



**Impression management: The use of graphs in integrated reporting in
South Africa**

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DEDICATION

First and foremost, I dedicate this work to God, whose grace has sustained me throughout this journey.

To my daughters, may this achievement remind you that with faith, hard work and perseverance, all things are possible. You are my inspiration and my greatest blessing.

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ABSTRACT

The use of graphs in annual reports has increased because of the shift in audience – annual reports are aimed not only at shareholders but also at various stakeholders. As management decides what information to disclose in the annual reports, there may be a bias towards the graphs presented. Impression management techniques for presentation enhancement and obfuscation may be present in the graphs presented in annual reports. This study aims to investigate the use of graphs as a tool for managing impressions in annual reports of the top 40 South African Johannesburg Stock Exchange (JSE)-listed companies. This study focuses on the frequency, subject matter, and distortion of graphs presented in the integrated reports. A total number of 78 integrated reports were analysed over the period 2021 to 2023, the post-COVID-19 era. The findings of this study indicate that the disclosure of graphs in annual reports has grown over time. The types of graphs used are primarily straightforward to read, such as column graphs, pie charts, and bar graphs collectively. The number of non-financial graphs showed an upward trend, whereas financial (Key Financial Variable (KFV)) graphs (graphs related to sales and profit) declined significantly. The transition towards increased non-financial graph usage may indicate a shift in the disclosure landscape because of COVID-19, and the effort to provide a more holistic view of company performance while managing stakeholder perceptions. Financial (KFV) graphs showed a GDI calculation rate of 48.7%, and of those, 56.6% were distorted, whereas other financial graphs (financial graphs other than those relating to KFVs) exhibited a distortion of 56.5%. Non-financial graphs exhibited the highest distortion at 61.3%. The rate of distortion showed an upward trend between 2021 and 2023, indicating a shift toward more aggressive impression management strategies, possibly aimed at restoring investor confidence in the aftermath of COVID-19. This implies that impression management tactics are more commonly employed during periods of reputational or financial risk. To mitigate the risk of financial loss, stakeholders are advised to scrutinise not only the financial statements but also graphs contained in integrated reports to detect any use of impression management in integrated reports.

Keywords: Distortion, Graphs, Impression Management, Integrated Reports, Enhancement

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LIST OF ACRONYMS AND ABBREVIATIONS

ANC	African National Congress
CEO	Chief Executive Officer
COVID-19	Coronavirus Disease
ESG	Environmental, Social and Governance
GDI	Graph Discrepancy Index
GRI	Global Research Initiative
IIRC	International Integrated Reporting Council
IR	Integrated Report
JSE	Johannesburg Stock Exchange
KFV	Key Financial Variables
King Code	King Code of Corporate Governance
UK	United Kingdom
US	United States

CHAPTER 1: INTRODUCTION

1.1 Introduction

This study explores how companies in South Africa have used graphs in their annual reports as a tool for managing impressions and shaping stakeholder perceptions post the COVID-19 pandemic. This chapter is an introductory chapter, and the following sections are presented: Background, problem statement, objectives, research questions, significance, delimitations, limitations, assumptions, organisation of the study and the chapter summary.

1.2 Background to the Study

Financial information alone does not satisfy the informational needs of stakeholders who use the annual reports to make decisions about companies (Bernardi & Stark, 2018). The business environment has become more complex, and therefore, traditional financial reporting is no longer available to face the reporting challenges due to the absence of information on social, environmental, and economic factors (Hamad et al., 2020). As a result, companies listed on the JSE are required to prepare and publish integrated reports. The integrated report serves as a comprehensive document that articulates how an entity's strategic direction, corporate governance practices, operational effectiveness, and future outlook, within the framework of its external surroundings, contribute to the external environment (International Integrated Reporting Council, 2013). The main goal of an integrated report is to show shareholders how the company creates value and keeps it going over the long term (De Villiers & Sharma, 2020). Management uses impression management techniques to influence stakeholders' perceptions of their integrated reporting (Cüre et al., 2020).

Integrated reporting is a new approach designed to address the gaps and shortcomings in traditional and sustainable reporting (Makri et al., 2024). Integrated reporting includes financial and non-financial information (Vitolla et al., 2020). The Global Reporting Initiative (GRI) offers organisations a set of standards to assist them in assessing and reporting their impact on the economy, environment, and society in a way that is accurate and credible. (GRI, 2025). After 1994, the African National Congress (ANC) became the ruling party in South

Africa. With this came an expected environmental and social disclosures by businesses to ensure that they were actively positively contributing to society (Wachira et al., 2020).

The King Code of Corporate Governance (King Code) were issued, and these reflect the “South African Government’s emphasis on neo-social aspects and economic growth of listed businesses” (Andreasson, 2011). South Africa is seen as a leader in integrated reporting, due to the influence of the King Code and the JSE listing rules, which actively promote the release of integrated reports (Vitolla et al., 2020). This reporting approach reflects a more comprehensive shift in corporate accountability, in which conventional financial and managerial accounting has been enhanced to a more sustainability-oriented framework addressed to social and environmental impacts. As Adams and Narayanan (2010) noted, and later reaffirmed by de Villiers et al. (2022), just as traditional financial accounting has supported economic decision-making and control, integrated and sustainability accounting frameworks offer powerful tools to address the broader social and environmental impacts of corporate activities. Integrated reporting offers the opportunity to link a company’s ESG information into a unified and cohesive document (Colantoni et al., 2024; Reuter & Messner, 2015).

Integrated Reporting is regarded as a mechanism for strengthening accountability, transparency, and legitimacy (Martins et al., 2020; Nicolò et al., 2020). A criticism of integrated reporting is that, as a result of the demands from stakeholders to be accountable for their social and environmental actions, companies may adopt a tactic of impression management to manage stakeholder perceptions (Martins et al., 2020). Impression management happens when company management chooses which information to share and how to present it in a way that deliberately shapes or misleads stakeholders on how they perceive company performance (Godfrey et al., 2003). In impression management, the impression conveyed may correspond to an ostensible reality. Alternatively, it can involve emphasising positive aspects of the organisation while minimising or obscuring negative ones, to influence the perception of stakeholders (Gioia et al., 2000; Pasko et al., 2020). Impression management involves the intentional portrayal of an organisation’s performance across economic, environmental and social dimensions, using different techniques to represent the corporate reports in a more favourable light (Cüre et al., 2020). Impression Management may disguise corporate actions, obscure unfavourable outcomes, and present corporate identities that diverge from actuality. Various impression management tools are utilised in corporate

reporting, encompassing a company's annual reports, accounting disclosures, readability of sections, visual representations, Chief Executive Officer (CEO) statements, and graphs.

The voluntary disclosure of graphs is commonly used in several countries in the corporate annual reports of large corporations (Beattie & Jones, 2001). Graphical representation pertains to visual tools such as graphs and charts utilised for the analysis and summarisation of data (Maleka, 2021). Companies employ graphical representations to convey not only financial data but also information of a non-financial nature. Graphs use colours, engagement strategies, and creative approaches to enhance the visual appeal and uniqueness of a meticulously structured financial report (Uyar, 2011). Cüre et al. (2020) focuses on two main impression management tactics: presentational enhancement and obfuscation, which are used to examine how graphs are employed in integrated reporting. Impression management on graphs presented in integrated reports involves measurement distortion (Varachia & Yasseen, 2020), presentational enhancement (Cardoso et al., 2024), selectivity (Boone et al., 2024) and narrative thematic bias (Pesci et al., 2020). South African annual reports vary widely in their use of graphs, with no mandatory standards requiring companies to include or format graphs consistently. While the King IV Code emphasises transparent reporting, it does not specifically address graphical representations, leaving room for discretionary practices that may obscure stakeholders' perceptions. Lingering inquiries concern the utilisation and possible exploitation of graphs to illustrate financial information. Companies employ visual illustrations to inform or mislead stakeholders about financial statements (Frownfelter-Lohrke & Fulkerson, 2001). The results could indicate that organisations employ a combination of enhancement and obfuscation techniques in impression management when utilising graphs. If the purpose of integrated reporting has shifted towards being utilised for impression management instead of delivering valuable insights, it may compromise the reliability of these disclosures.

In 2020, the onset of the Coronavirus disease (COVID-19) triggered a substantial economic disruption throughout global business operations (Anakpo & Mishi, 2021). South Africa was severely affected by COVID-19 (Cherry et al., 2023; Stiegler & Bouchard, 2020). This affected business turnover, operations and disclosure in annual reports (Anakpo & Mishi, 2021). COVID-19 negatively impacted financial performance, particularly through increased COVID-19-related expenses and staff costs, which reduced profit margins and overall revenue (Ajeigbe & Ganda, 2023). Companies faced challenges in cost management, leading to salary

reductions and layoffs, affecting transparency and stakeholder trust, as the overall governance and reporting practices were strained (Ajeigbe & Ganda, 2023).

COVID-19 has brought uncertainty to the global economy (including South Africa), which has an impact on the financial statements, which are the key sources of information about a company's financial health and how it is performing (Honko et al., 2020). It is reported that both profitable and least-profitable companies continued to use impression management techniques during the pandemic, contrary to the expectations that such practices might diminish during the crisis (Dhludhlu et al., 2022; Phesa & Sibanda, 2023).

Even though studies have examined how impression management influences the use of graphs in integrated reports, there is still limited empirical research specifically focusing on how organisations have used impression management on graphs in integrated reports of organisations post-COVID-19 pandemic. Most post-COVID-19 studies on impression management in integrated reporting have focused primarily on developed countries. While several studies have examined impression management in narrative disclosures and sustainability reporting Pasko et al. (2020), relatively few have explored the use of graphs as a visual impression management tool used in integrated reporting (Cüre et al., 2020). Consequently, a notable gap is evident in the empirical literature regarding how organisations in developing countries use graphs in integrated reports to manage stakeholder perceptions post-COVID-19 pandemic. To my knowledge, no studies have been performed to assess impression management in the graphs in integrated reports for South African companies post-COVID-19.

1.3 Aim of the study

This study aims to investigate the utilisation of graphs as a strategic instrument for employing impression management strategies within annual reports by corporations operating in South Africa post the COVID-19 pandemic.

1.4 Problem Statement

There are no mandatory standards requiring companies to include or format graphs consistently (Burgess et al., 2008). For instance, while the King IV Code emphasises transparent reporting,

it does not specifically address graphical representations (Guddal, 2016). That leaves room for discretionary practices, which may facilitate impression management. The prevalence of graphical representation in annual reports has escalated in many countries as a result of the shift of audience – the annual report is no longer aimed at shareholders, but rather it serves multiple purposes for various stakeholders (Beattie & Jones, 2002).

Management selects the information which is disclosed in integrated reports (Beattie & Jones, 2001). As management decides the information to be presented in annual reports, there may be a degree of bias toward graphs presented in the annual reports, as the information may affect the company's stakeholders. Graphs are one of the impression management techniques used in integrated reporting for presentation enhancement and obfuscation. Impression management in graphs can lead to poor investment decisions by investors, who may misinterpret the company's performance (Bastardo, 2015). Graph discrepancy may go unnoticed by auditors, potentially leading to regulatory issues such as non-compliance with JSE listing requirements, which prohibit the disclosure of misleading information to stakeholders and loss of credibility for companies (Burgess et al., 2008; Cardoso et al., 2024) and financial analysts may generate skewed analysis, affecting their advice to clients and stakeholders (Al-Sayani & Al-Matari, 2023; Cardoso et al., 2024; Frownfelter-Lohrke & Fulkerson, 2001; Mather et al., 1996).

Most previous studies have been conducted in developed countries. In Europe, Falschlunger et al. (2015) analysed graphs across seven years in the annual reports of the top 50 Fortune 500-listed companies, and in Italy, Šimunović et al. (2024) conducted a multimodal content analysis of graphs in sustainability reports. Most literature remained focused on annual and sustainability reports in developed countries, which leaves a gap in the study of graphs in integrated reports.

Despite the studies on graphical impression management in developed countries, research in developing countries remain scarce. In South Africa, Varachia and Yasseen (2020) documented how JSE-listed organisations use impression management as a tool for impression management. Maleka (2021) and Kathrada et al. (2021) examined how state-owned entities in South Africa use graphical representation in integrated reports to detect impression management, and Varachia and Yasseen (2020) examined the top 100 JSE-listed companies. Despite South Africa's leadership in integrated reporting, a gap remains in post-COVID-19

integrated reports' graph disclosures by companies listed on the JSE, which manage stakeholder impressions.

The problem being investigated is whether graphs disclosed in annual reports are used responsibly to enhance comprehension or whether they are strategically manipulated as an impression management tool, therefore potentially misleading stakeholders and compromising the integrity of integrated reports. As far as the researcher is aware, no research has concentrated solely on the impression management strategies used in graphs within annual reports of South Africa post the COVID-19 pandemic for a longitudinal period of three years.

1.5 Objectives of the Study

This study seeks to achieve the following objectives:

- To assess the frequency of graphs included in annual reports for South African listed companies.
- To examine the subject matter of graphs included in annual reports for South African listed companies.
- To analyse the distortion of graphs presented in the annual reports for South African listed companies.

1.6 Research Questions

The study aims to explore the following research questions:

- What is the frequency of graphs included in annual reports for South African listed companies?
- What is the subject matter of the graphs included in annual reports for South African listed companies?
- Are the graphs disclosed in companies' annual reports distorted?

