from: http://ww.ehow.com/list [Accessible on 3 October 2024]

De Camargo, FP, Seles, BMR, Jabbour, CJJ, Mariano, EB & De Sousa Jabbour, ABL. 2018. Management theory and big data literature: From a review to a research agenda. *International Journal of Information Management*, 43: 112-129.

Deegan, C, Rankin, M & Tobin, J. 2002. An examination of the corporate social and environmental disclosures of BHP from 1983-1997. *Accounting, Auditing and Accountability Journal*, 15(3): 312-343.

Deegan, CM. 2018. Legitimacy Theory: Despite its enduring popularity and contribution, time is right for a necessary makeover. *Accounting, Auditing & Accountability Journal*, 32(8): 2307-2329. Available from: www.emeraldinsight.com/0951-3574.htm. [Accessed on 23 October 2021].

De Haes, S & Van Grembergen, W. 2009. An exploratory study into IT governance implementations and its impact on business/IT alignment. *Information Systems Management*, 26(2): 123-130.

De Lange, D. 2019. The impact of King IV Corporate Governance Code on Municipalities. *CIGFARO*, 19(4).

De Lima, FL & Doyle, S. 2017. A Delphi study examining risk and uncertainty management in circular supply chains. *International Journal of Production Economics*, 258(2): 108810. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0925527323000427?via%3Dihub [Accessed on 14 April 2024]

Denhere, N. 2019. Result based financing as a strategy to improve maternal health care systems: A case study of Bindura. Doctoral dissertation, BUSE.

De Oliveira, C, Behr, A & Maçada, ACG. 2019. Establishing the main mechanisms for the accounting information governance: A Delphi study with accounting experts. *Brazilian Business Review*, 21(4): e20221292.

Department of Planning, Monitoring and Evaluation (DPME) & United Nations Development Programme (UNDP). 2019. Mapping the National Development Plan – Vision 2030 to the Sustainable Development Goals: Assessing the convergence between the NDP and the SDGs. Unpublished.

Department of Public Enterprises (DPE). 2021/2022. *Annual Report*. Available from: https://www.gov.za/sites/default/files/gcis_document/202210/dpe-ar2022-d13a.pdf. [Accessed on 23 September 20230

Deschacht, N. 2017. Part-time work and women's careers: A decomposition of the gender promotion gap. *Journal of Labor Research*, 38 (2): 169-186.

Desi, A, Heriningsih, S & Windyastuti, W. 2021. The influence of accountability, transparency and supervision on budgeting performance with the concept of value for money in village owned enterprises in Klaten Regency. *Journal of International Conference Proceedings*, 4(3): 704-713.

Dess, GD & Picken, JC. 1999. Beyond productivity: How leading companies achieve superior performance by leveraging their human capital. New York: American Management Association.

De Wenter, KL & Malatesta, PH. 2001. State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labour intensity. *American Economic Review*, 91(1): 320–334.

Di Pietra, R, Grambovas, CA, Raonic, I & Riccaboni, A. 2008. The effects of board size and 'busy' directors on the market value of Italian companies. *Journal of Management & Governance*, 12: 73-91.

Diamond, IR, Grant, RC, Feldman, BM, Pencharz, PB, Ling, SC, Moore, AM & Wales, PW. 2014. Defining consensus: A systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of Clinical Epidemiology*, 67(4): 401-409.

Ding, S, Jia, C, Wu, Z & Zhag, X. 2014. Executive political connection and firm performance: Comparative evidence from privately controlled and state-owned enterprises. *International Review of Financial Analysis*, 36: 153-167.

Dlulane, B. 2022. An irregular expenditure governance strategy for South African state-owned enterprises. PhD thesis. University of South Africa, Pretoria.

Domadenik, P, Prašnikar, J & Svejnar, J. 2015. Political connectedness, corporate governance, and firm performance. *Journal of Business Ethics*, 139(2): 411-428.

Dudovskiy, J. 2022. *The ultimate guide to writing a dissertation in business studies: Step-by-step assistance [ebook]*. Research Methodology. http://research-methodology.net/about-us/ebook/

Dumay, J, De Villiers, C, Guthrie, J & Hsiao, P. 2018. Thirty years of accounting, auditing and accountability journal: A critical study of the journal's most cited papers. *Accounting, Auditing and Accountability Journal*, 31(5): 1510-1541.

Du Toit, E. 2012. The performance of state-owned enterprises in South Africa: Are they improving? *Journal of Public Administration*, 47(1): 1-19.

Du Toit, H. 2005. *Governance oversight role over state owned enterprises (SOES)*. Pretoria: Department of Public Enterprises.

Drábková, Z. 2014. *Possibilities of identifying manipulated financial statements*. In The International Scientific Conference, České Budějovice.

Eforis, C. 2018. Corporate governance, state ownership, and firm performance: An empirical study of state-owned enterprises in Indonesia. *Accounting and Finance Review*, 3(1): 26-32.

Efunniyi, CP, Abhulimen, AO, Obiki-Osafiele, AN, Osundare, OS, Agu, EE & Adeniran, IA. 2024. Strengthening corporate governance and financial compliance: Enhancing accountability and transparency. *Finance & Accounting Research Journal*, 6(8): 1597-1616. Available from: https://www.fepbl.com/index.php/farj/article/view/1509 [Accessed on 7 December 2024]

Eisenhardt, KM. 1989. Agency theory: An assessment and review. *Academy of Management Review*, 14(1): 57-74.

Emodia, NA & Mwanzia, M. 2021. Effect of corporate governance practices on organizational performance of state corporations in the health sector, Kenya. *Journal of Public Policy & Governance*, 5(3): 99-111.

Edoun, EL. 2015. The impact of governance on state-owned enterprises (SOEs) in Africa. *Mediterranean Journal of Social Sciences*, 6(1): 352-358.

Farhan, M, Farhan, A, Kusumawardani, M, Kusumawardani, F & Lakilaki, E. 2024. Corporate social responsibility in Islamic banking: Practical evaluation. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 7(2): 3890- 3911.

Fernando, S & Lawrence, S. 2014. A theoretical framework for CSR practices: Integrating legitimacy theory, stakeholder theory and institutional theory. *Journal of Theoretical Accounting Research*, 10(1): 149-178.

Ferrer, RC & Ferrer, GJ. 2011. The relationship between profitability and the level of compliance to the International Financial Reporting Standards (IFRS): An empirical investigation on publicly listed corporations in the Philippines. *Academy of Accounting*

and Financial Studies Journal, 15(4): 61–82.

Field, A. 2013. *Discovering statistics using IBM SPSS statistics* (4th ed.). Thousand Oaks, CA: SAGE Publications.

Field, AP. 2018. *Discovering statistics using IBM SPSS statistics* (5th ed.). Thousand Oaks, CA: SAGE Publications.

Filho, DBF, Silva, JA & Rocha, E. 2011. What is R2 all about? *Leviathan – Cadernos de Pesquisa Política*, 3: 60-68.

Fischer, M. 2015. Design it! Solving sustainability problems by applying design thinking. *GAIA - Ecological Perspectives for Science and Society*, 24(3): 174-178. Available from: https://doi.org/10.14512/gaia.24.3.9 [Accessed on 02 January 2022]

Flick, U. 2018. *An introduction to qualitative research* (6th edition). Thousand Oaks, CA: SAGE Publications.

Freeman, RB. 1984. Longitudinal analyses of the effects of trade unions. *Journal of Labor Economics*, 2(1): 1-26.

Friede, G, Busch, T & Bassen, A. 2015. ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4): 210-233.

Gasela, MM. 2021. The impact of strategy alignment on organisational performance in national public entities in the Northern Cape Province of South Africa. *Africa's Public Service Delivery and Performance Review*, 9(1): 1-9.

George, D, Theofanis, K & Konstantinos, A. 2015. Factors associated with internal audit effectiveness: Evidence from Greece. *Journal of Accounting and Taxation*, 7(7): 113-122.

Giannarakis, G. 2013. Corporate governance and financial characteristic effects on the extent of corporate social responsibility disclosure. *Social Responsibility Journal*, 10(4): 569-590.

Gidron, Y. 2020. Reliability and validity. In MD Gellman & JR Turner (Eds.),

Encyclopedia of behavioral medicine (pp. 1869-1870). Cham: Springer International Publishing.

Gigliotti, M. 2013. The compensation of top managers and the performance of Italian firms. *The International Journal of Human Resource Management*, 24(4): 889- 903.

Gilbert, DU & Rasche, A. 2008. Opportunities and problems of standardized ethics initiatives: A stakeholder theory perspective. *Journal of Business Ethics*, 82: 755- 773.

Gilliland, AJ, McKemmish, SM & Lau, AJ. 2017. *Research in the Archival Multiverse*. Monash University Publishing. Available from: https://research.monash.edu/en/publications/research-in-the-archival- multiverse [Accessed on 21 June 2023]

Gnatzy, T, Warth, J, Von der Gracht, HA & Darkow, IL. 2011. Validating an innovative real-time Delphi approach: A methodological comparison between real-time and conventional Delphi studies. *Technological Forecasting & Social Change*, 78(9): 1681-1694.

Godi, NJ. 2021. Risk analysis framework for investors in emerging markets: A South African perspective. PhD thesis, University of South Africa, Pretoria.

Goroke, T & Maccarthy, MI. 2023. Human asset accounting and financial performance of listed commercial banks in Nigeria. *Journal of Management, Marketing and Accounting Innovation*, 8(2): 1-18.

Gray, R, Kouhy, R & Lavers, S. 1995. Corporate social and environmental reporting. *Accounting, Auditing & Accountability Journal*, 8(2): 47-77.

Guan, J, Gao, Z, Tan, J, Sun, W & Shi, F. 2021. Does the mixed ownership reform work? Influence of board chair on the performance of state-owned enterprises. *Journal of Business Research*, 122: 51-59.

Gusarova, S. 2019. Role of China in the development of trade and FDI cooperation with BRICS countries. *China Economic Review*, 57: 101271.

Hall, CM. 2013. Framing behavioural approaches to understanding and governing

sustainable tourism consumption: Beyond neoliberalism, “nudging” and “green growth”? *Journal of Sustainable Tourism*, 21(7): 1091-1109.

Hallowell, MR & Gambatese, JA. 2010. Qualitative research: Application of the Delphi method to CEM research. *Journal of Construction Engineering and Management*, 136(1): 99-107.

Harrison, JS & Wicks, AC. 2013. Stakeholder theory, value, and firm performance. *Business Ethics Quarterly*, 23(1): 97-124.

Hasanzadeh, R & Azdast, T. 2024. Machine learning utilization on air gasification of polyethylene terephthalate waste. *Waste Management Bulletin*, 2(1): 75-82. Available from: https://doi.org/10.1016/j.wmb.2023.12.011 [Accessed on 22 November 2024].

Hassan, OA & Marston, C. 2019. Corporate financial disclosure measurement in the empirical accounting literature: A review article. *The International Journal of Accounting*, 54(2): 1950006.