1.7 Significance of the Study

This study will assist management of companies, auditors, shareholders, regulatory bodies, financial analysts and academics.

1.7.1 Managers

This study will assist companies' management in identifying and correcting distorted graphs presented in annual reports to improve the transparency and reliability of their financial communications. This will foster additional trust among investors and other stakeholders.

1.7.2 Auditors

Auditors will benefit from this study as they will be informed of the quality and integrity of the graphs presented in annual reports. When auditing this information, they can establish “acceptable” thresholds for their materiality thresholds so that the impression management on graphs does not mislead stakeholders.

1.7.3 Shareholders

This study will allow shareholders to determine whether distortion exists in the graphs disclosed in annual reports and the extent of such distortion. This will prevent shareholders from making investment decisions based solely on the graphs presented in annual reports, ensuring that they make wise financial decisions.

1.7.4 Regulatory bodies

Regulatory bodies will benefit from this study as the quality and integrity of graphs presented in annual reports will be assessed. It will identify whether current disclosure practices align with the principles of fair presentation, and the JSE could possibly use the findings to strengthen the guidelines of disclosure requirements for graphs disclosed in the integrated reports.

1.7.5 Financial analysts

This study will benefit financial analysts as it will ensure that the data they analyse is not skewed and does not mislead their clients and other stakeholders. By identifying the nature and extent of impression management in graphs presented in integrated reports, financial analysts will be more equipped with awareness of potential visual manipulation tactics.

1.7.6 Academics

This study will help academics highlight the need for guidelines for graphs presented in annual reports. Furthermore, it provides academics with a practical approach to evaluating graphs as a means of communication in integrated reports.

1.8 Delimitations (Scope) of the Study

This study aims to investigate the utilisation of graphs as a strategic instrument for employing impression management strategies within annual reports by corporations operating in South Africa post the COVID-19 pandemic. The top 40 JSE-listed companies were chosen for sampling to investigate how impression management is used in graphs presented in the annual reports of companies. Only graphs presented in annual reports were investigated in this study for the three years (2021-2023), and therefore, text, figures and other illustrations were excluded from consideration.

1.9 Limitations of the study

This study focused on the top 40 companies listed on the JSE, from which a final sample of 26 companies was selected. A total of 78 annual reports were analysed over a three-year period (2021-2023). Financial institutions which excluded due to the unique structure and regulatory nature of their reporting requirements. The study focused specifically on the years 2021 to 2023, and therefore, the results are only interpreted for these years. The sample is considered representative as the market capitalisation of the top 40 companies collectively accounts for more than 80% of the total market capitalisation on the JSE, making the findings representative of all South African listed companies (Phesa, 2021).

1.10 Assumptions

The assumptions made in this study are that companies use graphical representations as a form of communication, not merely to visualise data, but to potentially shape stakeholders' perceptions. The graphs included in these annual reports are intentionally included and are not randomly chosen or automatically generated. Managers are aware that graphs can influence perceptions and may use this knowledge strategically. South African companies produce

integrated reports that are publicly available and sufficiently detailed to analyse, and the findings of this study could be applied to other developing countries. This study also assumes that the financial statements investigated are “fairly presented” in all aspects per the relevant accounting standards and are free from material misstatements, whether due to fraud or error.

1.11 Organisation of the Study

This dissertation is structured into multiple essential chapters:

Chapter 1: Introduction

This is an introductory chapter. It includes the following sections: background, aim of the study, problem statement, objectives, research questions, significance, delimitations, limitations and the organisation of the study.

Chapter 2: Literature Review

This chapter focuses on the theoretical literature review and empirical literature review. The theoretical literature review includes the following sections: stakeholder theory, legitimacy theory and agency theory. The empirical literature review includes the following sections: the evolution of integrated reporting in South Africa, integrated reporting, impression management and graphs as a tool of impression management.

Chapter 3: Research Methodology

This chapter explains the research methodology used in this study. It includes the following sections: research design, research population, research sample, data sources and variable selection, model specification and analysis, performance metrics, data validity and reliability and ethical considerations of this study.

Chapter 4: Data Presentation and Analysis

This chapter presents the data and analysis. This chapter includes the following sections: descriptive analytics, results presentation, analysis and discussion.

Chapter 5: Summary, Conclusion and Recommendations

This chapter summarises, concludes and provides recommendations. This chapter includes the following sections: summary of the study, conclusions, recommendations and suggestions for further study.

1.10 Summary

This introductory chapter outlines the background, aims and problem statement of the study to establish the rationale for investigating the use of graphs in integrated reporting. It presents the study's objectives, which focus on the frequency, subject matter, and potential misrepresentation of graphs. The specific research questions guide the study. In addition, it highlights the significance of the study, identifying the key stakeholders who may benefit from its findings. This chapter is concluded with the delimitations, limitations, assumptions and the overall organisation of this study to provide the reader with a clear framework of what to expect in the chapters to follow.

Chapter two focuses on the literature review. The literature review is split into two sections: theoretical and empirical literature review.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter provides the theoretical and empirical literature review. The theoretical literature review provides the theoretical frameworks recognised as applicable to this study. It includes the following sections: Stakeholder theory, legitimacy theory and agency theory. In contrast, the empirical literature review provides insight into integrated reporting, impression management, graphs as a tool of impression management, the research gaps, the conceptual framework and a summary of the chapter.

2.2 Theoretical Literature Review

This section explains three theoretical theories relevant to this study. The theories applicable to this study are stakeholder theory, legitimacy theory and agency theory.

2.2.1 Stakeholder theory

A stakeholder is defined as an individual or collective entity that possesses claims, attributes, entitlements, or interests about the organisation and its historical, present or future operations (Langer et al., 2021). The stakeholder theory posits that organisations must consider various perspectives and expectations of a wide array of stakeholders who are invested in corporate operations. It is important to establish systems that allow stakeholders to express their expectations and encourage them to address challenges that may impact the value creation process (Freudenreich et al., 2020). Value creation refers to how a business generates, delivers and retains long-term, meaningful value for its stakeholders within its relationships and business model (Tapaninaho & Heikkinen, 2022).

Integrated reporting combines both financial and non-financial factors, like environmental, social, and governance (ESG) factors, to give a complete view of a company's overall performance. It improves the relationship between an organisation and society by developing management's understanding of the needs and expectations of stakeholders. This approach is congruent with stakeholder theory as it pertains to the diverse interests of stakeholders, which encompass investors, customers, employees and the broader community (Rendtorff, 2023).

Effective stakeholder management in integrated reporting involves engaging with stakeholders to understand their needs, which leads to more relevant and meaningful disclosures which enhance the credibility and legitimacy of the reports (Santos et al., 2021).

Impression management can involve the use of visual elements, such as colours and images, to create a more appealing presentation of information, which is a strategy to project a more responsible image of a company's information (Bağ & Strojek-Filus, 2022). By aligning impression management practices with stakeholder theory, companies can enhance their legitimacy and build stakeholder trust (Mohanty et al., 2024). Transparent and honest reporting, even when using impression management techniques, can strengthen stakeholder relationships and support long-term value creation (Rendtorff, 2023). While impression management can be beneficial, it also poses challenges, as there is a risk of misleading stakeholders if the information is overmanipulated, which undermines the credibility of integrated reports and leads to scepticism among stakeholders (Mohanty et al., 2024).

2.2.2 Legitimacy theory

Legitimacy means being aligned to the norms, values, beliefs and accepted practices of a particular group (Zelditch, 2001). According to the theory of legitimacy, it is essential for a corporation to possess legitimacy in the form of a societal "license to operate" to acquire the essential resources for effectively carrying out its operations (Hahn & Kühnen, 2013). This means that business operations are subject to the acceptance by society and are threatened if society has the perception that a company is not adhering to acceptable operational standards. According to Ali et al. (2021), financial, governance, social and environmental reporting are important to all stakeholders, and according to legitimacy theory, reporting on integrated information, which includes all information presented in the annual report, assists in maintaining and enhancing a company's reputation.

Adopting integrated reporting is often controlled by the desire to enhance legitimacy, as it allows firms to communicate their value-creating activities and strategic priorities, thereby reinforcing their standing with stakeholders (Camilleri, 2018). By disclosing this information, organisations can demonstrate to society that they are meeting expectations and earn society's approval, and therefore, it is crucial in informing society about a company's sustainability practices. Compliance with integrated reporting is a form of legitimacy (Abeysekera, 2022).

The concept of legitimacy is not primarily focused on the impact of ESG reporting, but rather on companies sharing non-financial information to shape stakeholder perceptions and demonstrate their alignment with accepted social norms and expectations (Van Zijl et al., 2017). For instance, Turzo et al. (2022) indicated that an organisation confronted with a particular environmental dilemma tends to amplify its non-financial disclosures to assure stakeholders of its effective management of the adverse situation. The same phenomenon is observed when a corporation is subjected to negative media coverage. Legitimacy is defined as “in accord with the norms, values, beliefs, practices and procedures accepted by a group” (Brennan & Merkl-Davies, 2014; Merkl-Davies et al., 2011). It endeavours to secure the endorsement of a significant stakeholder (De Villiers & Sharma, 2020). Likewise, larger entities exhibit a higher propensity to supplement financial disclosures with distinct sustainability or corporate social responsibility reports compared to their smaller counterparts, owing to heightened political scrutiny and public interest (Thorne et al., 2014). In all these scenarios, non-financial reporting serves to illustrate that the organisation is cognizant of critical ESG concerns, is addressing its vulnerabilities, and remains worthy of the sustained support of its stakeholders (Brennan & Merkl-Davies, 2014).

Impression management theory suggests that organisations may use integrated reporting to shape stakeholders’ perceptions by selectively disclosing information (Casonato et al., 2019). This can involve emphasising positive aspects while downplaying negative ones to maintain and enhance legitimacy (Roman et al., 2019). Legitimacy theory applies to this study for the selectivity of graphs presented by management in annual reports. A study of an Australian bank showed that when there is a lack of legitimacy, differences between what is reported in integrated reports and other information that is publicly available reduce stakeholder trust (Casonato et al., 2019). This highlights the risk of using integrated reporting to manage stakeholders’ perceptions without being transparent. Organisations must balance the need for legitimacy with the risk of being perceived as engaging in impression management, which requires commitment to transparency and accountability in their reporting practices (Corazza et al., 2020).

2.2.3 Agency theory

According to Meckling and Jensen (1976), the agency relationship is formed when one or more individuals (principals) hire someone else (agent) to make decisions on their behalf, granting

the agent some level of decision-making authority. This typically happens when someone who provides funding appoints another person to manage the resources. Agency theory offers a way to understand the challenges of control within organisations, especially in situations where managers have different goals from their shareholders and hold access to key information (Kren & Tyson, 2009). A typical agency problem arises when the owners of a company are not the same as those who manage it (Wagenhofer, 2015). This is echoed by Namazi (2013), who wrote that the agent is driven by their self-interest and therefore might make choices that could harm the principal. The agency theory plays a significant role in understanding impression management within the context of integrated reporting (Yasseen et al., 2019).

Agency theory suggests that impression management is a tool used by managers to align their interests with those of the shareholders, often by presenting information in a way that enhances the company's image (Bozzolan et al., 2024). For example, in South African companies, impression management is evident in the chairman's statement of integrated reports, where textual characteristics are manipulated based on company performance (Yasseen et al., 2019). Using graphs and visuals, integrated reporting is another form of impression management where these elements can significantly affect investors' perceptions and decisions. However, their impact on market value can be harmful, which suggests a complex relationship between visual impression management and financial outcome (Pesci et al., 2020). This presents the agency problem as management selectively discloses graphs in annual reports, which are misleading to the users of the annual reports. This manipulation of graphical information aligns with the agency theory's prediction of impression management (Beattie & Jones, 1997).

2.3 Empirical Literature

This section examines the existing literature concerning impression management in graphs, as presented in the integrated reports, aligning with the research objectives.

2.3.1 The evolution of integrated reporting in South Africa

Integrated reporting has evolved significantly over time, driven by the need for more comprehensive corporate reporting that integrates financial and non-financial information (Songini et al., 2023). This evolution reflects a shift towards a more holistic approach to business reporting, emphasising sustainability and value creation (Manes-Rossi et al., 2021).

The idea of integrated reporting began in the early 2000s with the introduction of the GRI standards and the United Nations Global Compact (Tweedie, 2024). The formation stage was marked by the establishment of the International Integrated Reporting Council (IIRC) in 2010 and the publication of the Integrated Reporting framework, which provided a structural approach to integrated reporting (Larrinaga & Bebbington, 2021).

Integrated reporting in South Africa began with the introduction of the King Report on Corporate Governance in the 1990s (Sisaye, 2021). Integrated reporting in South Africa was initiated with the release of King I in 1994, which advocated for a governance framework that is inclusive of stakeholders (Mokabane & Du Toit, 2022). King I, established the fundamental principles pertaining to governance ethics by distinctly advocating for a comprehensive stakeholder model wherein directors are anticipated to operate in the interest of the corporation (Donaldson & Walsh, 2015). Corporate governance is about the systems, rules and practices that guide how a company is run and how decisions are made and controlled (Khan, 2011). There are two thoughts about whose interest the corporation should be governed: one thought is that the corporation should be regarded as property and therefore be governed in the interest of the holders of that property (Donaldson & Walsh, 2015). This shareholder-oriented approach is aligned closely with agency theory (Meckling & Jensen, 1976), as the main goal of the shareholder-oriented perspective is to increase value for shareholders. In contrast, the agency theory centres on the relationship between the shareholders and the managers. This perspective suggests that a company is an independent entity and should be managed and governed in a way that serves the best interest of the company (Donaldson & Walsh, 2015). This corporation-as-entity approach is closely aligned with the stakeholder theory (Friedman, 2007) as the corporation-as-entity view argues that the corporation exists to create value for all stakeholders, whereas the shareholder theory considers the interests of all stakeholders affected by the actions of the company.

King II, published in 2002, placed a stronger emphasis on the integration of corporate governance practices (Sisaye, 2021). The dedication of the King Committee to an all-encompassing stakeholder framework, aimed at serving the paramount interests of the corporation, was reaffirmed from King I once again (Friedman, 2007). King II articulates that directors have accountability solely to the company, while simultaneously holding responsibility towards all other stakeholders (Donaldson & Walsh, 2015). King II encourages corporate directors to pursue the establishment of a balance between the collective optimal

interests of shareholders and stakeholders, thus enhancing the long-term sustainability of the organisation (Rossouw, 2020).

In alignment with its two preceding reports, King III similarly emphasised the necessity of communicating with stakeholders regarding all issues pertinent to the organisation's sustainability, thereby fostering stakeholder trust and ensuring its legitimacy (Donaldson & Walsh, 2015). The King III report, released in 2009, brought a new perspective by integrating sustainability and the need for social transformation in South Africa as key pillars, alongside traditional governance principles, with a strong focus on the interests of all stakeholders (Rossouw, 2020). The King III report was pivotal in promoting integrated reporting in South Africa, leading to its inclusion in the JSE listing requirements (Soriya & Rastogi, 2022), when the JSE recommended sections of King III as part of its listing requirements in 2010 (Mokabane & Du Toit, 2022). The King III code emphasised the importance of integrated thinking and reporting (Hanks & Gardiner, 2012) which the King IV further reinforced. The King III report laid the groundwork for the concept of “integrated reporting”, which emerged as a salient characteristic of the King IV report (Rossouw, 2020).

King IV, which came into effect in April 2017, adopted an ‘apply and explain’ basis (Mokabane & Du Toit, 2022), which emphasises the importance of integrated reporting for corporate governance. King IV advanced this framework by highlighting the significance of ethical leadership and the interrelation of strategy, performance, and sustainability. In the King IV report, “stakeholder inclusivity” has been added to the glossary, which means that the organisation’s leadership considers the valid needs, concerns and expectations of all stakeholders when making decisions to serve its best interests (Rossouw, 2020). The shift from King III to King IV signifies a dedication to inclusive capitalism and the augmentation of corporate governance standards, fostering transparency and accountability within reporting practices (Doni et al., 2019).

After the King III report, the Integrated Reporting Committee of South Africa was established in May 2010. This committee provided guidelines on the integrated reporting practice (Mokabane & Du Toit, 2022). Integrated reporting has been adopted to a varying degree across different jurisdictions (Larrinaga & Bebbington, 2021). In South Africa, companies listed on the JSE must produce integrated reports (Grassmann, 2021) which makes it unique in its

mandatory adoption, setting a precedent for other jurisdictions where such reporting remains voluntary (Chirairo & Molele, 2024).

2.3.2 Integrated reporting

As stated by Adams and Narayanan (2010), while traditional financial and management accounting have been useful in managing and reporting organisations' economic performance, the broader sustainability accounting methods can be effective when dealing with social and environmental company actions. The integrated report aligns a company's economic, ecological and social performance for reporting purposes (Baumüller & Sopp, 2021). It provides a platform to merge sustainability and financial viability within a unified framework, a cohesive report, and a coherent narrative. The integrated report functions as an instrument for communication, providing stakeholders with a narrative of how the organisation generates value over time (Sciulli & Adhariani, 2023). It facilitates informed decision-making by presenting a view on both financial and non-financial performance, which consequently fosters trust and legitimacy (Pigatto et al., 2023). Integrated reporting is a vital tool for companies and institutions to meet the growing demand for transparency from clients, investors, stakeholders, and society (Girón et al., 2021) and addresses the relationship between business practice and sustainability commitment as it deals with social, environmental and economic factors, which complements traditional financial reporting and therefore provides more helpful information to stakeholders (Correa-Garcia et al., 2020).

The informational needs of stakeholders and investors have shifted away from reports focusing solely on financial information to include information on social, environmental and sustainability issues (Manes-Rossi et al., 2021). Furthermore, by aiming to redirect financial capital from short-term gains to long-term investments, integrated reporting can help promote sustainability-related goals (Tweedie, 2024). This has led to stakeholders demanding more comprehensive information regarding the influence of corporations' daily activities on the governance, society and environment (Kanbaty et al., 2020). South African companies must follow strict reporting rules as set out by the King Code (Turzo et al., 2022). Companies that are publicly traded on the JSE are mandated to publish integrated reports which encompass governance, social and environmental disclosures. (Moloi & Iredele, 2020).

At the essence of integrated reporting lies the efficiency of capital markets, serving to bridge the divergence between management's narrative of value creation and investors' assessment of business worth and governance, while also aiming to aid providers of financial capital in making informed decisions pertaining to capital allocation (Setia et al., 2015). Integrated reporting maintains that the long-term sustainability and expansion of organisations are contingent on the adept management of progressively intricate social, environmental and economic challenges (IIRC, 2013).

The IIRC framework is a cornerstone, guiding companies to disclose material information that influences their ability to create value (Ahmed & Hassan, 2025). Integrated reporting facilitates informed decision-making by stakeholders by providing a unified view of financial and non-financial metrics (Đorđević & Mitić, 2024). By integrating sustainability into corporate strategies, integrated reporting encourages companies to address ESG factors, fostering long-term value creation (Cruz et al., 2024). Integrated report's integrated thinking approach helps companies align their management systems with strategic objectives, enhancing efficiency and risk mitigation (Biloblovskiy et al., 2024). Organisations' adoption of integrated reporting can differentiate themselves, attracting investors and improving their market position (Biloblovskiy et al., 2024). However, challenges in classifying and generalising data impede the effectiveness of integrated reporting, affecting materiality and conciseness, which remains a hurdle (Ahmed & Hassan, 2025). The lack of standardised assurance practices raises concerns about report quality and reliability (Đorđević & Mitić, 2024).

2.3.3 Impression management

Executives employ impression management in company disclosures, expecting stakeholders to react more favourably to corporate behaviours described in corporate reports (Merkel-Davies et al., 2011). Impression management in annual reports can be presented by either highlighting positive trends (enhancement) or concealing poor performance (obfuscation), which creates a distorted picture of organisational outcomes (Merkel-Davies et al., 2011). Impression management in annual reports is evidenced through narrative and tone management (Mlawu et al., 2023), thematic and content manipulation (Bağ & Strojek-Filus, 2022), manipulation of readability (Gonçalves et al., 2022) and graphical manipulation (Cardoso et al., 2024).

As Beattie and Jones (2000) explains, graphs are often used as part of presentational strategies, where the content and format of visual elements, such as graphs, are manipulated to influence stakeholder perceptions. Impression management in integrated reporting, particularly through graphs, is a strategic tool companies employ to influence stakeholders' perceptions (Cardoso et al., 2024). Havemo (2018) defined graphs as a visual element used to present quantitative data. When graphs are presented in corporate reports, they may be used to portray a more favourable performance. This practice involves manipulating graphical elements to present information in a more advantageous manner, often without modifying the underlying data (Varachia & Yasseen, 2020). The motivations of impression management on graphs are multifaceted. Impression management is driven by self-serving biases as companies seek to portray themselves in a more favourable light to stakeholders (Merkl-Davies et al., 2011). Companies may feel obliged to mitigate negative perceptions in during periods of financial crisis or instability (Lan & Sheng, 2023). Graphical impression management can significantly affect financial analysts' cognitive processes, leading to skewed perceptions of a firm's performance, which can result in inaccurate assessments and decisions based on manipulated visual data (Cardoso et al., 2024).

How stakeholders experience graphs disclosed in annual reports is important because it shapes how they understand the company's performance. Studies show that most stakeholders prefer graphs as they make complex data easier to grasp and quicker to interpret (Uddin et al., 2024). The design and types of graphs disclosed are important to ensure that they are effective. Line and bar graphs work well to show trends over time, while stakeholders often misread pie charts and find them difficult to compare (Berinato, 2023; Tufte, 1983). The preparers of graphs are not the stakeholders who read them, and therefore, companies need to think about their audience. Management needs to ensure that when disclosing graphs, the information is clear, accurate and easy to understand so stakeholders can have a true picture of company performance.

Research in South African companies indicates a widespread use of graphical representations in annual reports, with significant measurement misrepresentations observed, and this suggests a tendency to overstate positive trends, which could mislead stakeholders Varachia and Yasseen (2020) and undermine the quality of financial reporting, leading to potential misallocations of capital and broader socio-political consequences (Biloblovskyi et al., 2024). Integrated reporting implementation varies across jurisdictions, with South Africa mandating

it for listed companies. In contrast, others adopt it voluntarily, which results in challenges of inconsistent adoption levels and the need for standardised frameworks (Đorđević & Mitić, 2024). This is a significant concern, particularly considering recent scandals. According to Ebhodaghe and Omoregie (2020), accounting scandals illustrate corporate impropriety that results from the conscious alteration of financial disclosures and the unveiling of unethical fiscal conduct undertaken by executives in corporations and governing bodies. According to Awolowo et al. (2018), these practices are driven by the desire to present a favourable financial position, even at the cost of ethical standards.

Companies often use colour and design elements to make graphs more visually appealing, which can subtly influence the viewer's perception of the data (Varachia, 2019). For instance, using colours like blue, black and red can enhance the presentation and potentially skew the interpretation of financial performance (Cardoso et al., 2024). Companies may selectively present data that portrays them in a positive light while omitting less favourable information (Cardoso et al., 2024). Measurement distortion alters the scale or axes of graphs to exaggerate trends or minimise the negative aspects (Šimunović et al., 2024). Such distortions can mislead stakeholders about a company's actual performance or ESG performance (Varachia & Yasseen, 2020).

2.3.4 Graphs as a tool of impression management

Graphs in integrated reports have emerged as a powerful tool for corporate communication, offering a visual representation of financial and non-financial data (Beattie & Jones, 2008). However, their use extends beyond mere information dissemination, often serving as a means of impression management (Beattie & Jones, 1992).

The use of graphs in integrated reports is widespread across various regions and industries (Varachia & Yasseen, 2020). Studies have shown that companies in South Africa, Malaysia, the UK, Australia, and Turkey frequently incorporate graphs into their financial reports (Beattie & Jones, 1999; Beattie & Jones, 1993; Cüre et al., 2020; Md Ali & Saad, 2006; Varachia, 2019). The visual elements are not merely supplementary but often central to how companies communicate their performance (Abd Wahab & Mat Samsudin, 2005). For instance, in a study conducted by Varachia (2019) on companies listed on the JSE in South Africa, it was found that 98% of companies in a sample used graphs. Similarly, a study based on Malaysian

companies revealed that 79% of companies included graphs in their integrated reporting (Md Ali & Saad, 2006). The prevalence of graph use is not limited to financial data; it extends to non-financial and sustainability reporting. For example, companies in the Brazilian Corporate Index (ISE-B3) and those listed on the Borsa Istanbul Index also use graphs extensively in their sustainable reports (Cardoso et al., 2024; Cüre et al., 2020). This widespread use underscores the importance of graphs as a communication tool, but it also raises questions about their potential misuse in impression management (Cho et al., 2012).

Impression management through graphs involves various techniques that can distort or mislead stakeholders. These techniques include:

- Measurement distortion when altering the scale or axes of graphs to exaggerate or understate trends (Varachia & Yasseen, 2020). For example, companies may use truncated scales to make increases appear more significant than they are (Abd Wahab & Mat Samsudin, 2005).
- Presentational enhancement through the use of visual elements such as colours, labels, and annotations to draw attention to favourable information while downplaying unfavourable or omitting unfavourable information (Cüre et al., 2020). For instance, companies might use bright colours or bold lines to highlight positive trends while using muted colours for negative ones (Ali et al., 2021).
- Selectivity when choosing to present only favourable data or omit unfavourable information (Cardoso et al., 2024). For example, a company might include a graph showing increasing sales but exclude one showing declining profits (Cardoso, et al., 2024).
- Obfuscation, which involves making graphs complex or difficult to interpret, thereby obscuring unfavourable information (Cüre et al., 2020). For instance, using multiple axes or overly complicated charts can make it hard for stakeholders to discern the true performance.

These techniques are often employed to create a favourable impression of the organisation's performance (Merkel-Davies et al., 2011).