Harvey, PH, Chamisa, E, Abdulla, C & Smith, C. 2015. An analysis of corporate governance and company performance: A South African perspective. *South African Journal of Accounting Research*, 29(2): 115-131.

Hendrickse, R. 2023. The role of professionalization in the South African public service and its contribution to the UN’s SDGs, Agenda 2063, and NDP 2030. *International Journal of Research in Business and Social Science*, 12(8): 364–374. Available from: https://doi.org/10.20525/ijrbs.v12i8.2903. [Accessed on 23 February 2024]

Heo, K. 2018. Effects of corporate governance on the performance of state-owned enterprises. World Bank Policy Research Working Paper 8555.

Hermanto, YB, Lucy, L & Widyastuti, M. 2023. How financial performance and state-owned enterprise (SOE) values are affected by good corporate governance and intellectual capital perspectives. *Economies*, 9: 134. Available from: https://doi.org/10.3390/economies9040134 [Accessed on 12 November 2024]

Hidayat, M & Latief, F. 2018. The influence of developing human capital management toward company performance. *Journal of Management & Business*, 2: 11-30.

Hills, PS. 2022. The effectiveness of steward leadership in Christian nonprofit organizations. PhD thesis. Columbia International University, Columbia, SC.

Hinson, RE & Ndhlovu, TP. 2011. Conceptualising corporate social responsibility (CSR) and corporate social investment (CSI): The South African context. *Social Responsibility Journal*, 7(3): 332-346.

Hodge, RA. 2014. Mining company performance and community conflict: Moving beyond a seeming paradox. *Journal of Cleaner Production*, 84: 27-33. Available from: https://www.journals.elsevier.com/journal-of-cleaner-production [Accessed 10 October 2021].

Hossain, MS, Rahim, NA, Aman, MM & Selvaraj, J. 2019. Application of ANOVA method to study solar energy for hydrogen production. *International Journal of Hydrogen Energy*, 44: 14571-14579.

Hsu, CY, Chen, SS & Huang, CW. 2021. Board independence and PIPE offerings. *International Review of Economics & Finance*, 75: 478-500.

Hu, S, Zhang, X, Stamatiou, M, Hambly, C, Huang, Y, Ma, J, Li, Y & Speakman, JR. 2022. Higher than predicted resting energy expenditure and lower physical activity in healthy underweight Chinese adults. *Cell Metabolism*, 34(10): 1413- 1415.

Huo, X, Zhao, Y & Dong, Z. 2024. How mixed ownership affects investment efficiency? Evidence from state-owned enterprises in China. *Plos One*, 19(6): e0306190.

Hurley, D & Choudhary, A. 2020. Role of gender and corporate risk taking. *Corp. Gov*., 20: 383–399.

Hussain, N, Rigoni, U & Orij, RN. 2018. Corporate governance and sustainability performance: Analysis of triple bottom line performance. *Journal of Business Ethics*, 149: 411-432. Available from: https://doi.org/10.1007/s10551-016-3099-5 [Accessed on 12 August 2024].

International Monetary Funds (IMF). 2020. *State-owned enterprises: The other government*. Washington DC: IMF.

Institute of Directors Southern Africa (IoDSA). 1994. *King I: King Report on Corporate Governance for South Africa*. Available from: https://cdn.ymaws.com/www.iodsa.co.za/resource/collection/94445006-4F18- 4335-B7FB-7F5A8B23FB3F/King_1_Report.pdf. [Accessed on 18 September 2021]

Institute of Directors Southern Africa (IoDSA) . 2002. *King II: King Report on Corporate Governance for South Africa*. Available from: https://cdn.ymaws.com/www.iodsa.co.za/resource/collection/94445006-4F18- 4335-B7FB-7F5A8B23FB3F/IoDSA_King_II_web_version.pdf. [Accessed on 23 October 2021].

Institute of Directors Southern Africa (IoDSA). 2009. *King III: King Report on Governance for South Africa*. Available from: https://cdn.ymaws.com/www.iodsa.co.za/resource/resmgr/king_iii/King_Report_ on_Governance_fo.pdf [Accessed on 23 October 2021].

Institute of Directors Southern Africa (IoDSA). 2016. *King IV: Report on Corporate Governance for South Africa 2016*. Retrieved from http://www.adamsadams.com/wp-content/uploads/2016/11/King-IV-Report.pdf [Accessed on 25 October 2021].

Inoue, C. 2020. Election cycles and organizations: How politics shapes the performance of state-owned enterprises over time. *Administrative Science Quarterly*, 65(3): 677-709.

Institute of Internal Auditors (IIA). 2014. *Managing the Outsourced Internal Audit Function*. Johannesburg: IIA.

Izzaty, N, Azhar, H, Lokman, N, Alam, MM & Said, J. 2021. Factors determining Z-score and corporate failure in Malaysian companies. *International Journal of Economics and Business Research*, 28(5): 1-23. Available from: https://doi.org/10.1504/IJEBR.2024.140205 [Available from: 27 September 2024].

Jain, PK, Gupta, S & Yadav, SS. 2014. *Public sector enterprises in India*. New Delhi: Springer. https://doi.org/10.1007/978-81-322-1762-6_1

Jahja, NJ, Mohammed, NF & Lokman, N. 2024. Corporate governance and Indonesian state-owned companies' performance: Agency and institutional perspectives.

Edelweiss Applied Science and Technology, 8(3): 181-196.

Jamil, A, Hassan, MS, Salleh, NM & Yaakob, R. 2020. Non-financial risk disclosure: From narratives to an index based on Delphi Technique. *Asian Journal of Accounting & Governance*, 14: 1.

Jasir, M, Khan, NU & Barghathi, Y. 2023. Stewardship theory of corporate governance and succession planning in family businesses of UAE: Views of the owners. *Qualitative Research in Financial Markets*, 15(2): 278-295.

Jensen, MC. 1993. The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, 48(3): 831-880.

Jeong, DY & Choi, M. 2016. The impact of high-performance work systems on firm performance: The moderating effects of the human resource function's influence. *Journal of Management & Organization*, 22(3): 328-348.

Jiang, H, Habib, A & Smallmon, C. 2009. The effect of ownership concentration CEO compensation in New Zealand. *Pacific Accounting Review*, 21(2): 104-131.

Jin, Z, Shang, Y & Xu, J. 2018. The impact of government subsidies on private R&D and firm performance: Does ownership matter in China's manufacturing industry? *Sustainability*, 10(7): 2205.

Jin, X, Xu, L, Xin & Adhikari, A. 2022. Political governance in China's state-owned enterprises. *China Journal of Accounting Research*, 15: 1-29.

Jizi, M. 2017. The influence of board composition on sustainable development disclosure. *Business Strategy and the Environment*, 26(5): 640-655.

Johannesson, P & Perjons, E. 2014. *An introduction to design science*. Cham: Springer.

John, S. 2016. Administration of the Public Finance Management Act, 1999 in the Northwest Provincial Administration in South Africa. PhD thesis, University of Pretoria, Pretoria.

Jones, TL, Baxter, MAJ & Khanduja, V. 2013. A quick guide to survey research. *The*

Annals of the Royal College of Surgeons of England, 95(1): 5-7.

Jones, C. 2010. Archival data: Advantages and disadvantages for research in psychology. *Social and Personality Psychology Compass*, 4(11): 1008-1017. Available from: https://doi.org/10.1111/j.1751-9004.2010.00317.x. [Accessed on 29 July 2023]

Joseph, C & Taplin, R. 2011. The measurement of sustainability disclosure: Abundance versus occurrence. *Accounting Forum*, 35(1): 19–31.

Joshi, MJ. 2020. Financial performance analysis of select Indian Public Sector Banks using Altman's Z-Score model. *SMART Journal of Business Management Studies*, 16(2): 74-87.

Joubert, H. 2020. Is the effect of board diversity on CSR diverse? New insights from one-tier vs two-tier corporate board models. *Corporate Governance*, 21(1): 23- 61.

Judin, JM. 2019. The King Reports and the common law in South Africa. *Journal of Global Responsibility*, 11(2): 167-172. Available from: https://www.emerald.com/insight/2041-2568.htm [Accessible October 2021].

Kabaciński, B, Kubiak, J & Szarzec, K. 2020. Do state-owned enterprises underperform compared to privately owned companies? An examination of the largest Polish enterprises. *Emerging Market Finance and Trade,* 56(13): 3174– 3192. Available from: https://doi.org/10.1080/1540496X.2019.1707653 [Accessed on 28 September 2024]

Lopes Júnior, EP, Câmara, SF, Rocha, LG & Brasil, A. 2018. Influence of corruption on state-owned enterprise expenditures. *Revista de Administração Pública*, 52: 695-711.

Kakabadse, A & Kakabadse, NK. 2001. Corporate governance in South Africa: Evaluation of the King II Report (Draft). *Journal of Change Management*, 2(4): 305-316.

Kamal, S, Mahat, D & Kandel, DR. 2023. Strategic human resources management: Study the alignment of HR practices with overall business strategy and its impact on

organizational performance. *International Journal for Multidisciplinary Research (IJFMR)*, 5(5).

Kanyane, MH & Sambo, VT. 2021. State of State-Owned Enterprises' Governance in BRICS Countries - Issues for Consideration. *African Journal of Governance and Development*, 10(1). Available from: https://hdl.handle.net/10520/ejc-ajgd_v10_n1_a10 [Accessed on 12 June 2022]

Kanyane, M. 2018. Disaggregated development: Between 'trade, industrialisation and migration'. In HH Magidimisha, NE Khalema, L Chipungu, TC Chirimambowa & TL Chimedza (Eds.), *Crisis, identity and migration in post-colonial southern Africa crisis, identity and migration in post-colonial southern Africa* (pp. 203-224). Cham: Springer.

Karch, J. 2020. Improving on Adjusted R-Squared. *Collabra: Psychology*, 6(1): 45. Available from: https://doi.org/10.1525/collabra [Accessed on 12 October 2022]

Kaunda, E & Pelser, TG. 2023. Corporate governance and performance of state-owned enterprises in a least developed economy. *South African Journal of Business Management*, 54(1): a3827. Available from: https://doi.org/10.4102/sajbm.v54i1.3827. [Accessed on 24 March 2024]

Kaushik, V & Walsh, CA. 2019. Pragmatism as a research paradigm and its implications for social work research. *Social Sciences*, 8(9): 255.

Keay, A. 2017. Stewardship theory: Is board accountability necessary? *International Journal of Law and Management*, 59(6): 1292-1314. Available from: https://doi.org/10.1108/IJLMA-11-2016-0118 [Accessed on 24 July 2021]

Keeney, S, Hasson, F & McKenna, H. 2000. Consulting the oracle: Ten lessons from using the Delphi technique in nursing research. *J Adv Nurs*, 53(2): 205-212.