2.3.4.1 Frequent use of graphs in annual reports

Incorporating graphs in annual reports saves the reader time (Al-katheri, 2023). It saves the reader time in analysing data to obtain the best results in the shortest amount and helps readers

understand figures and facts simply to recall information for longer (Ruiz-Garrido et al., 2005). Beattie and Jones (2008) and Ruiz-Garrido et al. (2005) stated that graphs in integrated reports enhance a businessperson's ability to emphasise trends and can also aid communication between individuals who speak different languages. A study on landscape planning emphasised the importance of clear and transparent visualisations in generating stakeholder input and fostering trust (Cronan et al., 2022). Similarly, in integrated reports, graphs can be designed to encourage decision-making by presenting data in a way that resonates with stakeholders' interests and needs. The use of interactive graphs in integrated reports can further enhance stakeholder engagement by allowing users to explore data dynamically (Dilla et al., 2010). This interactivity can make integrated reports more engaging and useful for both internal and external stakeholders. Graphs play a crucial role in simplifying complex financial and non-financial data. Graphs can transform numerical and textual information into a visual representation that is easier to interpret.

In Turkey, it is estimated that approximately 75% of corporations listed on the Istanbul Stock Exchange incorporate graphs in their annual reporting, yielding an average of 8.6 graphs per report (Uyar, 2009). A longitudinal study was performed in Malaysia over thirty years (1974 to 2004) for 54 companies, and it was found that in the year 2004, graphs appeared in 65% of all annual reports, with column and bar charts being the most frequently used, making up 82% of all graphs (Rahman et al., 2014). Falschlunger et al. (2015) performed a comprehensive study on the utilisation of graphical representations of the top 50 European corporations. All entities used graphs in their annual reports for the years 2009 and 2012, and the most common graphs were the column and bar graphs (Falschlunger et al., 2015). Cüre et al. (2020) conducted a study for the years 2018 and 2019, it was found that 49 of 50 companies used graphs in their corporate reporting. The most common graph used was the bar graph, at 41% of all graph types (Cüre et al., 2020). In Italy, Šimunović et al. (2024) studied the graphs presented in the sustainability reports issued in 2019 by Italian companies. In the study, 56 out of 58 companies included graphs in their reporting, and the most common graph was the column graph at 51% of all graphs presented (Šimunović et al., 2024). A study was performed on the sustainability reports of publicly traded Brazilian companies (Cardoso et al., 2024). All companies in this study included graphs in their reporting, and the most common graph used was the column graph (Cardoso et al., 2024).

In South African studies, Varachia (2019) conducted a study on the annual reports of the top 100 JSE-listed companies for the year 2017. In the study, 96 companies employed graphs in their annual reporting, and the most commonly used graph was the column graph at 34.3% of all graphs presented (Varachia, 2019). In a study conducted by Maleka (2021) based on integrated reports for 21 State Owned Entities (SOE) for the period 2017 to 2021. The results of 15 SOEs were used in the study. The findings showed that every SOE included graphs in their integrated reports, with bar graphs being the most used, accounting for 78% of all graphs disclosed. A study was performed on 277 SOEs listed in the Public Finance Management Act for all annual reports for the year 2018 (Kathrada, 2020). The findings revealed that 65% of companies included graphs in their annual reports, with bar graphs being the most frequently used, making up 39.9% of all graphs (Kathrada, 2020).

Most companies present graphs in their annual reports as these visual aids serve as powerful instruments to convey complex information in a simple way. However, the excessive or inappropriate use of graphs in annual reports can lead to misinterpretation by stakeholders. The overuse of graphs can overwhelm readers, while the insufficient use of graphs can result in missed opportunities by management to highlight key data. The efficacy of graphs is dependent on their clarity, relevance and accuracy of information. Research into the influence of graphical representations of earnings information found that non-professional investors' evaluations were swayed by more graphical formats in comparison to textual ones (Dilla et al., 2010). This suggests that graphs can make financial information more accessible to a broader audience, including non-experts (Cardoso et al., 2016). A study on the information visualisation in business decision-making demonstrated how graphs can accelerate perceptions and provide insight that supports managerial functions such as communication, knowledge management, and decision support (Al-Kassab et al., 2014). Graphs assist in showing the relationship between different types of information in a visual way, helping stakeholders better understand and make sense of the information.

2.3.4.2 Subject matter of graphs included in companies' annual reports

The subject matter of graphs within corporate annual reports pertains to the selectivity of graphs presented in these reports. Selectivity refers to the deliberate strategic decision-making process of which data to present graphically, and how to shape stakeholders' perceptions (Šimunović et al., 2024). Selectivity in graph usage is often a tool for impression management,

where companies aim to shape stakeholders' perceptions by emphasising the positive aspects of performance (Varachia & Yasseen, 2020). The effectiveness of selectivity as an impression management strategy can vary depending on the audience's ability to assess the presented information critically (Sithole, 2017). This can lead to a skewed understanding of a company's financial health (Cardoso, et al., 2024). Managers may choose to present the information graphically in annual reports to influence stakeholders' perceptions.

Graphs are frequently in financial information rather than ESG information, often with a bias towards favourable trends and a selection of key performance indicators that favour the company's corporate image (Melloni et al., 2017). Falschlunger et al. (2015) observed graphical disclosures for both KFV and non-KFV entities. It was determined that subjects in the graphs varied across the specific years, suggesting that companies exercise selectivity concerning the information they choose to present, and further findings indicated that corporations only exhibited extended temporal sequences when they could showcase a positive trajectory. (Falschlunger et al., 2015). In the study performed by Cüre et al. (2020), the results indicated that 77% of graphs included in the corporate reports showed favourable trends across different sectors, which suggests that there is a bias towards presenting positive performance. Most graphs disclosed tend to present information in alignment with the interests of the company; companies included 21% more favourable graphs than unfavourable information (Cardoso, et al., 2024). Varachia (2019) suggests that companies choose to graph favourable performance indicators such as increasing revenue and profits, while negative or declining data is often omitted from visual representations. Financial graphs are graphically more presented than non-financial graphs, as these are dependent on whether the information supports the company's narrative (Tschopp & Huefner, 2015).

The presence of selectivity raises questions about the ethical responsibilities of companies in financial reporting (Beattie & Jones, 1992; Demaline, 2024). Selectivity can affect stakeholders' decision-making process, as they may rely on these visual representations to assess company performance (Demaline, 2024). Most studies indicate that subject matter selection is not random but strategically managed by the management of organisations to manage stakeholder perceptions.

2.3.4.3 Distortion in graphs

Distortion in graph construction can occur when visual representations of data are altered to exaggerate positive trends or minimise negative ones, which involves manipulating the scale or axis of the graph to create a more favourable impression (Šimunović et al., 2024). Additionally, when a company manipulates the graphs, it creates the appearance of a strong performance, which is a deliberate tactic of impression management (Šimunović et al., 2024). Graph distortion is concerning as visual data is easier and faster to interpret than text or tables, which means that when graphs are misleading, they can shape stakeholder judgements without scrutiny (Zaimoglu, 2024). These theoretical considerations are substantiated by several empirical studies that have measured the extent of graphical distortion in corporate disclosures.

In a study performed by Falschlunger et al. (2015) for the years 2009 and 2012 of the leading 50 European companies, the results indicated that graphical representations for both KFVs and non-KFVs exhibited distortion; however, it was noted that positive trends were more frequently amplified than diminished. In a study performed on 15 SOEs in South Africa, the GDI was calculated for 99 graphs (Maleka, 2021). A total of 75.8% of the graphs were found to be distorted, while 24.2% of the graphs showed minimal or no distortion. In a study performed on the top 100 companies listed in South Africa, where the GDI was calculated on 2,109 graphs, it was found that 68.2% of graphs were materially distorted (Varachia & Yasseen, 2020). The annual reports of 277 SOEs were analysed in South Africa for the year 2018, and out of the 1,911 graphs for which the GDI was calculated, 67% of the graphs were materially distorted (Kathrada et al., 2021).

There are two key metrics which identify graphical measurement distortion in integrated reporting: The Graph Discrepancy Index (GDI) and the Relative Graph Discrepancy (RGD) (Mather et al., 2005) .

The GDI is a measure derived from the “lie factor” introduced by Tufte (1983) and is commonly used to assess the extent of distortion in graphical representations. The GDI quantifies the difference between the graphical representations of data and the actual data values. A higher GDI indicates greater distortion, which can mislead stakeholders by creating a false impression of the underlying data (Mather et al., 2003). Taylor and Anderson (1986) modified the lie factor to produce the GDI. The GDI is calculated as follows:

$$\text{GDI} = 100 \times [(a-b)-1] \text{ or } [(a-b)/b] \times 100$$

Where $a = (g2 - g1)/g1$ and $b = (d2-d1)/d1$

$g1$ and $g2$ = height of the first column and last column in the graph in cm

$d1$ and $d2$ = data for the first column and last column in the graph

a = percentage change presented in the graph

b = percentage change presented in the data

When the index attains zero, this represents the absence of distortion; however, a 5% positive or negative variation indicates minimal distortion (Tufté, 1983). A variation of 10% positive or negative is regarded as significant distortion (Beattie & Jones, 2002). It was observed that users are generally unable to detect a measurement distortion of 5%, whereas a distortion at the 20% level would be readily recognisable. At the 10% threshold, the results were ambiguous, leading the study to conclude that, to exercise prudence and prevent potential misrepresentation to stakeholders, measurement distortions exceeding 10% should be strictly disallowed.

The RGD is an alternative measure developed to address the limitations of the GDI (Mather et al., 2003). Unlike the GDI, the RGD is a more robust and consistent measure of graph distortion (Mather et al., 2005). The RGD is calculated by considering the relative difference between the graphical representation and actual data, which makes it less sensitive to scale and provides a more accurate assessment of distortion. The RGD has been shown to overcome the inconsistencies of the GDI and is considered a more reliable measure for evaluating graph distortion (Cüre et al., 2020; Mather et al., 2005). The RGD is calculated as follows:

$$RGD = (g2-g3)/g3$$

$g2$ = height of last column

$g3$ = correct height of last column, which is calculated as follows: $g3 = (d1 \times d2)/d1$

$g1$ = height of first column

$d1$ = value of first data point on first column

$d2$ = value of last data point on last column

An increase in RGD indicates a positive trajectory, whereas a decrease indicates a negative trajectory (Cüre et al., 2020; Mather et al., 2000). A fluctuation of 2.5% indicates distortion, as the variation of RGD corresponds to half of the variation observed in GDI (Mather et al.,

2005). The difference between GDI and RGD, as described by Mather et al. (2005) is rooted in the premise that GDI implies an approximation of a distortion measure, whereas RGD yields a definitive quantification of distortion.

2.3.5 Gaps in the literature

Unlike financial data, which is consistently reported, graphs are often treated as supplementary, with no archival standards (Courtis, 1997; Frownfelter-Lohrke & Fulkerson, 2001). The literature review demonstrates that there is a scarcity of empirical studies that investigate the utilisation of graphs as a strategic instrument for employing impression management strategies within annual reports by corporations operating in South Africa. While international research highlights the strategic use of graphs for impression management to manipulate stakeholders' perceptions (Varachia and Yasseen, 2020), similar studies in South Africa remain limited. Most studies focus on techniques of impression management rather than graphs. Post-COVID-19 studies are limited. Longitudinal data on graph usage in South African annual reports is scarce, making it difficult to track trends in graph discrepancies over time or compare GDI scores across years. No research has focused exclusively on the impression management of graphs in annual reports of post-COVID-19 pandemic for a longitudinal period of three years in South Africa.

2.3.6 Conceptual Framework

Figure 2.1 below illustrates the conceptual framework, which demonstrates how the variables of this study interact with the research objectives.

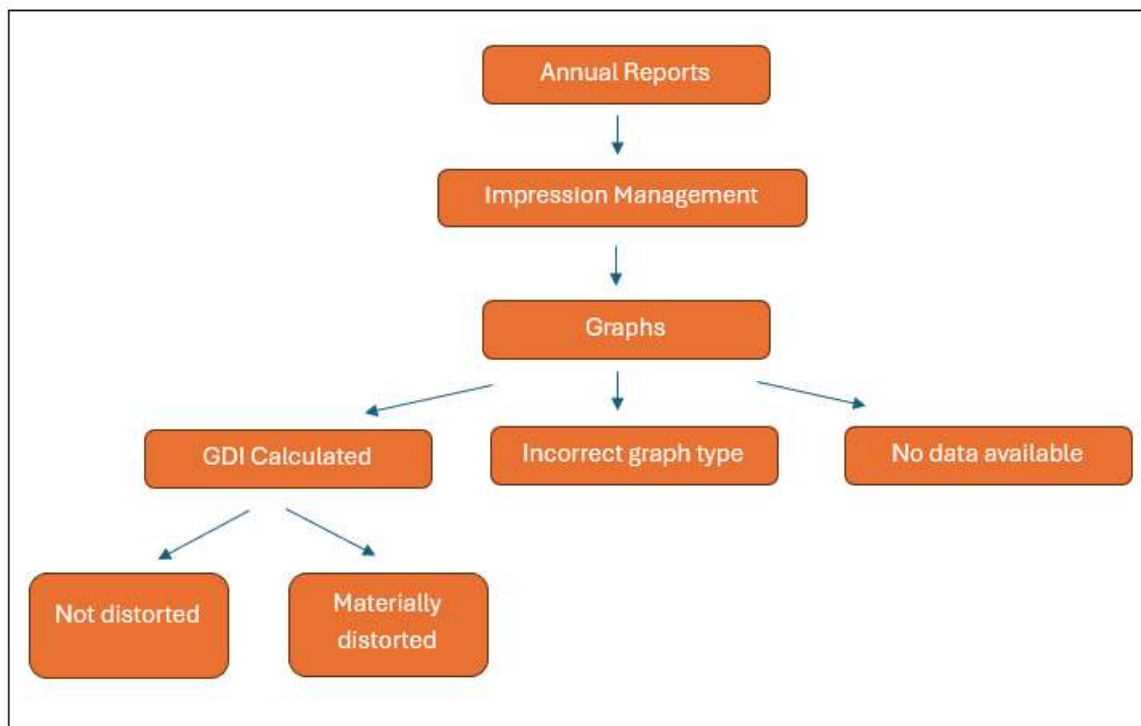


Figure 2 1: Conceptual Framework

Source: Researcher's formulation

2.4 Summary

This chapter discussed the theoretical and empirical literature review, which underpinned this study. The review of the theoretical literature focused on the following three theories: stakeholder theory, legitimacy theory and agency theory. The empirical literature discussed the evolution of integrated reporting in South Africa, integrated reporting, impression management, graphs as a tool of impression management, gaps in the literature and the conceptual framework of this study.

In the next chapter, the research methodology used in this study will be presented.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter delves into the research philosophy, research design, target population, sample selection, data sources and variable selection, model specification and analysis methods, performance metrics, measures of ensuring data validity and reliability, as well as ethical considerations before concluding with a summary of the chapter.

3.2 Research philosophy

Post-positivism is based on the assertion that the truth exists independently and can be uncovered through methodical approaches, and careful, repeated observation (Maharani, 2021). It is based on the premise that accounting reflects the objective reality that can be understood through empirical observation, and that the theories or assumptions within accounting can be tested using statistical techniques to produce findings that are generally relevant to various situations (Bisman, 2010). This research is primarily categorised by descriptive and analytical methods, using quantitative methods to assess observable data; therefore, post-positivism is a research philosophy for this study. Through this lens, this study seeks to understand how organisations may use graphs to shape perceptions while also considering the broader regulatory and contextual environment of South African corporate reporting. By doing so, it bridges the observable (graph features) and the unobservable (managerial intentions and stakeholder perceptions).

3.3 Research Design

Research design refers to the specific steps followed during the research process, functioning as a comprehensive framework that outlines how data will be collected, analysed and reported coherently and systematically (Ghanad, 2023). According to Chali et al. (2022), the selection of research design depends on the nature of the research problem being addressed, the particular research aims to answer, as well as the background and anticipations of both the researcher and the target audience. Research design methods are divided into quantitative, qualitative and mixed-method designs (Chali et al., 2022). According to Burns and Grove (2010), quantitative research can be characterised as a methodical, unbiased, and structured approach designed to

outline variables, evaluate their interrelationships and explore causal and consequential connections between the variables. Furthermore, quantitative research entails a cyclical process of successive phases characterised by the formulation of hypotheses, alongside the application of creativity, discipline and patience (Ghanad, 2023). Quantitative research generates numerical data and seeks to discover precise findings by evaluating hypotheses through objective and impartial scientific approaches. (Burns & Grove, 2010).

Quantitative research was adopted in this study as it represents the most appropriate framework for effectively addressing the research objectives and analysing data systematically. Quantitative research produces quantitative data, is primarily guided by post-positivist paradigms, and is based on several underlying assumptions (Burns & Grove, 2010).

3.4 Research Population

The research population refers to the group of entities, such as individuals, organisations or corporations, that the study is concentrated on and to which the results are intended to be generalised (Hossan et al., 2023). The research population functions to outline the boundaries of the research study and furnish the audience with a deeper understanding of the environmental and contextual elements, while also enabling a focus on specific areas within a defined framework (Hossan et al., 2023). The research population is all public companies listed on the JSE for the years 2021 to 2023.

3.5 Research Sample

The research sample refers to a particular subset of organisations selected from the population, based on specific criteria related to the research objectives, through a sampling approach designed to represent the population (Rahman, 2023). Due to the number of the population being too large to study, researchers select a smaller number of individuals to represent the entire population (Hossan et al., 2023). Non-probability sampling in the form of purposive sampling was used. Purposive sampling is considered optimal or most efficacious in the context of research when there is a limited population within a broader community that possesses specific characteristics that a researcher anticipates from the target participants (Hossan et al., 2023; Rahman, 2023). Purposeful sampling is suitable for this study as it facilitates the intentional selection of companies that meet the characteristics relevant to the

research objectives, namely, being within the top 40 companies listed on the JSE and publishing annual reports. This approach ensures that the sample is representative of the population and provides significant results.

The research sample was based on the integrated reports of the top 40 companies on the JSE for the years 2021 to 2023 (over three years), representing over 80% of the total market capitalisation of all the JSE-listed companies (Nyagope et al., 2023; Phesa, 2021). This provided a fair representation of the population. The top 40 companies listed on the JSE encompass most of the market's intrinsic value; therefore, they are highly indicative of the overall dynamics and patterns observed on the JSE. These companies include a diverse representation of various sectors. This ensures that the findings are valid and can be applied more broadly to understand the South African corporate landscape. The sample excluded the integrated reports of financial institutions. Financial institutions are distinguished from other sectors within academic research due to the fundamental differences in their operational models, financial statements, regulatory environments, accounting principles, performance indicators and risk assessments. The incorporation of these entities into the same dataset as non-financial firms would result in analytical distortions and compromise the integrity of conclusions drawn. Furthermore, the integrated reports of companies that have not been among the top 40 companies for the three years in which the study has been conducted have been excluded.

Studies in South Africa has adopted different sample sizes. Varachia and Yasseen (2020) focussed on the top 100 companies listed on the JSE for the year 2017. Kathrada et al. (2021) and Maleka (2021) focussed on entities within the public sector. De Klerk and Van Wyk (2017) focussed specifically on mining companies in South Africa. In existing literature, no study in South Africa has focussed on the top 40 companies listed on the JSE.

The initial sample consisted of 40 companies listed in the JSE Top 40 index over three years (2021 to 2023), resulting in a potential sample of 120 integrated reports (40 companies x 3 years). However, 5 companies were excluded from the sample due to being classified as financial institutions. Additionally, 9 companies were removed because they were not consistently listed in the Top 40 for all three years. Therefore, the final sample comprised 26 companies, observed over a three-year period, which equates to a total of 78 integrated reports (26 companies x 3 years).

3.6 Data sources and variable selection

This section includes the data sources and variables selected to perform this study.

3.6.1 Data sources

On 01 April 2025, a request was made by the researcher to the JSE to provide the companies listed on the JSE, which included information regarding the market capitalisation of these companies on that date. The requested information was returned from the JSE on that same date. The information included a list of all companies listed on the JSE for the years 2021 to 2025. Data in the form of individual company integrated reports were obtained for the years 2021 to 2023 from each company's website. Data imputation was not used for companies which have been in the top for two out of the three years of study, since the data imputation would not have been adequately addressed. The integrated reports disclose graphs presented in the annual reports published on each company's website for which no permission is required. These financial statements of these companies have been audited. Secondary data was used in this study. Secondary data refers to information that has been previously collected by another entity and has undergone statistical analysis techniques (Mazhar et al., 2021). This ensures that the data has been collected, organised and published for purposes other than specific research. This study will re-analyse this data to answer the research questions. Annual reports are considered secondary data for research instruments.

3.6.2 Variables

Variable selection is an essential step in statistical analysis aimed at identifying key variables to improve the accuracy, clarity and efficiency of the model performance (Xie & Hong, 2017). In quantitative research, variables are analysed to examine to determine how one influences the other or the relationship to each other (Ghanad, 2023). Table 3.2 below presents the variables used in this study:

Table 3. 1: Variables

Description	Designation	Variable Type	Represents	Calculation	Source
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Distortion	GDI	Dependent variable	Measures the degree of distortion	$GDI = 100 \times [(a-b)-1] \text{ or } [(a-b)/b] \times 100$	(Maleka, 2021; Varachia & Yasseen, 2020)
Number of graphs	Graph frequency	Independent variable	Frequency of graphs in annual reports	Count of graphs in each annual report	(Falschlunger et al., 2015; Varachia & Yasseen, 2020)
Graph content	Subject matter of graphs	Independent variable	Financial classification, such as financial and non-financial	Manual classification	(Kathrada et al., 2021)
Market capitalisation	Size	Control variable	Tests whether size influences graph use and distortion	Obtained from the JSE	JSE Index reports
Sector classification	Sector	Control variable	Examines differences in graph use and distortion across different sectors.	Obtained from the JSE	JSE Index reports

Source: Adapted from (Falschlunger et al., 2015; Kathrada et al., 2021; Maleka, 2021; Varachia & Yasseen, 2020)

GDI

To establish the measurement distortion of graphs, the GDI was used in this study. The degree of distortion was determined by comparing the visual presentation of the graph to the numerical data using the GDI (Beattie & Jones, 1992; Frownfelter-Lohrke & Fulkerson, 2001; Kathrada et al., 2021; Maleka, 2021; Varachia & Yasseen, 2020). The GDI is calculated as follows:

$$100 \times [(\text{percentage change presented in graph} - \text{percentage change presented in data}) - 1]$$

Graph frequency

The total count of graphs disclosed in each annual report indicates the frequency of graphical representations (Falschlunger et al., 2015; Varachia & Yasseen, 2020). It is counted through manual content analysis of each integrated report (Kathrada et al., 2021).

Subject matter of graphs

This represents the financial classification of graphs into the following categories: Financial (KFV) graphs, other financial graphs and non-financial graphs (Varachia & Yasseen, 2020). Graphs were manually classified through the process of content analysis (Kathrada et al., 2021). Graph content is manually classified into a financial category through manual content analysis (Kathrada et al., 2021).

Size

Market capitalisation is used to see if a company's size affects how management decides to use graphs and whether those graphs are presented in a misleading way (Kathrada et al., 2021). The market capitalisation for all companies listed on the JSE was obtained directly from the JSE.

Sector

The sector classification is used to compare the graph use, frequency and distortion across all sectors to assess sectoral differences (Varachia & Yasseen, 2020). The sector classification for all companies listed on the JSE was obtained directly from the JSE.

3.7 Model Specification and Analysis

The model specifications rely on previously established literature, which validates the use of the GDI (Beattie & Jones, 2002; Frownfelter-Lohrke & Fulkerson, 2001), as it complied with the methodological approach adopted by studies on graphical distortion and impression management (Kathrada et al., 2021); Maleka (2021); (Varachia & Yasseen, 2020) where graph frequency, subject matter and the GDI were used to assess graph use, selectivity and distortion of graphs disclosed in integrated reports.

3.7.1 Frequency of graphs

Microsoft Excel was employed to record the number of graphs in each annual report. Each graph was recorded for its type, as done by (Frownfelter-Lohrke & Fulkerson, 2001; Kathrada et al., 2021; Varachia & Yasseen, 2020) manually:

- (a) column graph,
- (b) bar graph,
- (c) line graph,
- (d) pie chart,

- (e) combined graph,
- (f) stacked bar graph, and
- (g) other graph.

Each graph disclosed in the integrated reports was recorded using an Excel spreadsheet. This study used manual content analysis in line with Kathrada et al. (2021), where each graph in the integrated reports was manually classified by graph type. The number of each graph type was counted using the appropriate Microsoft Excel formula. The number of graphs disclosed in the integrated reports and the number of graphs for each graph type were analysed and compared to previous studies.

3.7.2 Subject matter of graphs

Each graph disclosed was categorised by ‘financial category’ using manual content analysis in line with (Maleka, 2021; Varachia & Yasseen, 2020). These financial categories were recorded in a different column of the Excel Spreadsheet. The following financial categories were employed:

- (a) financial (KFV) graphs,
- (b) other financial graphs, and
- (c) non-financial graphs

The Financial (KFV) graphs category is a category of graphs disclosed that present information related to sales and profit. The other financial graphs category is graphs that do not relate to sales and profit but contain financial information. Non-financial graphs are those graphs that do not contain financial information and those graphs which present information regarding ESG factors. The total graphs in each category were counted using the appropriate Microsoft Excel formula. The quantity of graphs in each category was analysed and compared to previous studies.

After identifying the type of each graph disclosed in the integrated reports, the corresponding financial category, such as financial (KFV), other financial or non-financial, was manually assigned based on the subject matter of each graph (e.g. bar graphs illustrating revenue were assigned to the financial (KFV) category). Furthermore, each graph was classified by financial category and assigned to each sector companies analysed in this study. The number of graphs

per category segmented by graph type and sector was calculated using the appropriate Excel formula, and the results were analysed and compared to previous studies.

3.7.3 Distortion in graphs

The GDI is used to assess the extent of distortion in graphical representations. The GDI quantifies the difference between the graphical representations of data and the actual data values. The higher the GDI, indicates greater the distortion (Mather et al., 2003). When the index attains a value of zero, this indicates the absence of distortion; however, a deviation of 5%, either positive or negative, signifies distortion, although it is minimal (Tufte, 1983). A deviation of 10% in either a positive or negative direction is deemed significant distortion (Beattie & Jones, 2002).