Kehoe, RR & Wright, PM. 2013. The impact of high-performance human resource practices on employees' attitudes and behaviors. *Journal of Management*, 39(2): 366-391. Available from: https://doi.org/10.1177/0149206310365901 [Accessed on 18 September 2024]

Kesieman, BS & Thakhathi, A. 2022. Preserving state-owned enterprises in South

Africa: Views and insights from business rescue practitioners in the commercial field of action. In A Thakhathi (Ed.), *Transcendent development: The ethics of universal dignity* (pp. 55-78). Leeds: Emerald Publishing Limited.

Kgarose, MF. 2023. Devaluing of state-owned entities: A comparative of SOE status between the 4th, 5th and 6th democratic administration. *International Journal of Research in Business and Social Science*, 12(3), 542-547.

Khan, I, Khan, I & Senturk, I. 2019. Board diversity and quality of CSR disclosure: Evidence from Pakistan. *Corporate Governance: The International Journal of Business in Society*, 19(6): 1187-1203.

Khan, WA & Vieito, JP. 2013. CEO gender and firm performance. *Journal of Economics and Business*, 67: 55-66.

Khanna, S. 2017. State-owned enterprises in India: Restructuring and growth. *The Copenhagen Journal of Asian Studies*, 30(2): 5-28.

Khatlisi, M. 2022. The value relevance of integrated reporting in South Africa and the United Kingdom. PhD thesis, University of South Africa, Pretoria.

Khatri, I. 2018. Does gender diversity in board or management lead to higher organizational performance? A review. *SSRN*. Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3789066 [Accessed 23 August 2023]

Khumalo, S. 2022. Performance Management Development System Challenges in Public Hospitals, Mpumalanga Province. Journal of Public Administration and Development Alternatives (JPADA), 7(2): 1-10.

Kikeri, S. 2018. Corporate governance in South African state-owned enterprises. Washington DC: World Bank.

Kilshevich, D & Panibratov, A. 2024. The omnipresence of the state and its effect on the internationalization of companies: The Russian variety of state capitalism. *Journal of International Management*, 30: 101154. Available from: https://doi.org/10.1016/j.intman.2024.101154. [Accessed on 15 December 2024]

Kim, BH. 2018. Is narcissism sustainable in CEO leadership of state-owned enterprises? *Sustainability*, 10(7): 2-13. Available from:https://doi.org/10.3390/su10072425 [Accessible from: 18 October 2022]

Kim, J, Cho, K & Park, CK. 2019. Does CSR assurance affect the relationship between CSR performance and financial performance? *Sustainability*, 11(20).

Kim, K & Panchanathan, N. 2021. Reform and privatization of state-owned enterprises in India. In F Taghizadeh-Hesary, N Yoshino, CJ Kim & K Kim (Eds.), *Reforming state-owned enterprises in Asia* (pp. 157-168). Singapore: Springer. Available from: https://doi.org/10.1007/978-981-15-8574-6_8 [Accessed on 23 September 2024]

Kim, TK. 2015. T-test as a parametric statistic. *Korean Journal of Anesthesiology*, 68(6): 540-546.

Kirsch, A. 2018. The gender composition of corporate boards: A review and research agenda. *The Leadership Quarterly*, 29(2): 346-364.

Ko, Y, Fujita, H & Li, T. 2017. An evidential analysis of Altman Z-score for financial predictions: A case study on solar energy companies. *Applied Soft Computing*, 52: 748-759. Available from: https://doi.org/10.1016/j.asoc.2016.09.050 [Accessed on 12 July 2023]

Koech, PM & Namusonge, GS. 2012. The effect of leadership styles on organizational performance at state corporations in Kenya. *International Journal of Business and Commerce*, 2(1): 1-12.

Kraay, A. 2019. *Methodology for a World Bank Human Capital Index*. Washington DC: World Bank Group.

Krambia-Kapardis, M. 2020. An exploratory empirical study of whistleblowing and whistleblowers. *Journal of Financial Crime*, 27(3): 755-770.

Krause, R, Barnard, A, Burger, H, De Vos, A, Evans, Farrant, KL, Fouche, N, Kalula, S, Morgan, J, Mohamed, Z, Panieri, E, Ras, T, Raubenheimer, P, Verburg, E, Boyd, K & Gwytheret, L. 2022. A Delphi study to guide the development of a clinical indicator tool for palliative care in South Africa. *Afr J Prm Health Care Fam Med*, 14(1), a3351.

Available from: https://doi.org/10.4102/phcfm.v14i1.3351 [Accessed on 4 April 2024]

Krippendorff, K. 2004. Measuring the reliability of qualitative text analysis data. *Quality and Quantity*, 38: 787-800.

Kumar, T. 2022. Home price subsidies increase local-level political participation in urban India. *The Journal of Politics*, 84(2): 831-845.

Kuzman, T, Talavera, O & Bellos, SK. 2018. Politically induced board turnover, ownership arrangements, and performance of SOEs. *Corporate Governance: An International Review*, 26(3): 160-179.

Kyalo, BM. 2015. Relationship between executive compensation and financial performance of commercial state-owned enterprises in the energy sector in Kenya. Thesis, Nairobi: The University of Nairobi.

Laimaru, S. 2018. Influence of governance principles on performance of commercial state corporations in Kenya. PhD thesis, Jomo Kenyatta University of Agriculture and Technology, Juja, Kenya.

Lajili, K, Lin, LYH & Rostamkalaei, A. 2020. Corporate governance, human capital resources, and firm performance: Exploring the missing links. *Journal of General Management*, 45(4): 192-205. Available from: https://doi.org/10.1177/0306307019895949 [Accessed on 23 March 2023].

Lampropoulou, M. 2021. Public sector restructuring and marketization reforms. In C Spanou (Ed.), *Crisis, reform and the way forward in Greece* (pp. 119-136). London: Routledge.

Larmou, S & Vafeas, N. 2010. The relation between board size and firm performance in firms with a history of poor operating performance. *Journal of Management & Governance*, 14: 61-85.

Lau, J, Mazzotta, P, Whelan, C, Abdelaal, M, Clarke, H, Furlan, AD, Smith, A, Husain, A, Fainsinger, R, Hui, D & Sunderji, N. 2022. Opioid safety recommendations in adult palliative medicine: A North American Delphi expert consensus. *BMJ Supportive & Palliative Care*, 12(1): 81-90.

Le Ha, NT & Huy, PD. 2024. The effect of corporate governance on financial performance in an emerging economy. *International Journal of Information, Business and Management*, 16(2): 27-38.

Leavy, B. 2010. Design thinking: A new mental model of value innovation. *Strategy & Leadership*, 39(3): 5-14.

Legodi, AH. 2021. Enhancing audit committee effectiveness in South African Municipalities. PhD thesis, University of South Africa, Pretoria.

Leutert, W. 2016. Challenges ahead in China's reform of state-owned enterprises. *Asian Policy*, 21(18): 83-100. Available from: https://www.jstor.org/stable/24905093 [Accessed on: 12 April 2022].

Li, S & Wu, Y. 2022. Government subsidies, ownership structure and operating performance of state-owned enterprises: evidence from China. Applied Economics, 54(56): 6480-6496.

Liao, H, Toya, K, Lepak, DP & Hong, Y. 2009. Do they see eye to eye? Management and employee perspectives of high-performance work systems and influence processes on service quality. *Journal of Applied Psychology*, 94(2): 371–391. Available from: https://doi.org/10.1037/a0013504 [Accessed on 28 September 2024]

Lipscomb, M. 2012. Abductive reasoning and qualitative research. *Nursing Philosophy*, 13: 244–256.

Lim, EW. 2021. Concentrated ownership, state-owned enterprises and corporate governance. *Oxford Journal of Legal Studies*, 41(3): 663–691.

Limbo, CM. 2019. An analysis of the performance of state-owned enterprises in Namibia: Case studies in the transport sector. PhD thesis, Stellenbosch University, Stellenbosch.

Lipton, M & Lorsch, JW. 1992. A model proposal for improved corporate governance.*Business Lawyer*, 48(1): 59–77.

López, MV, Garcia, A & Rodriguez, L. 2007. Sustainable development and corporate

performance: A study based on the Dow Jones sustainability index. *Journal of Business Ethics*, 75: 285-300.

Lopez, SP, Peon, JMM & Ordas, CJV. 2007. Human resource practices, organizational learning and business performance. *Human Resource Development International*, 8(2): 147-164.

Lord, J, Laundry, A, Savage, GT & Weech-Maldonado, R. 2020. *Predicting nursing home financial distress using the Altman Z-Score*. Thousand Oaks, CA: SAGE Publications.

Louw, VJ, Fraser, I & Giraldo, P. 2023. Management goals of type 1 Gaucher disease in South Africa: An expert Delphi consensus document on good clinical practice. *PLoS One*, 22: 18(8): e0290401.

Lu, S & Cheng, B. 2023. Does environmental regulation affect firms' ESG performance? Evidence from China. *Managerial and Decision Economics*, 44(4): 2004-2009.

Lusy, L & Riduwan, A. 2020. Financial performance and value of SOEs seen from good corporate governance, intellectual capital, and corporate social responsibility. *SSRG International Journal of Economics and Management Studies (IJEMS)*, 7(1): 9-17.

Maaß, L, Hajo Zeeb, H & Rothgang, H. 2024. International perspectives on measuring national digital public health system maturity through a multidisciplinary Delphi study. *Digital Medicine*, 7: 92. Available from: https://www.nature.com/articles/s41746-024-01078-9. [Accessed on 18 April 2024].

Mackey, TK & Liang, BA. 2012. Combating healthcare corruption and fraud with improved global health governance. *BMC International Health and Human Rights*, 12: 1-7.

Mabotha, PAP & Ngcamu, BS. 2024. Navigating the minefield of political interference on effective leadership in water and sanitation service delivery. Public Administration and Development Alternatives (IPADA). 414.

Madumi, P. 2018. *Are state-owned enterprises (SOEs) catalysts for or inhibitors of South African economic growth?* International Conference on Public Administration and Development Alternatives (IPADA).

Main, B & Smith, GI. 2018. Symbolic management and the glass cliff: Evidence from the Boardroom careers of female and male directors. *Br. J. Manag*., 29: 136– 155.

Makhanya, N. 2023. The role of accounting officers in ensuring responsible public financial management: A PFMA centric approach. *Business & Social Science (2147-4478)*, 12(10): 241-247. Available from: https://www.ssbfnet.com/ojs/index.php/ijrbs [Accessed on 2 October 2024]

Makuyana, G & Odhiambo, NM. 2016. Public and private investment and economic growth: A review. *Journal of Accounting and Management*, 2: 25-42.

Manjengwa, E. 2020. Advantages of employing mixed methods research in impact evaluation. Pretoria: Underhill Corporate Solutions.

Maome, IT & Zondo, RWD. 2024. The impact of corporate social responsibility on financial performance in a selected medium-sized clothing manufacturing organization in South Africa. *African Journal of Inter/Multidisciplinary Studies*, 6(1): 1-11. Available from: https://doi.org/10.51415/ajims.v6i1.1294 [Accessed on 3 October 2024)

Marimuthu, F. 2021. Factors driving the financial performance of state-owned enterprises in an emerging market. *International Journal of Entrepreneurship*, 25(7): 1-17.