The GDI was calculated as follows:

$$\text{GDI} = 100 \times [(a-b)-1] \text{ or } [(a-b)/b] \times 100$$

$$\text{Where } a = (g2 - g1)/g1 \text{ and } b = (d2-d1)/d1$$

$g1$ and $g2$ = height of the first column and last column in the graph in cm

$d1$ and $d2$ = data for the first column and last column in the graph

a = percentage change presented in the graph

b = percentage change presented in the data

Measurement of the height of the graph according to the formula above was calculated to the nearest millimetre and converted to centimetres. The percentage change presented in the graph and data was recalculated using Microsoft Excel. The GDI was calculated on all graphs using the formula, except for those graphs for which the GDI was not compatible or for which insufficient information was presented in the graph. Three categories of data were used: Graphs on which GDI was computed, no GDI calculation due to the nature of the graph, and no GDI calculation due to the lack of data.

Using all the graphs that had a GDI score, they were sorted into two groups: no material distortion and material distortion. In line with the study conducted by (Varachia & Yasseen, 2020). In this study, it was established that distortion exceeding 5% was considered material. The results were analysed using the SPSS version 29 software, and R Studio software was used

for the figures. A thorough examination was conducted to differentiate the variances in distortion.

3.8 Data Validity and Reliability

Validity and reliability are used to evaluate the research quality by measuring how accurately the selected methodology measures what it is intended to (Ghanad, 2023). Reliability refers to the degree of consistency of a method in yielding the same results when repeated under the same conditions, whereas validity refers to the accuracy with which the method measures what it has intended to (Ghanad, 2023). Each assessment requires proof of validity, and nearly all topics about assessments are intrinsically associated with validity in some manner (Ihantola & Kihn, 2011). Validity represents the fundamental foundation of assessment; without valid evidence, evaluations hold minimal or negligible intrinsic value (Mellinger & Hanson, 2021). A method must be reliable to be valid, although reliability alone does not ensure validity (Ghanad, 2023).

Quantitative research produces consistent and stable results when procedures are repeated under similar conditions and therefore ensures reliability for this study. Secondary data has been used in this study in the form of integrated reports obtained directly from each company's website. These annual integrated reports have been audited, and the information contained therein is measurable. The graphs contained within each annual integrated report were analysed using the guidelines and calculations generated from previously published studies to ensure validity.

3.9 Ethical considerations

Every researcher must adhere to ethical principles throughout the entirety of their study, as it instructs and manages researchers to uphold a strict ethical framework throughout research activities (Hasan et al., 2021). An ethical clearance was obtained to ensure that this study was conducted ethically (Ethical clearance no. 00027051) before gathering data. The secondary data was sourced from each company's website, which is publicly available and does not require permission for academic use. The dataset was fully anonymised, with no personally identifiable information included, ensuring that privacy is maintained. No informed consent

was required since there was no human participation. All data was recorded and analysed carefully to avoid any distortion of findings.

3.10 Summary

This chapter encompassed the research methodology used. This study used quantitative analysis as it is methodical, unbiased, and follows a structured approach with a post-positivist approach to provide generalised findings and adequately compare the results to previous studies. Secondary data in the form of audited annual integrated reports were observed and analysed to determine the frequency, subject matter of graphs and calculate the degree of distortion experienced in graphs presented in annual integrated reports.

This chapter included the following sections: introduction, research philosophy, research design, research population, research sample, data sources and variable selection, model specification and analysis, data validity and reliability, and ethical considerations of the study.

In the next chapter, the data presentation and analyses will be presented. Chapter 4 includes the following sections: An introduction to the chapter, descriptive statistics, results presentation and analysis, discussion of the results and analysis and a summary of the chapter.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

In this chapter, the empirical findings of this study, which investigates the use of impression management in graphs disclosed in integrated reports in South Africa, are presented and analysed. This chapter systematically presents the data collected and interprets the results, considering the research objectives. This chapter is made up of the following sections: descriptive statistics, findings of the study, discussion and concludes with a summary of the chapter.

4.2 Descriptive Statistics

The results indicated that 26 companies (100%) included graphs in their integrated reports over the three-year period. A total of 2.814 graphs were identified across all integrated reports, resulting in an average of approximately 108.23 graphs per sector. The sectoral distribution of companies included in the sample is as follows: Basic resources (10 companies), Chemicals (1), Consumer Products & Services (1), Food, Beverage and Tobacco (2), Industrial Goods and Services (2), Insurance (2), Personal Care, Drug & Grocery (3), Retail (1), Technology (2), and Telecommunications (2).

In a study conducted in South Africa on SOEs for the year 2018, it was found that 64% of annual reports included graphs (Kathrada, 2020). A study by Varachia and Yasseen (2020) found that 98% of the top 100 JSE-listed companies used graphs in their integrated reports. In a study performed in South Africa on SOEs from 2017 to 2021, all annual reports (100%) included graphs (Maleka, 2021). Beattie and Jones (1997) found that 92% of companies in the US and 80% of companies in the UK included graphs in their annual reports.

In Turkey, a study was performed on annual reports of companies for 2007, and approximately 75% of companies included graphs in their annual report (Uyar, 2009). In a study performed in Turkey for the year 2004, 65% of companies included graphs in their annual reports for that particular year (Rahman et al., 2014). Falschlunger et al. (2015) revealed that all the top 50 European corporations utilised graphical representations in their annual financial disclosures. Cüre et al. (2020) conducted a study for the years 2018 and 2019, and it was found that 49 of

50 companies used graphs in their corporate reporting. From the results performed in both developed and underdeveloped countries, together with the results from this study, it is found that graphs have been used by companies in their annual reports consistently over the years. The results of this study support the notion that the incorporation of graphs in annual reports has evolved into a consistent characteristic over the years and across various sectors (Beattie & Jones, 1999; Falschlunger et al., 2015). A study performed in Italy in 2019 found that 56 out of 58 companies employed graphs in their reporting (Šimunović et al., 2024). In a study performed in Brazil in 2022, it was reported that all companies analysed included graphs in their reporting (Cardoso et al., 2024). Earlier research conducted in both developed and developing countries has shown that companies have consistently used graphs in their annual reporting over the years.

4.3 Findings

This section covers the results of the study objectives as presented in Chapter 1 of this study. The results of the frequency of graphs, the subject matter of graphs, and the analysis of the distortion of graphs in the annual reports for South African listed companies were presented.

4.3.1 Frequency of graphs

There were 10 sectors analysed, which formed part of the sample of 26 companies as presented in Table 4.1 below. The basic resources sector made up 38.5% of the companies presented and presented a total number of 1,433 graphs, which make up 50.9% of the graphs presented for all companies examined for the period under review. Basic resources have the highest average number of graphs per company at 143.3 graphs. This was followed by the technology and telecommunications sectors, which only have two companies each, contributing significantly to the total number of graphs (6.6% and 6.5% respectively). These sectors maintain high average graphs per company (92.5 graphs and 91.5 graphs), despite only having 2 companies in each sector. The personal care, drug and grocery stores sector has the lowest average graph per company at 59.0, and their total contribution is 6.3% of the graphs.

Table 4. 1: Sector analysis of the JSE

Sector	Number of Companies	% Number of Companies	Total Number of Graphs	% Number of Graphs	Average Graphs per Sector
Basic Resources	10	38.5%	1433	50.9%	143.3
Chemicals	1	3.8%	98	3.5%	98.0
Consumer Products &	1	3.8%	72	2.6%	72.0
Food, Beverage and	2	7.7%	157	5.6%	78.5
Industrial Goods and	2	7.7%	250	8.9%	125.0
Insurance	2	7.4%	150	5.3%	75.0
Personal Care, Drug &	3	11.5%	177	6.3%	59.0
Retail	1	3.8%	109	3.9%	109.0
Technology	2	7.7%	185	6.6%	92.5
Telecommunications	2	7.7%	183	6.5%	91.5
Total	26	100.0%	2814	100.0%	108.23

In Table 4.2 below, a notable majority of the graphs (approximately 87.5%) can be categorised into three distinct types: column graphs (34.0%), pie charts (31.6%), and bar graphs (21.9%). This could indicate that management prefers using simple, easy-to-understand visuals to their stakeholders who are reading the financial statements and reflects a general audience familiarity. There is a lower use of complex and advanced graphs with stacked bar graphs (0.5%), combined graphs (3.8%) and line graphs (5.5%), which may be a lack of comfort from stakeholders interpreting more complex visuals. Line graphs seem underused, with this just 5.5%. Only 2.8% fall into the “other” category, which suggests that non-standard or custom graphs are uncommon or avoided.

Table 4. 2: Graph type.

Type of Graph	Total	%
Bar graph	616	21.9%
Pie chart	889	31.6%
Line graph	154	5.5%
Combined graph	107	3.8%
Column graph	957	34.0%
Stacked bar	13	0.5%
Other graph	78	2.8%
Total	2814	100

4.3.2 Subject matter of graphs

Financial graphs, which comprise both financial (KFV) graphs and other financial graphs, account for 52.9% of the total graphs analysed. Specifically, financial graphs (KFV), such as revenue, profit, earnings per share and dividend per share, represent 17.8%, while other financial graphs make up 35.1%. As shown in Table 4.3 below, non-financial graphs constitute the remaining 47.1%, highlighting that nearly half of all graphical disclosures are related to non-financial subject matter.

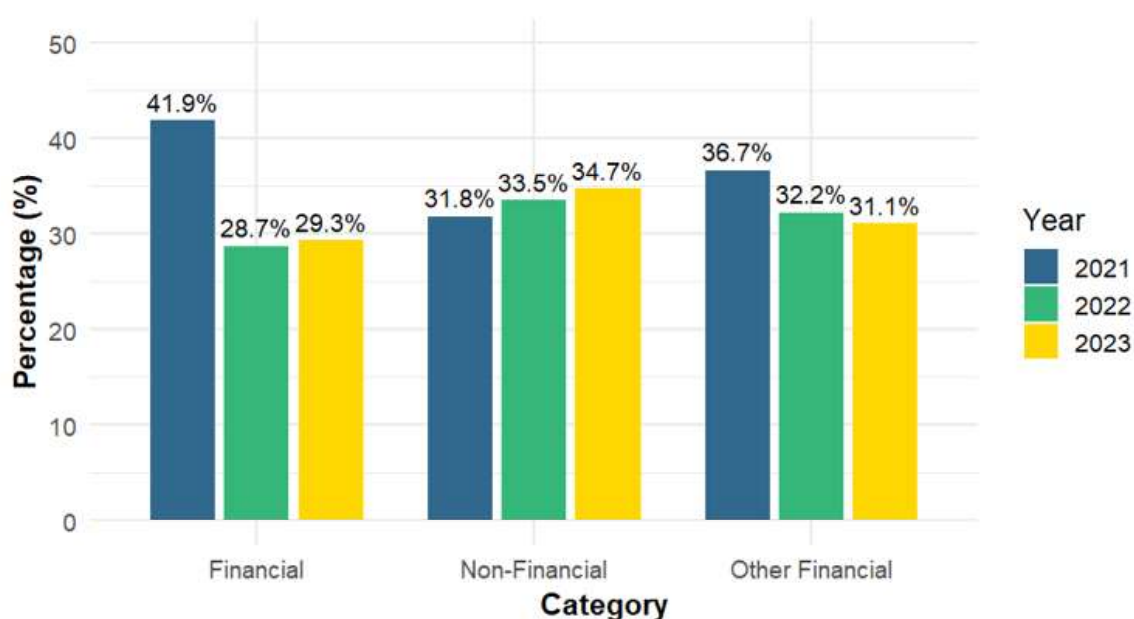
Table 4. 3: Total graphs by financial category.

Graph Category	Total	%
Financial (KFV)	501	17.8%
Other Financial	989	35.1%
Non-Financial	1 324	47.1%
Total	2814	100.0%

Table 4.4 presents the analysis of graphs in terms of their category by year. Non-financial graphs account for the highest proportion of total graphs over the three years (47.1%), showing a growing trend from 2021 to 2023. Financial (KFV) graphs decreased significantly from 41.9% in 2021 to 28.7% in 2022 and remained relatively stable in 2023. These only constitute 17.8% of all graphs across the period. Other financial graphs show a gradual decrease year-on-year, though they still represent a substantial 35.1% of total usage. The total number of graphs each year shows a slight decline from 2021 (994) to 2022 (905), with a small increase in 2023 (915), possibly reflecting stabilisation post-COVID-19 disruptions. Figure 4.1 below graphically illustrates the year-on-year distribution of financial categories, showing a decline in the number of financial (KFV) graphs, a consistent increase in non-financial graphs, and a gradual decrease in other financial graphs over the three years.

Table 4. 4: Analysis of graphs in terms of financial category by year

Category	2021		2022		2023		Total
	Total	%	Total	%	Total	%	N (%)
Financial	210	41.9%	144	28.7%	147	29.3%	501 (17.8%)
Other	363	36.7%	318	32.2%	308	31.1%	989 (35.1%)
Non-Financial	421	31.8%	443	33.5%	460	34.7%	1 342
Total [N (%)]	994 (35.3%)		905 (32.2%)		915 (32.5%)		2814

**Figure 4 1: Percentage distribution of graph categories by year**

In Table 4.5 below, the data presented shows that pie charts make up 45.9% of Financial (KFV) graphs and 40.9% of non-financial graphs. Column graphs account for 45.8% of other financial graphs and 30.1% of non-financial graphs. Line graphs account for 2.0% of financial KFV graphs, 1.9% for non-financial graphs, but 12.0% in other financial graphs. Together, bar and column graphs make up 45.2% of financial KFV graphs, 69.0% of other financial graphs and 50.3% of non-financial graphs.