Mark, JO & Atairet, AC. 2022. Budget as an instrument of accountability in democratic governance of Akwa Ibom State 2013-2022. *AKSU Journal of Administration and Corporate Governance (AKSUJACOG)*, 2(1): 178-188.

Martha, H & Khomsiyah, H. 2023. The effect of environmental, social and governance (ESG) on corporate performance. *Jurnal Ilmiah Bisnis dan Ekonomi Asia*, 17(1):112-120.

Marston, CL & Shrives, PJ. 1991. The use of disclosure indices in accounting research: A review article. *British Accounting Review*, 23: 195-210.

Martin, JA & Butler, FC. 2017. Agent and stewardship behaviour: How do they differ? *Journal of Management & Organization*, 23(5): 633-646.

Martin, ME & Solomon, H. 2016. Understanding the phenomenon of "state capture" in South Africa. *Southern African Peace and Security Studies*, 5(1): 21-35.

Martin, GP, Gomez-Mejia, LR & Wiseman, RM. 2013. Executive stock options as mixed gambles: Revisiting the behavioral agency model. *Academy of Management Journal*, 56(2): 451-472.

Mashamaite, KA & Raseala, P. 2019. Transgression of corporate governance in South Africa's state-owned enterprises. *Bangladesh e-Journal of Sociology*,16(1): 124- 134.

Masombuka, SSN & Thani, XC. 2023. Challenges and Successes of the Government-wide Monitoring and Evaluation System: The Role of the Department of Planning, Monitoring and Evaluation in the Presidency. Administratio Publica, 31(3): 146- 172.

Masyhuri, MM, Sudiro, A, Prabandari, SP & Kurniawati, DT. 2024. Human capital and readiness for digital innovation: The mediating role of thriving at work and the moderating role of perceived organizational support. *The Journal of Behavioral Science (TJBS)*, 19(2): 30-43.

Matakanye, RM. 2022. A framework for linking sustainability performance to sustainability reporting: Using regulation as a compliance mechanism. PhD thesis, University of South Africa, Pretoria.

Matebese-Notshulwana, KM. 2019. A Critical Analysis of the Oversight Role and Function of the Standing Committee on Public Accounts (SCOPA) in Promoting Accountability in South Africa's Public Sector. University of Pretoria (South Africa).

Matemane, R, Moloi, T & Adelowotan, M. 2022. ESG performance measures for executive pay: Delphi inquiry strategy and experts' opinion. *Acta Commercii*, 22(1): 1-14.

Mazzucato, M. 2013. The entrepreneurial state: Debunking public vs. private sector myths. London: Anthem Press.

Mbele, NO. 2015. Corporate governance in state-owned enterprises. PhD thesis, Wits University, Johannesburg.

Mbo, M. 2017. Drivers of organisational performance: A state-owned enterprise perspective. PhD thesis, Stellenbosch University. Stellenbosch.

McClave, JT & Sincich, T. 2017. *Statistics* (10th edition). Harlow: Pearson.

McMillan, R.1971. Tests for one or two outliers in normal samples with unknown variance. *Technometrics*, 13(1): 87-100.

McNabb, DE. 2002. Research methods in public administration and non-profit management: Quantitative and qualitative approaches. New York, NY: ME Sharpe.

Meckling, WH & Jensen, MC. 1976. Theory of the Firm. Managerial Behavior, Agency Costs and Ownership Structure. In: K Brunner (Eds.), *Economics social institutions. Rochester studies in economics and policy issues* (vol 1). Dordrecht: Springer. Available from: https://doi.org/10.1007/978-94-009-9257-3_8 [23 January 2022]

Megginson, WL. 2005. The economics of bank privatization. *Journal of Banking & Finance*, 29: 8-9.

Megginson, WL & Netter, JM. 2001. From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature*, 39(2): 321-389.

Melnikovas, A. 2018. Towards an explicit research methodology: Adapting research onion model for futures studies. *Journal of Futures Studies*, 23(2): 29–44.

Mertens, DM. 2018. *Mixed method in evaluation: History and progress*. Thousand Oaks, CA: SAGE Publications.

Mikael, TL. & Mabhungu, I. 2024. Performance reporting practices in state-owned enterprises: A systematic literature review. Africa's Public Service Delivery & Performance Review, 12(1): 1-8.

Mikuls, TR, Johnson, SR, Fraenkel, L, Arasaratnam, RJ, Baden, LR, Bonnie, L, Bermas, BL, Chatham, W, Cohen, S, Costenbader, K, Gravallese, EM, Kalil, AC, Weinblatt, ME, Winthrop, K, Mudano, AS, Turner, A & Saag, KG. 2020. American

College of Rheumatology Guidance for the Management of Rheumatic Disease in Adult Patients During the COVID-19 Pandemic. *Arthritis & Rheumatology*, 73(2): e1-e12.

Miles, S. 2015. Stakeholder theory classification: A theoretical and empirical evaluation of definitions. Cham: Springer Science Business Media.

Mincer, J. 1958. Investment in human capital and personal income distribution. *Journal of Political Economy*, 66(4): 281-302.

Mittal, S. 2024. Innovative Costing Methodology for Strategic Financial Planning and Resource Allocation: Navigating Budgetary Constraints to Drive Sustainable Growth and Business Leadership. *The International Conference on Applied Research in Management, Economics and Accounting*. 1(1): 1-11. Available from: https://doi.org/10.33422/iarmea.v1i1.284. [Accessed on 2 December 2024]

Mohallem, MF, Vasconcelos, B & France, G. 2017. *Integrity and transparency in Brazil's state-owned enterprises*. Transparencia Internacional Brasil. Available from: https://repositorio.fgv.br/server/api/core/bitstreams/7bf32cd8-4ff8-44c7- aa82-127d89a4a7c8/content [16 March 2021]

Mohammed, HT. 2023. Corporate entrepreneurship practices and performance of micro, small and medium enterprises in Niger State. PhD thesis, Kwara State University, Nigeria.

Mohamed El Mokadem, O., Gad, K. & Sobhy, N., 2024. An examination of assets tangibility, liquidity, growth opportunities, size and Altman's Z-score on firm's profitability. المجلة العلمية للدراسات التجارية والبيئية2(15): 927-972.

Moreno-Gómez, J, Lafuente, E & Vaillant, Y. 2018. Gender diversity in the board, women's leadership and business performance. *Gender in Management: An International Journal*, 33(2): 104-122.

Morgan, DL. 2014. Pragmatism as a paradigm for social research. *Qualitative Inquiry*, 20(10): 1–9. Available from: https://journals.sagepub.com/doi/abs/10.1177/1077800413513733 [Accessed on: 12 July 2023]

Moyo, NJ. 2010. South African principles of corporate governance: legal and regulatory restraints on powers and remuneration of executive directors. PhD thesis, University of South Africa, Pretoria.

Moser, F & Shabanaj, V. 2019. The effect of board diversity on corporate performance: The case of Swedish state-owned enterprises as hybrid organizations. Master's dissertation, Högskolan Kristianstads, Kristianstad, Skåne 29188, Sweden.

Mpete, M & Maier, C. 2024. Challenges faced by CEOs in executing turnaround strategies in state-owned enterprises in South Africa. *South African Journal of Business Management*, 55(1): a4220. Available from: https://hdl.handle.net/10520/ejc-busman_v55_n1_a4220. [Accessed on: 28 October 2024].

Mubarak, MF, Petraite, M & Kebure, K. 2021. Managing intellectual capital for open innovation: Components and processes? In M Shahbaz, MS Mubarik & T Mahmood (Eds.), *The dynamics of intellectual capital in current era* (pp. 149- 169). Singapore: Springer Singapore.

Muiruri, KZ & Kilika, J. 2015. The influence of the balanced score card on performance of public sector organisations in Kenya. *Science Journal of Business and Management*, 3(5): 150-156. Available from:http://www.sciencepublishinggroup.com/j/sjbm). [Accessed on 12 July 2022]

Mukono, H. 2021. Role of internal auditing function in performance of state-owned enterprises (SOEs) in Zimbabwe: A corporate governance framework. PhD thesis, Cape Peninsula University of Technology, Cape Town.

Mulenga, CP. 2024. Effect of corporate governance on the performance of state-owned enterprises in Zambia. *African Journal of Commercial Studies*, 4(2): 138-153. Available from: https://doi.org/10.59413/ajocs/v4.i2.7 [28 October 2024].

Munduga, P. 2014. An analysis of the poor performance of state-owned enterprises in Africa. MBA thesis, Eastern and Southern African Management Institute, Kampala.

Musacchio, A & Lazzarini, SG., 2014. *Reinventing state capitalism: Leviathan in business, Brazil and beyond*. Harvard: Harvard University Press.

Musundwa, SF. 2022. Developing a framework to address the underrepresentation of black citizens in the chartered accountancy profession: Case of South Africa. PhD thesis, The University of South Africa, Pretoria.

Mutegi, MF & Ombui, K. 2016. An investigation of the factors that cause poor performance of state corporations in Kenya. *International Journal of Scientific and Research Publications*, 6(11): 350-360.

Mutize, M & Tefera, E. 2020. The governance of state-owned enterprises in Africa: An analysis of selected cases. *Journal of Economics and Behavioral Studies*, 12(2): 9-16. Available from: https://doi.org/10.22610/jebs.v12i2(J).2992. [Accessed on 12 November 2021].

Mutize, M. 2018. *Why listing South Africa's state-owned enterprises is not the solution*. Available from https://www.gsb.uct.ac.za/fo-soe-solutions. [Accessed on 9 October 2024]

Mwayungu, O. 2021. The relationship between accountability, transparency, and company performances: An ex-post facto study. PhD thesis, Walden University, Minneapolis, MN.

Nair, J. 2006. Progress with the implementation of the PFMA. *Auditing SA*, 22: 11-16.

National Development Plan 2030 (NDP). 2012. *Our future: Make it work*. Available from: https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030- our-future-make-it-workr.pdf. [Accessed on 12 March 2021]

National Treasury. 2011. *Performance Information Handbook*. Available from: https://www.treasury.gov.za/publications/guidelines/performance%20information%20handbook.pdf [Accessed on 12 March 2022]

National Treasury. 2014. *Using the annual report as an oversight tool*. Available from: https://oag.treasury.gov.za. [Accessed on 12 October 2021]

National Treasury. 2020. A*nnual report on state-owned companies*. Available from: https://www.treasury.gov.za [Accessed on 5 August 2024].

National Treasury. 2023. *Economic review 2023*. Available from: https://www.treasury.gov.za [Accessed on 14 January 2024].

Nchabeleng, OP. 2019. Effect of audit committees' compositions on the financial performance of selected South Africa state-owned enterprises. MCom dissertation, University of Limpopo, Polokwane.

Ndlovu, V, Mutambara, E & Assensoh-Kodua, A. 2017. Executive remuneration and company performance. *Corporate Ownership and Control*, 15(1): 253-264.

Nemes, N, Scanlan, SJ, Smith, P, Smith, T, Aronczyk, M, Hill, S, Lewis, SL, Montgomery, AW, Tubiello, FN & Stabinsky, D. 2022. An integrated framework to assess greenwashing. *Sustainability*, 14(8): 4431.

Nevondwe, L, Odeku, KO & Raligilia, K. 2015. Ethics in the state-owned companies in the public sector: A thin line between corporate governance and ethical leadership. *Mediterranean Journal of Social Sciences*, 5(15): 661-668.

Ngepah, N, Saba, CS & Mabindisa, NG. 2021. Human capital and economic growth in South Africa: A cross-municipality panel data analysis. *South African Journal of Economic and Management Sciences*, 24(1): 1-11.

Ngobeni, PT, Barnard, L & Molate, MC. 2023. Enhancing the criteria for financial assistance to state-owned companies. *Journal of Economic and Financial Sciences*, 16(1): 1 -11.

Ngqumeya, MBA. 2012. The effect of key performance indicators on state owned enterprises performance in South Africa: A critical analysis of three national departments. MBA degree, University of Pretoria, Pretoria.

Ngwenya, S. 2016. CEO compensation, corporate governance, and performance of listed platinum mines in South Africa. *Corporate Ownership and Control*, 13(2): 408-416.

Niederberger, M & Spranger, J. 2020. Delphi Technique in Health Sciences: A map. *Public Health*, 8: 1-10.

Nirino, N, Santoro, G, Miglietta, N & Roberto, Q. 2020. Corporate controversies and company's financial performance: Exploring the moderating role of ESG practices. *Multidisciplinary Journal on Environment Science*, 162(3). Available from: http://dx.doi.org/10.1016/j.techfore.2020.120341 [Accessible on 2 October 2024]

Nitzl, C, Roldan, JL & Cepeda, G. 2016. Mediation analysis in partial least squares path modeling: Helping researchers discuss more sophisticated models. *Industrial Management & Data Systems*, 116(9): 1849-1864.

Nkambule, I. 2024. State institutions and development in South Africa: The case of two state-owned enterprises. *Insight on Africa*, 17(1), 63-79. https://doi.org/10.1177/09750878241270349

Nkechi, OC, Nzewi, H & Augustine, A. 2020. Accountability and transparency in nation building: A Covid-19 experience in sub-Saharan Africa. *International Journal of Public Policy and Administration Research*, 7(1): 23-33.

Nkosi, L. 2020. The relationship between government debt and state-owned enterprises: An empirical analysis of Eskom. *International Journal of Economics and Finance Studies*, 12(1): 119-134.

Nurgozhayeva, R. 2022. Corporate governance in Russian state-owned enterprises: Real or surreal? *Asian Journal of Comparative Law*, 17: 24-50.

Nyamita, MO. 2014. Factors influencing debt financing and its effects on financial performance of state corporations in Kenya. PhD thesis, Durban University of Technology, Durban.

Nwabueze, U & Mileski, J. 2008. The challenge of effective governance: The case of Swiss Air. *Corporate Governance*, 8(5): 583-94.

Nwoye, J & Agwu, E. 2017. Effective decision-making and organisational goal achievement in a depressed economy. *International Journal of Research and Development Studies*, 8(1).

Nzimakwe, TI. 2023. Procurement in state-owned enterprises and its implications on service delivery in South Africa. *African Journal of Public Affairs*, 14(1): 1-18.

Obeitoh, OO, Buusson, MA & Yusuf, I. 2023. Board characteristics and firm performance: The moderating role of board expertise. *EuroMed Journal of Management*, 5(3-4): 185-209.

O'Brien, RM. 2007. A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41(5): 673-690.

Odhiambo, MA. 2021. Kenya's oil and gas industry local content framework: An analysis of Sections 50, 51 and 52 of the Petroleum Act 2019. Phd Thesis, Strathmore University.

Ofori, E. 2016. Detecting corporate financial fraud using Modified Altman Z-score and Beneish M-score: The case of Enron Corp. *Research Journal of Finance and Accounting*, 7(4): 59-65.

Ogbeifun, E, Mbohwa, C & Pretorius, JHC. 2016. Developing Key Performance Indicators using the Delphi technique. *FUTY Journal of the Environment*, 10(1): 27-38.

Okoli, C & Pawlowski, SD. 2004. The Delphi method as a research tool: An example, design considerations and applications. *Information & Management*, 42(1): 15- 29.

Ogodor, BN & Olaniyi, AR. 2022. Effect of human resource accounting on corporate performance of Nigerian listed consumer product firm (2013-2018). *ACU Journal of Social and Management Sciences*, 3(1): 212-225.

Ohidoa, T & Kolade, AM. 2024. Executive compensation and firms' financial performance: Analytical approach in Nigeria. *NIU Journal of Social Sciences*, 10(1): 283-295. Available from: https://www.niujournals.ac.ug/ojs/index.php/niujoss/article/view/181 [Accessed on 19 October 2024]

Okpo, SA, Eshiet, UE & Okon EE. 2023. Remuneration packages of executive directors and financial performance of money deposit banks: Evidence from Nigeria. *Global Journal of Human Resources*, 11(1): 1-12.

Olwol, JA, Mpora, BE, Kayongo, IN & Benson, T. 2022. The effect of accountability on

performance of National Water and Sewerage Corporation in Uganda. *International Journal of Scientific Research and Management*, 10(3): 3199-3212.

Oosthuizen, A. 2021. A tax framework for crowdfunding in South Africa. PhD thesis, University of South Africa, Pretoria.

Onyango, SO. 2016. Effects of government bailout on the financial performance of Commercial State-Owned Enterprises in Kenya. Master's dissertation, The University of Nairobi, Nairobi.

Organization for Economic Co-operation and Development (OECD). 2015. *Guidelines on corporate governance of state-owned enterprises (SOEs)*. Paris: OECD Publishing. Available from: https://doi.org/10.1787/9789264244160-en [Accessed on: 22 April 2022].

Organisation for Economic Co-operation and Development (OECD). 2021b. Ownership and governance of state-owned enterprises a compendium of national practices, OECD Publishing. Available from: https://www.oecd.org/en/publications/ownership-and-governance-of-state- owned-enterprises-2021_581de09d-en.html. [Accessed on 10 March 2025] 3–110.

Organisation for Economic Co-operation and Development (OECD). 2023. *SOEs are major players in the global economy, but their weight varies greatly across jurisdictions*. Available from: https://www.oecd.org/en/topics/sub- issues/corporate-governance-of-state-owned-enterprises.html#:~:text=SOEs%20are%20major%20players%20in,however%2C%20varies%20considerably%20across%20markets [Accessed on 10 September 2024]

Orij, RP, Rehman, S, Khan, H & Khan, F. 2021. Is CSR the new competitive environment for CEOs? The association between CEO turnover, corporate social responsibility and board gender diversity: Asian evidence. *Corporate Social Responsibility and Environmental Management*, 28(2): 731-747.

Osazevbaru, HO, Ogwu, KR & Demaki, G. 2023. Effect of board knowledge capital on organisational performance of listed companies in Nigeria. *European Journal of*

Business and Innovation Research, 11(6): 1-13. Available from: https://www.eajournals.org/. [Accessed on 28 August 2024].

Owen, D. 2008. Chronicles of wasted time? A personal reflection on the current state of, and future prospects for, social and environmental accounting research. *Accounting, Auditing & Accountability Journal*, 1(35): 9.

Qhobosheane, LAM. 2018. The impact of political interference in state-owned companies: A case study of SABC. LLM dissertation, The University of Free State, Bloemfontein.

Özer, G, Aktaş, N & Merter, AK. 2024. The remuneration-performance relationship in corporate governance: Evidence from board member' remuneration and firm performance. *Doğuş Üniversitesi Dergisi*, 25(2): 231-248.

Page, MJ, Huang, H, Verhagen, AP, Buchbinder, R & Gagnier, JJ. 2016. *Identifying a core set of outcome domains to measure in clinical trials for shoulder disorders: A modified Delphi study*. RMD Open. Available from: https://rmdopen.bmj.com/content/2/2/e000380.citation-tools [Accessed on b16 April 2024]

Panicker, VS, Upadhyayula, RS & Sivakumar, S. 2022. Internationalization of hybrid state-owned enterprises from emerging markets: Institutional investors as enablers. *Journal of Business Research*, 151: 409-422.

Papenfuß, U. 2020. Corporate governance of state-owned enterprises: Conceptualization, challenges and perspectives for the public corporate governance field. In L Bernier, M Florio & P Bance (Eds.), *The Routledge handbook of state-owned enterprises* (pp. 433-444). London: Routledge.

Paré, G, Ann-Frances, C, Placide, P & Mathieu, T. 2013. A systematic assessment of rigor in information systems ranking-type Delphi studies. *Information & Management*, 50(5): 207-217.

Parker, D. 2021. *Privatization of state-owned enterprises.* Oxford Research Encyclopedia of Business and Management. Available from: https://doi.org/10.1093/acrefore/9780190224851.013.93 [Accessed on 12 January

2023]

Parliamentary Monitoring Group (PMG). 2020/21. *Annual Report*. Available from: https://pmg.org.za/page/Annual%20Reports%202020/21 [Accessed on 21 October 2023]

Pauw, JC, Woods, G, Van der Linde, GJA, Fourie, D & Visser, CB. 2002. *Managing public money: A system from the South*. Cape Town: Clysons.

Peloza, J. 2009. The challenge of measuring financial impacts from investments in corporate social performance. *Journal of Management*, 35(6): 1518-1541. Available from: http://jom.sagepub.com [Accessed on 20 October 2024]

Phaladi, MP. 2021. Framework for integrating knowledge management and human resource management for the reduction of organisational knowledge loss in selected South African state-owned enterprises. PhD thesis, University of South Africa, Pretoria.

Phi, NTM, Taghizadeh-Hesary, F, Tu, CA, Yoshino, N & Kim, CJ. 2021. Performance differential between private and state-owned enterprises: An analysis of profitability and solvency. *Emerging Markets Finance and Trade*, 57(14): 3913- 3928.

Phillips, Z, Claxton, K & Palmer, S. 2008. The half-life of truth: What are appropriate time horizons for research decisions? *Medical Decision Making*, 28(3): 287-299. Available from: https://doi.org/10.1177/0272989X07312724 [Accessed on 07 March 2023]

Pidani, RR, Mahmood, A & Agbola, FW. 2020. Does the board gender diversity enhance firm performance. *Asian Journal of Business Research*, 10(1): 29-46.

Ponela, AT. 2020. Economic co-operation among BRICS countries and its impact on South Africa Trade. MCom dissertation, The University of South Africa, Pretoria.

Ponto, J. 2015. Understanding and evaluating survey research. *Journal of the Advanced Practitioner in Oncology*, 6(20): 168-171.