Table 4. 5: Graph type by financial category.

Type of Graph	Financial (KFV)		Other Financial		Non-Financial	
	Total	%	Total	%	Total	%
Bar graph	120	24.0%	229	23.2%	267	20.2%
Pie chart	230	45.9%	118	11.9%	541	40.9%
Line graph	10	2.0%	119	12.0%	25	1.9%
Combined	16	3.2%	50	5.1%	41	3.1%
Column graph	106	21.2%	453	45.8%	398	30.1%
Stacked bar	5	1.0%	1	0.1%	7	0.5%
Other graph	14	2.8%	19	1.9%	45	3.4%
Total	501	100.0%	989	100.0%	1342	100.0%

Table 4.6 presents significant variation in the classification of companies across the financial (KFV), other financial and non-financial categories during the 2021 to 2023 period. Consumer products and services and retail sectors are highly financialised as their graphs are dominated within the financial (KFV) category at 84.7% and 42.2% respectively. The basic resources, personal care, drug, and grocery stores sectors dominate the other financial category, as more than half of their graphs are categorised as other financial. The insurance, technology and telecommunications sector show a more even distribution across categories.

Table 4. 6: Sector composition by financial category

Sector	Financial (KFV)		Non-Financial		Other Financial	
	Total	%	Total	%	Total	%
Basic Resources	155	10.8%	516	36.0%	762	53.2%
Chemicals	17	17.3%	35	35.7%	46	46.9%
Consumer Products &	61	84.7%	10	13.9%	1	1.4%
Food, Beverage and Tobacco	59	37.6%	39	24.8%	59	37.6%
Industrial Goods and Services	64	25.6%	76	30.4%	110	44.0%
Insurance	16	10.7%	69	46.0%	65	43.3%
Personal Care, Drug &	20	11.3%	63	35.6%	94	53.1%
Retail	46	42.2%	35	32.1%	28	25.7%
Technology	45	24.3%	63	34.1%	77	41.6%
Telecommunications	18	9.8%	83	45.4%	82	44.8%

4.3.3 Distortion of graphs

The GDI was computed on 1,468 of a sample of 2,814 graphs as presented in Table 4.7 below. This represents 52.2% of the sample. 969 graphs (34.4%) were not computed due to the nature of the graphs, meaning that the graph was a pie chart or other graph which did not support the GDI calculation.

Table 4. 7: Calculation of GDI.

GDI Computation	Total	%
GDI computed	1468	52.2%
Not computed due to the nature of the graph	969	34.4%
No data available	377	13.4%
Total	2814	100.0%

In Table 4.8 below, for financial (KFV) graphs, the GDI for 48.7% were computed while 46.1% was not computed. There was a high proportion of graphs unsuitable for GDI calculation, aligning with earlier data showing pie charts are dominant in this category. This proves that KFV graphs, despite their importance, are frequently designed in ways that obscure numerical clarity, possibly reflecting strategic visual manipulation. For other financial graphs, the GDI computed was 64.9%, while those not computed were 16.3%, which suggests that other financial metrics may be subject to less impression management. Non-financial graphs saw GDI computation of 44.0%, which was the lowest among these categories, with no computation on 43.6%, which is very high and indicates frequent use of qualitative or decorative graphs. Consistent with impression management theory, this suggests that non-financial disclosures are often framed narratively, reducing verifiability.

Table 4. 8: Analysis of graphs in terms of GDI calculation.

GDI Computation	Financial (KFV)		Other Financial		Non-Financial	
	Total	%	Total	%	Total	%
GDI computed	244	48.7%	642	64.9%	587	44.0%
Not computed due to nature of	231	46.1%	161	16.3%	577	43.6%
No data available	26	5.2%	186	18.8%	165	12.5%
Total	501	100.0%	989	100.0%	1342	100.0%

Table 4.9 presents the analysis of GDI computation by year (2021 to 2023). It highlights the trends related to the availability and suitability of graphs in the context of impression management analysis. Throughout the three-year duration, slightly more than half of the graphs satisfied the criteria for GDI computation: 52.4% in 2021, 54.9% in 2022 and a slight decrease to 49.2% in 2023. Approximately one-third of graphs could not be analysed due to the nature of the graphs each year. Between 10.9% and 15.1% over the three years lacked sufficient data for GDI computation altogether.

Table 4. 9: Analysis of GDI computation by year.

GDI Computation	2021		2022		2023	
	Total	%	Total	%	Total	%
GDI computed	521	52.4%	497	54.9%	450	49.2%
Not computed due to nature of	333	33.5%	309	34.1%	327	35.7%
No data available	140	14.1%	99	10.9%	138	15.1%
Total [N (%)]	994 (100.0%)		905 (100.0%)		915 (100.0%)	

Table 4.10 highlights the extent to which companies engaged in visual impression management. The results suggest that 30.7% of graphs were materially exaggerated, while 27.8% were materially understated. Only 41.6% were not materially distorted, which indicates that more than half of the financial graphs analysed in this study were materially distorted. The nearly equal distribution of exaggeration and understatement suggests that distortion is not unidirectional, but rather context-driven.

Table 4. 10: Measurement distortion using GDI.

Distortion Status	Nature of Distortion	Total	%
Materially Distorted	Exaggeration> (5%)	450	30.7 %
	Understatement< (-5%)	408	27.8 %
Not Distorted	Not Materially Distorted	610	41.6 %
Total		1468	100.0%

Table 4.11 presents the analysis of the number of graphs distorted by financial category – financial (KFV), other financial and non-financial – as assessed by the GDI. The results indicate that significant distortion is pervasive across all classifications, with both financial (KFV) and other financial graphs demonstrating distortion rates of approximately 56.6%. Non-

financial graphs reveal the highest distortion rate at 61.3%. The total material distortion across all financial categories is 58.4%.

Table 4. 11: Analysis of the number of graphs distorted by financial category.

Distortion Status	Financial (KfV)		Other Financial		Non-Financial		Total N (%)
	Total	%	Total	%	Total	%	
Materially	138	56.6%	363	56.5%	357	61.3%	858
Not Distorted	106	43.4%	279	43.5%	225	38.7%	610
Total	244	100.0%	642	100.0%	582	100.0%	1468

Across all financial categories, exaggeration has remained consistently used, as evidenced in Table 4.12. There has been exaggeration used in 31.1% of financial (KfV) graphs, 30.6% in other financial graphs and 30.4% in non-financial graphs, which fall in a very narrow range. Understatement is highest in the non-financial category at 30.9%, lower in the other non-financial category at 27.8% and at the lowest in the financial category at 25.4%. The results show that non-financial graphs are the category that is most distorted overall. Figure 4.2 shows graphically the analysis of the number of graphs distorted by financial category. It shows that exaggeration, understatement, and not materially distorted are relatively similar across all financial categories.

Table 4. 12: Analysis of the number of graphs distorted by financial category.

Nature of Distortion	Financial		Other		Non-Financial	
	Total	%	Total	%	Total	%
Exaggeration> (5%)	76	31.1%	197	30.6%	177	30.4%
Understatement< (-5%)	62	25.4%	166	27.8%	180	30.9%
Not Materially Distorted	106	43.4%	27	41.6%	225	38.7%
Total	244	100.0%	642	100.0%	582	100.0%

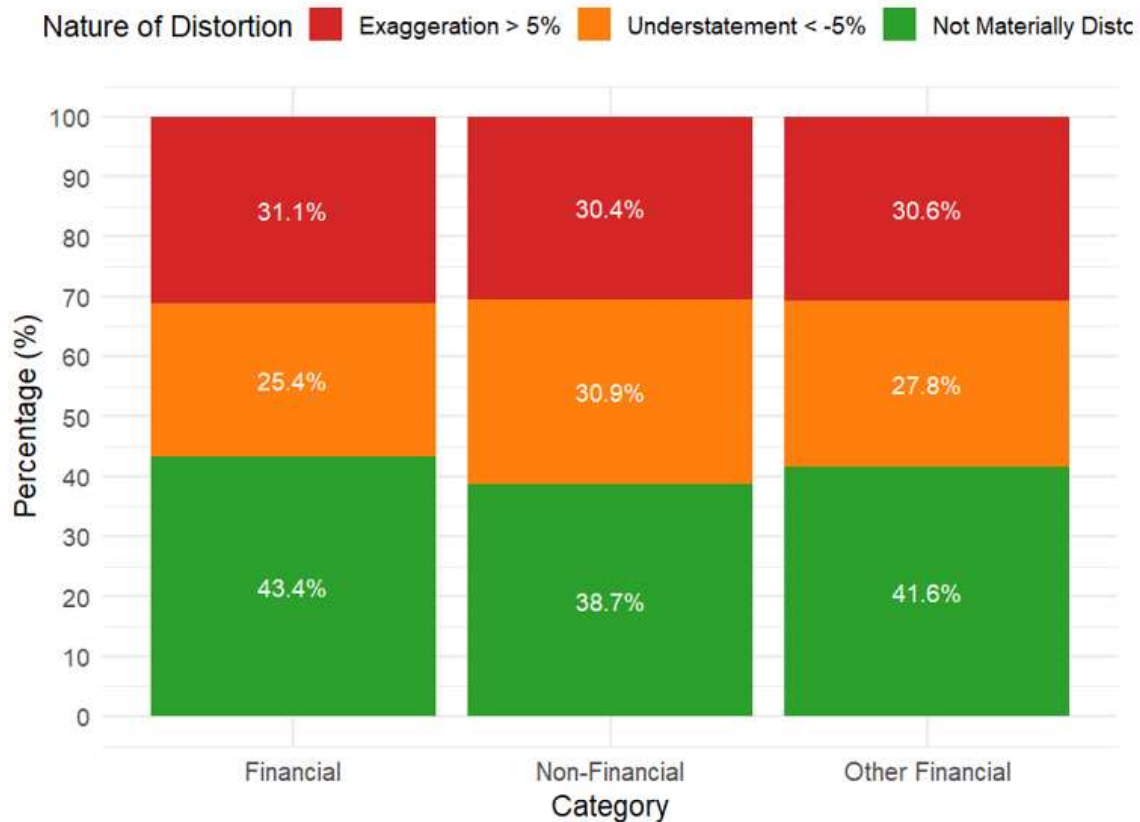


Figure 4 2: Analysis of the number of graphs distorted by financial category

Table 4.13 below adds a qualitative aspect to the preceding analysis by showing the extent of graph distortion. On average, the financial (KFV) graphs are exaggerated by 121.0%, followed by other financial graphs at 101.0% and non-financial graphs at 90.7% when the distortion exceeded the 5% threshold. Conversely, in graphs exhibiting understatement (distortion less than -5%), the non-financial category had the most understatement at -69.6%, followed by other financial at -47.9% and financial (KFV) at -31.2%.

Table 4. 13: Average GDI by financial category

Financial	Exaggeration>	Understatement< (-	Not Materially
Financial (KFV)	121.0%	-31.2%	0.4%
Other Financial	101.0%	-47.9%	0.1%
Non-Financial	90.7%	-69.6%	-0.03%
Overall Average	100.0%	-54.9%	0.11%

Table 4.14 integrates a temporal dimension into the analysis of graphical distortion. It presents how the level of graph distortion has progressed from 2021 to 2023. The exaggeration rose from 94.5% in 2021 to 127% in 2023, while the understatement has decreased substantially from -43.0% to -74.2% for the same years. The percentage of graphs classified as not materially distorted has shown a slight increase, increasing from 0.03% in 2021 to 0.2% in 2023. Nonetheless, these figures remain negligible and close to zero. Figure 4.3 below graphically presents the distortion by financial year and financial category. It can be seen that across all financial years and financial categories that exaggeration exceeds understatement.

Table 4. 14: Average GDI by year.

Financial Year	Exaggeration> (5%)	Understatement< (-	Not Materially
2021	94.5%	-43.0%	0.03%
2022	81.9%	-52.1%	0.1%
2023	127.0%	-74.2%	0.2%

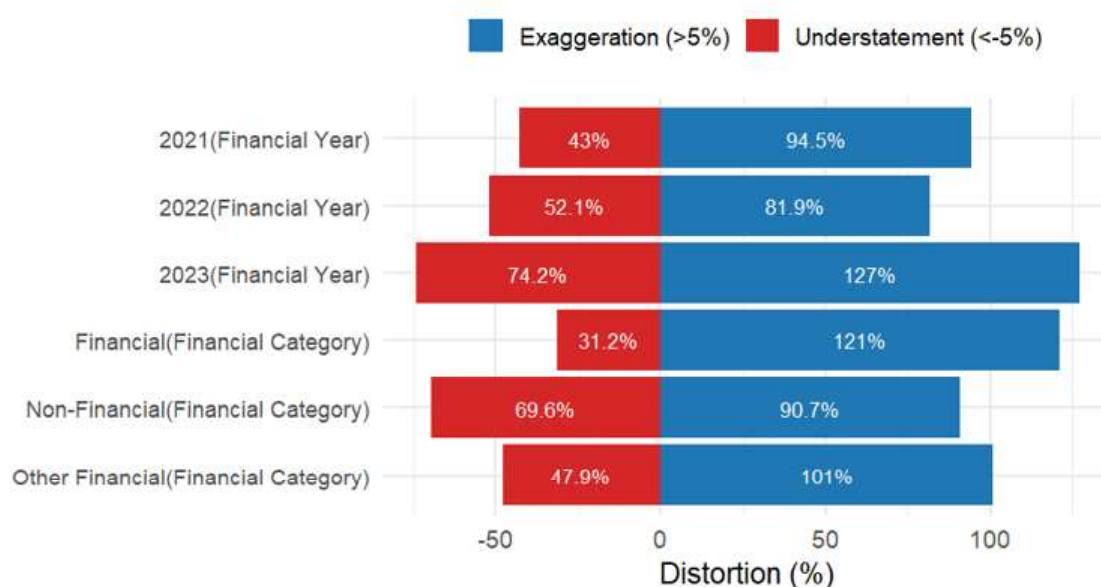


Figure 4 3: Distortion by financial year and financial category

Table 4.15 presents the findings related to the average GDI per sector. The most exaggerated sectors were personal care, drug and grocery stores with 327.0%, retail with 243.0% and chemicals with 141.0%. The highest understatement is presented from basic resources with -62.4%, industrial goods and services with -56.1% and insurance with -50.5%. All sectors have very low percentages of not materially distorted, which shows a widespread distortion of graphs.