Prado-Lorenzo, JM & Garcia-Sanchez, IM. 2010. The role of the board of directors in

disseminating relevant information on greenhouse gases. *Journal of Business Ethics*, 97(3): 391-424.

Presidential Review Committee. 2013. *Presidential review committee on state-owned entities*. Available from: https://www.gov.za/sites/default/files/gcis_document/201409/presreview.pdf [Accessed on 24 January 2021]

PricewaterhouseCoopers (PWC). 2012. *State owned companies: The new Companies Act, PFMA and King III in perspective*. Available from: www.pwc.co.za/companies-act. [Accessed 21 October 2020].

PricewaterhouseCoopers (PWC). 2015. State-owned enterprises: Catalysts for public value creation? London: PWC.

Qian, C, Crilly, D, Lin, Y, Zhang, Y & Zhang, R. 2023. Short-selling pressure and workplace safety: Curbing short-termism through stakeholder interdependencies. *Organisation Science*, 34(1): 358-379. Available from: https://doi.org/10.1287/orsc.2022.1576 [Accessed on 13 November 2024]

Radygin, A, Simachev, Y & Entov, R. 2015. The state-owned company: "State failure" or "market failure"? *Russian Journal of Economics*, 1: 55-80.

Rahayu, NK, Harymawan, I, Nasih, M & Nowland, J. 2022. Director pays slice, the remuneration committee, and firm financial performance. *Cogent Economics & Finance*, 10(1): 2087291.

Raithatha, Y. 2017. Understanding the economic impact terrorism has on the destination decision making: Northern Irish tourists. PhD thesis, Dublin Business School, Dublin.

Rahmawati, A. 2018. How do agency theory, stewardship theory and intellectual capital as a solution for agency conflict? *Journal of Management Research*, 10(2).

Ramaswamy, MP. 2020. Invoking emergency measures on public health grounds: The Legitimacy of Social and Trade Restrictions during Global Pandemic Outbreak.

Rastogi, PN. 2017. Sustaining enterprise competitiveness – is human capital the answer? *Human Systems Management*, 19: 193-203.

Reguera-Alvarado, N, De Fuentes, P & Laffarga, J. 2017. Does board gender diversity influence financial performance? Evidence from Spain. *Journal of Business Ethics*, 141: 337-350.

Republic of South Africa (RSA). 1996. *Constitution of the Republic of South Africa Act No. 101 of 1996*. Pretoria: Government Printers.

Richmond, CP, Dohlman, JM & Roaf, J. 2019. Reassessing the role of state-owned enterprises in Central, Eastern, and Southeastern Europe. Washington, DC: IMF.

Rigo, ER, Richmond, CJ, Olugbade, OA, Anderson, G, Atamanchuk, M, Bukhari, H, Loannou, L, Kale, D, Kass-Hanna, T, Queyranne, M, Shi, W & Wong, J. 2021. *State-owned enterprises in the Middle East, North Africa, and Central Asia: Size, costs, and challenges.* Washington, DC: IMF. Available from: https://doi.org/10.5089/9781513594088.087. [Accessed on 12 July 2022]

Robb, G & Mondliwa, P. 2018. *SOCs and competition: Reflections on South Africa's experiences in telecommunication and energy*. Johannesburg: Centre for Competition Regulation and Economic Development.

Rose, S, Sprinks, N & Canhoto, AI. 2015. *Quantitative content analysis. Management Research: Applying the Principles*. Available from: https://www.routledge.com/Management-Research-Applying-the- Principles/Rose-Spinks-Canhoto/p/book/9780415628129 [Accessed on 23 July 2023]

Rossouw, GL, Van de Watt, A & Malan, DP. 2002. Corporate governance in South Africa. *Journal of Business Ethics*, 37: 289–302.

Rouault, J & Albertini, S. 2022. Reconciling the social sector with external accountability requirements: Lessons from stewardship theory. *Journal of Business Research*, 142: 485-498.

Roque, DI & Carrero, AC. 2022. Detection of financial insolvency using the Z-Altman model in non-listed Colombian companies during the period 2016-2019. *Accounting*

and Business, 33(17): 167-192. Available from: https://doi.org/10.18800/contabilidad.202201.007 [Accessed from: 27 September 2024.

Sadiki, M. 2015. Financial assistance to state-owned enterprises by the state in South Africa: A case study of Eskom. PhD thesis, University of South Africa, Pretoria.

Sahari, S, Tinggi, M, Cheuk, S & Nordin, NA. 2018. A review of Delphi technique in developing human capital disclosure index. *Academy of Accounting and Financial Studies Journal*, 22(4): 1-9.

Sajesh, VK. 2018. *Forecasting using Delphi method: An overview*. New Delhi: Indian Council of Agricultural Research.

Saldana, J. 2014. *Thinking qualitatively: Methods of mind*. Thousand Oaks, CA: SAGE Publications.

Sambo, VT. 2017. The implementation of the internal audit provisions of the Public Finance Management Act 1 of 1999: A case of the South African Social Security Agency. PhD thesis, University of South Africa, Pretoria.

Sanches, C, Gouveia-Pereira, M, Marôco, J, Gomes, H & Roncon, F. 2016. Deviant behavior variety scale: Development and validation with a sample of Portuguese adolescents. *Psicologia: Reflexão e Crítica*, 29(0): 31.

Sapovadia, VK. 2018. Digital and internet finance: Future of India's financial inclusion plan. *SSRN* Available at: https://ssrn.com/abstract=3206678 or http://dx.doi.org/10.2139/ssrn.320667 8

Sari, M, Lubus, AD, Maksum, A & Lumbanraja, P. 2018. The influence of organisation's culture and internal control to corporate governance and its impact on state-owned enterprises corporate. *Journal of Applied Economic Sciences*, 13(3): 673-684.

Sarkar, J & Sarkar, S. 2012. *A corporate governance index for large listed companies in India*. Mumbai: Indira Gandhi Institute of Development Research.

Saunders, M, Lewis, P & Thornhill, A. 2009. *Research methods for business students* (6th ed.). Harlow: Pearson Education Limited.

Saunders, MNK, Lewis, P & Thornhill, A. 2012. *Research methods for business students* (6th ed.) Harlow. England: Pearson Education, 109.

Saunders, M, Lewis, P & Thornhill, A. 2016. *Research methods for business students* (7th ed.). Harlow: Pearson.

Saunders, MNK, Lewis, P & Thornhill, A. 2019. *Research methods for business students* (8th ed.). Harlow: Pearson.

Saunders, MNK, Lewis, P & Thornhill, A. 2023. *Research methods for business students* (9th ed.). Harlow: Pearson. 128-174.

Savage, A, Gilbert, E, Rowlands, J & Cataldo, AJ. 2001. Environmental disclosure in annual reports: A legitimacy theory perspective. *South African Journal of Accounting Research*, 1(15): 2.

Schillemans, T & Bjurstrøm, KH. 2018. Trust and verification: Balancing agency and stewardship theory in the governance of agencies. *International Public Management Journal*, 23(5).

Schoeman, W. 2022. South African Governance legal framework for corporate disclosures and reporting: Part 1: Voluntary Sustainability Reporting. *SA Mercantile Law Journal*, 34(2): 268-292.

Schultz, TW. 1961. Investment in human capital. *The American Economic Review*, 51(1):1-17.

Seddon, PB. 2014. Implications for strategic IS research of the resource-based theory of the firm: A reflection. *Journal of Strategic Information Systems*, 23: 257–269. Available from: www.elsevier.com/locate/jsis [Accessed 16 December 2021].

Selcuk, EA & Kiymaz, H. 2017. Corporate social responsibility and firm performance: Evidence from an emerging market. *Accounting and Finance Research*, 6(4): 42-51. Available from: https://doi.org/10.5430/afr.v6n4p42 [Accessed on 20 October 2024]

Sidki, M, Boerger, L & Boll, D. 2023. The effect of board members' education and experience on the financial performance of German state-owned enterprises. *Journal of Management and Governance*, 28: 445-482.

Silvestre, HC, Gomes, RC, Lamba, JB & Correia, AM. 2018. Implementation of Brazil's energy policy through the national oil company: From institutional chaos to strategic order. *Energy Policy*, 119: 87-96.

Singh, JN & Chen, GC. 2020. State-owned enterprises and the political economy of state–state relations in the developing world. In JT Nem Singh & J Salah Ovadia (Eds.), *Developmental states beyond East Asia* (pp. 45-65). London: Routledge.

Simone, A & Wang, Z. 2022. The role of SOCs in South Africa: Issues of policy options. Washington DC: IMF.

Sithomola, T. 2019. Leadership conundrum in South Africa's state-owned enterprises. *Administratio Publica*, 27(2): 62-80.

Siwendu, TO, Swanepoel, MJ & Stumke, O. 2024. Relationship between executive remuneration and performance of South African mining companies. *Journal of Economic and Financial Sciences*, 17(1).

Shaikh, S. 2022. Impression management analysis of South African state-owned enterprises: Six capitals disclosure in the Chairman, CEO, CFO and Performance Report. MCom dissertation, University of Witwatersrand, Johannesburg.

Shao, L. 2019. Dynamic study of corporate governance structure and firm performance in China: Evidence from 2001–2015. *China Manag Stud*, 13(2): 299–317. https://doi.org/10.1108/CMS-08-2017-0217 [Accessed on 21 July 2021]

Shahzad, A, Naeem, MA, Shafique, N & Saleem, MA. 2019. Performance evaluation of state-owned enterprises: Evidence from Pakistan. *Pakistan Journal of Commerce and Social Sciences*, 13(1): 200-221.

Shawtari, FA, Mohamad, MHS, Rashid, HMA & Ayedh, AM. 2016. Board characteristics and real performance in Malaysian state-owned enterprises (SOEs). *International Journal of Productivity and Performance Management*, 66(8): 1064-

1086.

She, C & Michelon, G. 2019. Managing stakeholder perceptions: Organized hypocrisy in CSR disclosure on Facebook. *Critical Perspective on Accounting*, 61: 54-76. Available from: https://doi.org/10.1016/j.cpa.2018.09.004 [Accessed on 23 March 2024]

Sheppard, V. 2020. *Research methods for the social sciences*. Available from: https://pressbooks.bccampus.ca/jibcresearchmethods/ [Accessed on 22 December 2022]

Shrader, R & Siegel, DS. 2007. Assessing the Relationship between Human Capital and Firm Performance: Evidence from Technology-Based New Ventures. Baylor University, Waco, TX.

Shukla, AK. 2020. Multi-population adaptive genetic algorithm for selection of microarray biomarkers. *Neural Computing and Applications*, 32(15): 11897- 11918.

Skinner, R, Nelson, RR, Chin, WW & Land, L. 2015. The Delphi method research strategy in studies of information systems. *Communications of the Association for Information Systems*, 37: 31-63.

Soejono, F & Heriyanto, H. 2018. Privatization and Firm Performance: A Study of Indonesia's State-owned Enterprises. *Jurnal Dinamika Manajemen*, 9(2): 149- 158.

Solomon, J. 2007. *Corporate governance and accountability*. Hoboken, NJ: John Wiley.

Sourani, A & Sohail, M. 2015. The Delphi method: Review and use in construction management research. *International Journal of Construction Education and Research*, 11(1): 54-76.

South Africa. National Planning Commission. 2011. *National Development Plan: Vision 2030*. Pretoria: Government Printers.

South African Company Law (SACL). 2004. South African Company Law for the 21st Century: Guidelines for Corporate Law Reform. Pretoria: Government Printers.

South African Competition Commission. 2020. *A growing, deconcentrated and inclusive economy*. Available from: https://www.compcom.co.za/ [Accessed on 4 August 2022]

South African Oxford Business Group. 2016. *The Report: South Africa 2016*. Available from: https://oxfordbusinessgroup.com/reports/south-africa/2016-report [Accessed on 4 February 2022]

Sprenger, C. 2010. State ownership in the Russian economy: Its magnitude, structure, and governance problems. ICEF Working Paper.

Srarzec, K & Nowara, W. 2017. The economic performance of state-owned enterprises in Central and Eastern Europe. *Post-Communist Economics*, 29(3).

Statistics South Africa (Stats SA). 2019. S*ustainable Development Goals: Country report 2019*. Available from: https://www.statssa.gov.za/MDG/SDGs_Country_Report_2019_South_Africa.p df [Accessed on 13 July 2021]

Statistics South Africa (Stats SA). 2023. *Gross Domestic Product (GDP) data*. Available from: https://www.statssa.gov.za [Accessed on 12 March 2024].

Stevens, AG. 2020. Enforceable accountability: A corporate governance mirage for South African state-owned companies. PhD thesis, University of Cape Town, Cape Town.

Stiles, P & Kulvisaechana, S. 2003. *Human capital and performance: A literature review.* Cambridge: University of Cambridge.

Stoker, P, Tian, G & Kim, JY. 2020. Analysis of variance (ANOVA). In R Ewing & K Park (Eds.), *Basic quantitative research methods for urban planners* (pp. 197- 219). London: Routledge.

Suchman, M. 1995. Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3): 57l-610.

Suharyono, S. 2019. The effect of accountability, transparency, and supervision on

budget performance by using the concept of value for money in regional business enterprises (bumd) of Riau province. *International Journal of Public Finance*, 4(2): 236-249.

Sullivan, M. 2018. Statistics: Informed decisions using data. Harlow: Pearson.

Sundaramurthy, C & Lewis, M. 2003. Control and collaboration: Paradoxes of governance. *Academy of Management Review*, 28(3): 397-415.

Surroca, J, Tribó, JA & Waddock, S. 2010. Corporate responsibility and financial performance: The role of intangible resources. *Strategic Management Journal*, 31(5): 463-490.

Swatdikun, T. 2013. Executive pay-performance sensitivity and its consequences: empirical evidence on the role of ownership in Thailand. PhD thesis, University of Southampton, Southampton.

Szarzec, K, Totleben, B & Piątek, D. 2022. Diversity of the composition of the management boards and supervisory boards of Polish joint-stock companies. *The Polish Journal of Economics*, 309(1): 79-95.

Tandiontong, M & Sitompul, M. 2017. The influence of financial distress using Altman Z-Score, the Beta of Stocks and Inflation to the Stock Return. *Journal of Finance and Banking Review*, 2(2): 21-27.

Tanwer, K & Garg, MC. 2024. Do corporate governance dynamics drive performance of state-owned and non-state-owned enterprises? An Indian perspective. *Asian Journal of Business Ethics*, 13: 1-3. Available from: https://doi.org/10.1007/s13520-023-00185-2 [Accessed on 21 November 2023].

Tariq, U. 2010. CEO compensation: Relationship with performance and influence of board of directors. Master's thesis, Gotland University, Gotland, Sweden.

Tenga, D, Fuller, DB & Li, C. 2018. Institutional change and corporate governance diversity in China's SOEs. *Asia Pacific Business Review*, 24: 273–293.

Tessema, AD. 2014. The impact of human capital on company performance case of

the footwear sector in Ethiopia. *Journal of Business and Administrative Studies*, 6(2): 76-103.

Thabane, T & Van Deventer, ES. 2018. Pathological corporate governance deficiencies in South Africa's state-owned companies: A critical reflection. *Potchefstroom Electronic Law Journal*, 21: 1-32. Available from: http://dx.doi.org/10.17159/1727-3781/2018/v21i0a2345 [18 March 2022].

Tjano, RN. 2021. An empirical study of corporate governance and sustainability reporting practices in South African state-owned entities. PhD thesis, University of South Africa, Pretoria.

Thusi, X & Mashabela, M. 2023. The role of civil society organizations in promoting public accountability: The perspective of the South African local government. *International Journal of Social Sciences Review*, 11(2): 175-180.

Thomas, L. 2020. *Cross-sectional study: Definition, uses & examples.* Scribbr. Available from: https://www.scribbr.com/methodology/cross-sectional-study? [Accessed on 07 March 2023]

Thompson, RM, Alleyne, P & Soverall, WC. 2019. Exploring governance issues among boards of directors within state-owned enterprises in Barbados. *International Journal of Public Sector Management*, 32(3): 264-281. Available from: https://doi.org/10.1108/IJPSM-04-2018-0099. [Accessed on 23 January 2023]

Tleane, K. 2020. *State-owned enterprise bailouts on economic growth: A case on South African Airways*. 5th Annual International Conference on Public Administration and Development Alternatives 07-09 October, Virtual Conference.

Transnet Governance Report. 2022. Available from: https://nationalgovernment.co.za/entity_annual/3440/2023-transnet-soc-ltd- annual-report.pdf [Accessed in 20 July 2023]

Transnet Integrated Report. 2021. Available from: https://www.transnet.net/InvestorRelations/AR2021/Transnet%20Integrated%20Report.pdf [Accessed on 7 August 2023]

Trebilcock, A. 2021. Governance challenges and opportunities for the International Labour Organization in the wake of the COVID-19 pandemic. *International Organizations Law Review*, 18(3): 370-396.

Turyakia, N, Nyamute, W, Okiro, M & Wainaina, G. 2022. Corporate Governance and Performance of State-Owned Enterprises in Uganda. *African Development Finance Journal*, 4(4): 14-37. Available from: http://journals.uonbi.ac.ke/index.php/adfj [Accessed on 27 September 2024]

Turnbull, S & Prison, M. 2013. Could the 2008 US financial crisis be avoided with network governance? *International Journal of Disclosure and Governance*, 9(1): 1-27.

Turoff, M & Linstone, H.A. 2002. The Delphi method-techniques and applications. http://is.njit.edu/pubs/delphibook/

Twin, A. 2022. *Delphi Method Forecasting: Definition and how it's used: Fundamental analysis*. Available from: https://www.investopedia.com/terms/d/delphi-method.asp#toc-advantages-of-the-delphi-method [Accessed on 14 March 2023]

Ullah, Z, Rehman, V & Waheed, A. 2016. The impact of corporate accountability & transparency on the performance of manufacturing firms listed on KSE. Available at *SSRN*: https://ssrn.com/abstract=2756977 or http://dx.doi.org/10.2139/ssrn.2756977

Umar, MA & Zhanfang, C. 2021. A comparative study of dynamic software testing techniques. *Int. J. Advanced Networking and Applications*, 12(3): 4575-4584.

Van Teijlingen, E & Hundley, V. 2002. The importance of pilot studies. *Nursing Standard*, 16(40): 33-60.

Varpio, L, Paradis, E, Uijtdehaage, S & Young, M. 2020. The distinctions between theory, theoretical framework, and conceptual. *Academic Medicine: Journal of the Association of American Medical Colleges*, 95(7): 989-994.

Varshney, P, Kaul, VK & Vasal, VK. 2012. Corporate governance index and firm performance: Empirical evidence from India. Available at *SSRN*: https://ssrn.com/abstract=2103462 or http://dx.doi.org/10.2139/ssrn.2103462

Vasudevan, A, Wu, B, Hai, ST, Adialita, T, Johns, S, Arokiasamy, ARA & Galdolage, S. 2024. Evaluating the impact of different sustainable leadership: Its influence on state-owned enterprises' performance in Northeast China. *Journal of Infrastructure, Policy and Development*, 8(7): 3909. Available from: https://doi.org/10.24294/jipd.v8i7.3909. [23 November 2024]

Ventresca, MJ & Mohr, JW. 2017. *Archival research methods*. Hoboken, NJ: Wiley Online Research. Available from: https://doi.org/10.1002/9781405164061.ch35. [Accessed 29 July 2023]

Veselinović, N, Krstić, B & Rađenović, T. 2018. The impact of human capital value on human capital efficiency and business performance. *Facta Universitatis, Series: Economics and Organization*, 19(1): 13-26. Available from: https://doi.org/10.22190/FUEO211118002V. [Accessed on 22 September 2024]

Vianna, MP. 2014. *Brazilian state-owned enterprises: A corruption analysis*. The Washington, DC: George Washington University.

Vitacca, M, Lazzeri, M, Guffanti, E, Frigerio, P, D'Abrosca, F, Gianola, S, Carone, M, Paneroni, M, Ceriana, P, Pasqua, F & Banfi, P. 2020. Italian suggestions for pulmonary rehabilitation in COVID-19 patients recovering from acute respiratory failure: Results of a Delphi process. *Monaldi Archives for Chest Disease*, 90: 1- 9.

Voller, RW. 2008. An overview of the role of the new Companies and Intellectual Property Commission. *Professional Accountant*, 1: 15-16. Available from: https://hdl.handle.net/10520/EJC16708 [Accessed 3 January 2022].

Vogel, C, Zwolinsky, S, Griffiths, C, Hobbs, M, Henderson, E & Wilkins, E. 2019. A Delphi study to build consensus on the definition and use of big data in obesity research. *Int J Obes*, 43: 2573–2586. Available from: https://www.nature.com/articles/s41366-018-0313-9 [Accessible on 18 April 2024]

Vrhovnik, J. 2016. Performance analysis of state-owned enterprises and private firms in Slovenia. *zaključna strokovna naloga visoke poslovne šole.* PhD thesis, Univerza v Ljubljani, Ekonomska fakulteta.

Vyas-Doorgapersad, S. 2022. Overview of the implementation of Sustainable

Development Goal One in South Africa. *Research in Business & Social Science*, 11(6): 626-634. Available from: https://www.ssbfnet.com/ojs/index.php/ijrbs. [Accessed on 12 January 2024]

Vroom, 1964. VH. *Work and motivation*. American Psychological Association.

Wang, Z, Cai, S, Liang, H, Wang, N & Xiang, E. 2021. Intellectual capital and firm performance: The mediating role of innovation speed and quality. *The International Journal of Human Resource Management*, 32(6): 1222-1250. Available from: https://doi.org/10.1080/09585192.2018.1511611 [Accessed on 2 October 2024]

Wantanakomol, S & Silpcharu, T. 2020. Strategy for preventing corruptions in industrial business organizations with Delphi Technique. *Academy of Strategic Management Journal,* 19(3): 1-7.

Weidman, JE, Miller, KR, Christofferson, JP & Newitt, JS. 2011. Best practices for dealing with price volatility in commercial construction. *International Journal of Construction Education and Research*, 7(4): 276–293.

Wilson, V. 2014. Research methods: Sampling. *Evidence Based Library and Information Practice*, 9(2): 45-47.

Wixley, T & Everingham, G. 2002. *Corporate governance*. Cape Town: Siber Ink CC

World Bank Group. 2022. *The World Bank in Brazil*. Available from: https://www.worldbank.org/en/country/brazil/overview. [Accessed on 7 May 2024]

Worrell, JL, Di Gangi, F & Bush, AA. 2013. Exploring the use of the Delphi method in accounting information systems research. *CrossMark: International Journal of Accounting Information Systems*, 14: 193–208.

Wu, W, Alkaraan, F & Le, C. 2023. The moderating effects of corporate governance and investment efficiency on the nexus between financial flexibility and corporate governance firm performance. *Journal of Financial Reporting and Accounting*, ahead of print. https://doi.org/10.1108/JFRA-05-2023-0234

Wyatt, W. 2001. *Human capital index*. Watson Wyatt Worldwide. Available from:

https://www.blindspot.ca/PDFs/HumanCapitalIndex.pdf. [Accessed on 23 April 2020]

Xhati, N. 2015. The impact of Public Financial Management Act in advancing the organizational objective of the North-West Department of Education. MBA, North-West University, Mafikeng Campus, Northwest University.

Xiang, D & Worthington, AC. 2017. The impact of government financial assistance on the performance and financing of Australian SMEs. *Accounting Research Journal*, 30(4): 447-464.

Yoon, B & Chung, Y. 2018. The effects of corporate social responsibility on firm performance: A stakeholder approach. *Journal of Hospitality and Tourism Management*, 37: 89-96.

Younas, A & Veerasamy, R. 2024. Exploratory study on the importance of internal control in auditing. *International Journal of Academic Research in Business & Social Sciences*, 14(6): 579-587. Available from: http://dx.doi.org/10.6007/IJARBSS/v14-i6/21376. [Accessible on 12 November 2024]

Yuliarmi, NN, Dewi, NPM, Rustariyuni, SD, Marhaeni, AAIN & Andika, G. 2021. The effects of social capital and human resources on financing and SMEs performance. *International Journal of Human Capital in Urban Management*, 6(1): 29-44. Available from: http://www.ijhcum.net/ [Available from 13 October 2024].

Zait, A & Zait, D. 2009. Research Anticipation: The methodological choice. *Review of International Comparative Management*, 10(5): 902-909. Available from: https://www.researchgate.net/publication/46567648. [Accessed on 12 July 2023]

Zijl, W, Wöstmann, C & Maroun, W. 2017. Strategy disclosures by listed financial services companies: Signalling theory, legitimacy theory and South African integrated reporting practices. *South African Journal of Business Management*, 48(3): 73-85. Available from http://dx.doi.org/10.4102/sajbm.v48i3.37. [Accessed on 26 November 2021]

Zotorvie, JST. 2022. Striving for innovation: A quadruple helix intervention for accounting education in Ghana. PhD thesis, The University of South Africa, Pretoria.

APPENDIX A: A PERFORMANCE COMPLIANCE INDEX (PCI)

1. Public Financial Management Act (PFMA) Performance Compliance Index					2. Corporate Governance Performance Compliance Index		
		Dichotomous				Dichotomous	
NO	Performance Category	1	0	NO	Performance Category	1	0
1	Internal audit report			1	Ethical and effective leadership		
2	Integrated annual report (AFS & AR)			2	Board diversity (age, gender, demographics, and qualification)		
3	Financial misconduct procedure report			3	Board size		
4	Projection of revenue, expenditure			4	Audit committee		
5	Corporate plan			5	Structure and policies		
6	Quarterly reports on above reflecting actual borrowings			6	Effective internal controls		

7	Irregular, fruitless, wasteful & unauthorized expenditure (IFWUE)			7	Independent external auditors		
8	Shareholders compact			7	Board committees		
9	Enterprise Risk Management Report (ERM)			8	Business continuity plan (BCP)		
10	Compliance Report						
11	Material losses						
12	Investment Report						

3. Human Capital Performance Compliance Index				4. Developmental Performance Compliance Index			
1	Number of employees			1	Economic growth (GDP)		
2	Composition of the workforce			2	Corporate social & responsibility (CSR)		
3	Remuneration (executives and board)			3	Enterprise and supplier development programmes		
4	Training and development			4	Skills development		
5	Recruitment costs			5	Economic transformation		
6	Working environment policies			6	Regional integration and industrial capability building		
7	Absence rates			7	Developmental impact assessment in the economy.		

8	Accidents on duty rates.			8	National Integration		
9	Employee wellness			9	Environmental, social and governance (ESG),		
10	Succession and retention plan			10	Sustainability report,		
				11	Sustainable Development Goals (SDGs),		
5. Altman Z-score Index							
						Score	
	1.2A x 1.4B x 3.3C x 0.6D x 0.99E					Solvency	Insolvency
	Interpretation and application of the outcome – if the company is greater (2.99) or less (1.81)					2.99	1.81

Source: Researcher's own development (2024)

APPENDIX B: ETHICS CERTIFICATE

5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.

6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.

7. No field work activities may continue after the expiry date (5 December 2026). Submission of a completed research ethics progress report will constitute an application for renewal, for Ethics Research Committee approval.

Additional Conditions

1. Disclosure of data to third parties is prohibited without explicit consent from Unisa.
2. De-identified data must be safely stored on password protected PCs.
3. Care should be taken by the researcher when publishing the results to protect the confidentiality and privacy of the university.
4. Adherence to the National Statement on Ethical Research and Publication practices, principle 7 referring to Social awareness, must be ensured: "Researchers and institutions must be sensitive to the potential impact of their research on society, marginal groups or individuals, and must consider these when weighing the benefits of the research against any harmful effects, with a view to minimising or avoiding the latter where possible." Unisa will not be liable for any failure to comply with this principle.

Note

The reference number 2266 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Kind regards,

Prof Lourens Erasmus
Chair of College of Accounting Sciences_RERC
E-mail: erasmlj1@unisa.ac.za

Executive Dean / By delegation from the Executive Dean of College of Accounting Sciences_RERC
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APPENDIX C: EDITING CERTIFICATE

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Full member of The Professional Editors' Guild

To whom it may concern

This letter serves to inform you that I have done formatting, reference checking and language editing on the thesis

A COMPLIANCE INDEX TO IMPROVE THE PERFORMANCE OF MAJOR STATE-OWNED COMPANIES IN SOUTH AFRICA THROUGH DIFFERENTIALS AND DRIVERS

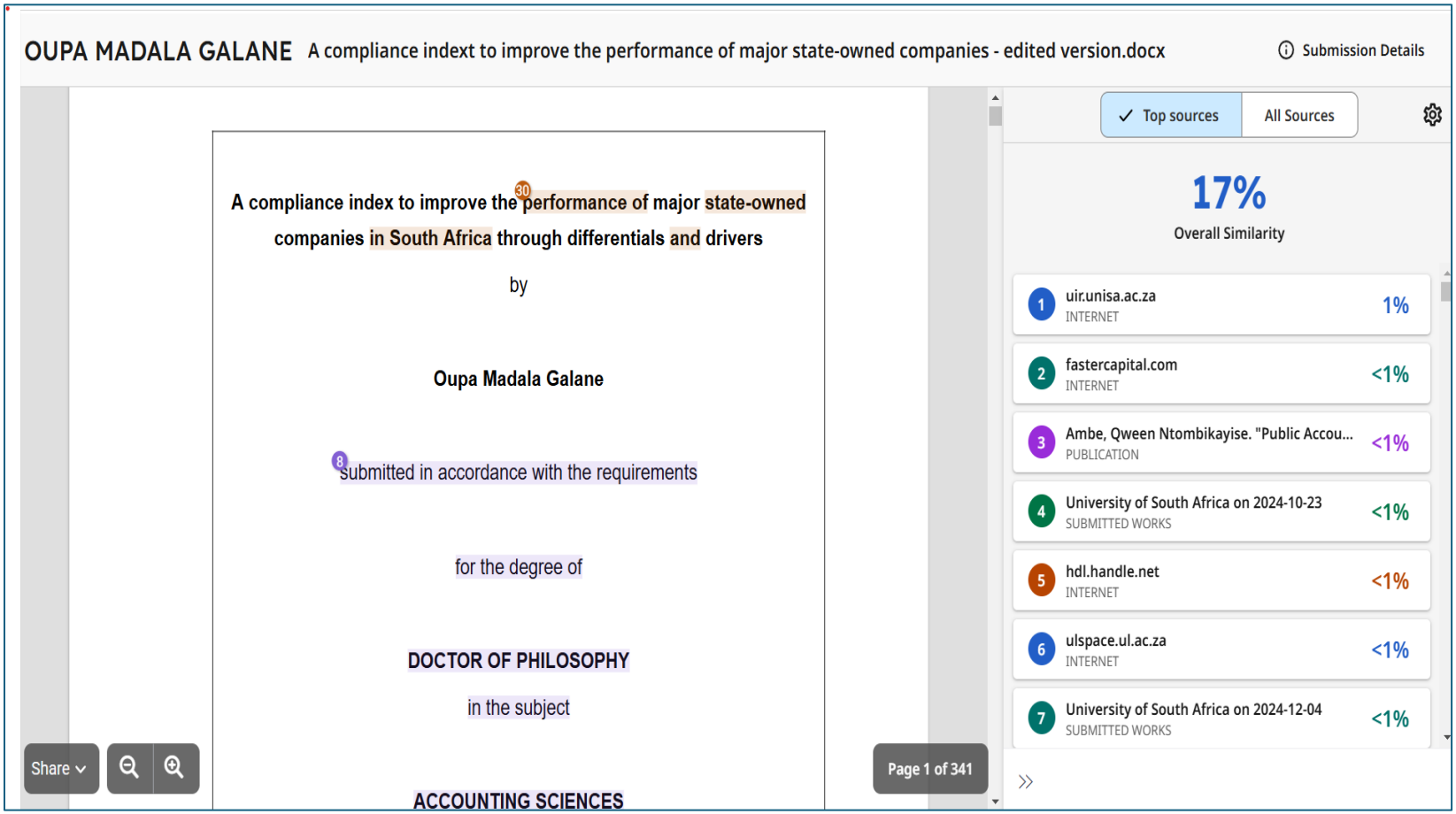
by

OUPA MADALA GALANE

Barbara Shaw

31/03/2025

APPENDIX D: TURNITIN REPORT



APPENDIX E: INVITATION TO PARTICIPATION

APPENDIX F: CONSENT TO PARTICIPATE