Table 4. 15: Average GDI by sector.

Sector	Exaggeration> (5%)	Understatement< (-5%)	Not Materially Distorted
Basic Resources	84.5%	-62.4%	0.13%
Chemicals	141.0%	-49.3%	0.80%
Consumer Products & Services	63.4%	-20.1%	0.32%
Food, Beverage and Tobacco	89.1%	-34.7%	0.31%
Industrial Goods and Services	59.2%	-56.1%	-0.29%
Insurance	90.7%	-50.5%	-0.63%
Personal Care, Drug & Grocery	327.0%	-19.8%	0.35%
Retail	243.0%	-43.5%	-0.54%
Technology	91.7%	-32.6%	0.62%
Telecommunications	19.4%	-48.7%	-0.35%

4.4 Discussion

4.4.1 Frequency of graphs included in companies' annual reports

On average, 47.8 graphs were presented per sector each year in this study, totalling 143.3 graphs per sector over the three years (2021 to 2023). The basic resources sector had the most average graphs per sector at 143.3 graphs. In the study conducted by Varachia and Yasseen (2020), the average graphs per sector was 40.9 and the chemicals sector had the highest average graphs per sector at 82. Beattie and Jones (1999) researched the use of graphs in annual reports in Australia and found that companies in the diversified sector included the most graphs, with an average of 25.7 per report. In a study conducted in Turkey by (Uyar, 2009), it revealed that the predominant proportion of graphs was found in the industrial sector at 50%. Compared to other studies, this study has reported the highest propensity of graph usage per sector.

In this study, a notable majority of the graphs (approximately 87.5%) can be categorised into three distinct types: column graphs (34.0%), pie charts (31.6%), and bar graphs (21.9%). There is a lower use of complex and advanced graphs with stacked bar graphs (0.5%), combined graphs (3.8%) and line graphs (5.5%). These results agree with those of Varachia and Yasseen (2020) which have indicated that the most frequently used are column graphs (34.3%), pie charts (23.6%), and bar graphs (11.6%), as these graphical representations possess

the capability to communicate information straightforwardly and efficiently, which may elucidate their prevalent utilisation. In an investigation undertaken by De Klerk and Van Wyk (2017), the column graph represented 53%, which was the most used in the study. In Europe, the column graph was the most commonly used (Falschlunger et al., 2015). In a study based on Turkish companies, companies mainly incorporated column, bar and pie charts in their annual reports (Uyar, 2009). Beattie and Jones (2000) indicated that 55% of the graphs presented in annual reports were column graphs.

On the other hand, Penrose (2008) examined the utilisation of graphical representations within annual reports and determined that bar and pie charts were the predominant graphs used, primarily because of their simplicity and interpretative clarity. These fundamental chart types were the preferred graph type for the financial information as they offer greater accessibility to a wider audience, encompassing stakeholders who possess limited financial acumen (Beattie & Jones, 1992). While more complex visualisations can provide deep insights, they are used less frequently in annual reports due to their complexity and higher risk of misinterpretation (Frownfelter-Lohrke & Fulkerson, 2001).

The first research objective aimed to assess the frequency of graphs included in the annual reports for South African listed companies. This objective has been addressed by the findings, which reveal that an average of 47.8 graphs were presented per sector per year, totalling 143.3 graphs per sector over the three-year period (2021-2023). These results demonstrate that South African listed companies make extensive use of graphs in their reporting. There has been a notably higher frequency reported in comparison to international studies (Beattie & Jones, 1999; Uyar, 2009; Varachia & Yasseen, 2020). This study, therefore, addresses this objective by providing clear evidence of the prevalence of graphs in South African annual reports.

4.4.2 Subject matter of graphs included in companies' annual reports

Financial graphs (KFV and other financial) make up 52.9% of total graphs in this study. This is in line with studies performed by Varachia and Yasseen (2020) who noted that 61.3% of financial graphs were disclosed in South African companies' annual reports, and therefore, more financial graphs are reported. Although financial graphs are the graphs that are most reported, it should be noted that there has been a decline in the financial graphs reported in companies' annual reports in this study from 2021 to 2023. According to Frownfelter-Lohrke

and Fulkerson (2001), non-financial and qualitative graphs have grown in usage over time, reflecting broader communication goals beyond financial performance. This aligns with the findings of this study, which shows an increase in the use of non-financial graphs from 31.8% in 2021 to 34.7% in 2023.

Nearly half of all graphs (47.1%) are non-financial in this study. This highlights a shift toward visual communication of qualitative and operational data. Jones (2011) reported a substantial presence of non-financial graphs, especially when companies were under pressure to report accountability beyond financial information. In a study performed in 2017, it was found that non-financial graphs accounted for a substantial proportion of total graphs, which illustrates the deliberate focus of stakeholder engagement through ESG themes (Varachia & Yasseen, 2020). Additional support is evidenced by Kathrada et al. (2021), who found that there was a growing number of non-financial graphs in SOEs in South Africa, which could be attributable to the IR framework, which advocates for companies to present a more holistic view of value creation. (Šimunović et al., 2024) observed that non-financial graphs are becoming a more prominent strategy of managing stakeholder impressions.

Financial (KfV) graphs decreased significantly from 41.9% in 2021 to 28.7% in 2022 and remained relatively stable in 2023. These only constitute 17.8% of all graphs across the period. The findings of this study contradict the results of Rahman et al. (2014), who had conducted a longitudinal study on the graph use in Malaysian companies' corporate reporting for the years 1984 to 2004, indicated an increase of financial KfV graphs from 29% in 1984 to 35% in 2004; however, the findings of this study agree with Beattie and Jones (2008) who found that there had been a decline in financial KfVs graphs from 1989 to 2004, from 30.7% down to 24.4% respectively.

Non-financial graphs account for the highest proportion of total graphs over the three years (47.1%), showing a growing trend from 2021 to 2023. Frownfelter-Lohrke and Fulkerson (2001) observed that non-financial graphs were less common and typically used to supplement or soften poor financial performance. This could explain the high proportion of non-financial graphs presented in this study. COVID-19 has negatively affected the financial performance of companies, which could indicate that an increase in non-financial graphs is a means of managing stakeholder perceptions by supplementing financial graphs with non-financial graphs. Courtis (1997) noted that most financial graphs were used selectively and

disproportionately favoured positive results, suggesting impression management motives. Beattie and Jones (1992, 1997) found companies use financial graphs overwhelmingly, especially financial (KfV) graphs. The result presented in this study is divergent from international trends as this study shows predominance of non-financial graphs which may indicate either a shift in disclosure priorities post COVID-19, a greater emphasis on ESG or narrative performance on South African corporate culture or potential avoidance of highlighting weaker financial results in uncertain periods – aligning with the impression management theory.

The results show that pie charts make up a significant portion of financial (KfV) graphs and non-financial graphs. Pie charts are less effective in conveying accurate information about numerical figures. Research in visual perception consistently indicates that the interpretation and angles of pie charts are less precise than the linear dimensions of column and bar graphs (Hill, 2025). Their popularity in financial graph disclosures could be linked to impression management by using visually engaging but less precise formats to soften negative trends. This limitation makes pie charts more vulnerable to distortion, whether deliberate or intentional, potentially misleading impressions of stakeholders (Krok, 2021). As a result, their extensive utilisation in integrated reports raises concerns regarding their vulnerability to manipulation and thus visual impression management.

Column graphs account for 45.8% of other financial graphs and 30.1% of non-financial graphs. Line graphs account for 2.0% of financial KfV graphs, 1.9% of non-financial graphs, and 12.0% of other financial graphs. Frownfelter-Lohrke and Fulkerson (2001) and Courtis (1997) found that column graphs are preferred for time-series data due to their clarity and comparability. High column graph usage in other financial categories may suggest a structured financial disclosure tied to investor-related metrics. This reflects attempts to demonstrate accountability and transparency where data are less sensitive than financial KfV items. Results from a study performed by Kathrada et al. (2021) found that column graphs are the most dominant graphs and that line graphs are used sparingly to present trends rather than detailed financial reporting. This is echoed by Varachia and Yasseen (2020) who found that line charts are used sparingly and that column charts are the preferred graph to present in integrated reports.

Together, bar and column graphs make up 45.2% of financial KfV graphs, 69.0% of other financial graphs and 50.3% of non-financial graphs. Varachia and Yasseen (2020) found that bar and column graphs were the most disclosed graphs for financial and non-financial information. Kathrada et al. (2021) found that column graphs are the most disclosed among the information in the integrated reports. This reinforces the domination of bar and column graphs in integrated reporting. These types of graphs are considered standard for accurate representation. Widespread use shows preference for conventional graphing, although true accuracy depends on design quality, not just type. Other graphs and combined graphs are at a minimum, which indicates that companies stick to traditional formats, which align with prior studies like Liang et al. (2006), who suggest that experimentation with graphs is rare in conservative industries like finance and manufacturing.

The consumer products and services sector stands out with 84.7% financial (KfV) graphs, indicating a heavy focus on reporting key financial data. This aligns with the findings of Stanton and Stanton (2002), who noted that the consumer-focused sectors of the time emphasise financial transparency to support investor trust and market competitiveness. It further aligns with Beattie and Jones (2001), who argues that companies in high visibility sectors are more likely to use visual techniques to enhance perceived performance. This is consistent with Jones (2011) who found that high-impact or regulated industries tend to disclose more non-financial information, especially in areas such as ESG, sustainability and stakeholder engagement.

The basic resources, personal care and chemicals industry show a strong emphasis on other financial graphs reflecting production costs, margins and operating efficiencies as opposed to KfVs. Varachia and Yasseen (2020) found that high operational and environmental sectors, such as basic materials and chemicals, presented a greater proportion of non-financial and other financial graphs, as these companies focused on metrics like volume production and emissions. This is in line with Beattie and Jones (2008), who stated that in industries with complex operational environments, they may use financial metrics not covered under the standard KfVs to help stakeholders understand the business dynamics.

This study highlights significant sectoral variation in graph usage, which largely aligns with international literature on disclosure strategies and the selectivity of graphs presented in annual reports. The emphasis on non-financial and other financial graphs in high-regulation or

resource sectors may reflect both impression management and efforts to align with the integrated reporting trend.

The second research objective aimed to examine the subject matter of graphs in annual reports for South African listed companies. This objective has been addressed through an analysis of relative proportions of financial and non-financial graphs and their sectoral variations in their use. The findings revealed that financial graphs constituted 52.9% of the total, although their prevalence declined over the three-year period. This demonstrates that, although financial information continues to dominate, companies are increasingly using non-financial graphs to communicate sustainability, ESG and operational data. This aligns with Frownfelter-Lohrke and Fulkerson (2001); Kathrada et al. (2021) which suggests a growing role for non-financial disclosures, while also highlighting divergence from earlier research Beattie and Jones (1992, 1997) that found financial graphs to be dominant.

4.4.3 Distortion in graphs

The GDI was computed on 1,468 of a sample of 2,814 graphs presented in annual reports. This represents 52.2% of the sample. Nine hundred sixty-nine graphs (34.4%) were not computed due to the nature of the graphs, meaning that the graph was a pie chart or other graph which did not support the GDI calculation. Three hundred seventy-seven graphs (13.4%) were not computed due to no data available, meaning that the graphical documentation was poor, missing numerical axes, a lack of baseline and non-numeric representation. This reinforces Varachia and Yasseen (2020) and Falschlunger et al. (2015), who warned that pie charts and other “decorative” visuals often hinder objective analysis and are susceptible to impression management due to their ambiguity. This further aligns with Frownfelter-Lohrke and Fulkerson (2001), who noted that graphical transparency is often limited, and annual reports frequently omit source data, making third-party analysis difficult due to the inability to calculate distortion.

The fluctuations observed in the percentage of graphs for which the GDI was computed, particularly the decline in 2023. This may be partially attributable to the residual effects of the COVID-19 pandemic on corporate reporting behaviour as prior research indicates that during periods of crisis or organisational uncertainty, corporations are more likely to adopt impression management strategies in order to maintain legitimacy and stakeholder confidence (Clatworthy

& Jones, 2003; García Meca et al., 2024; Merkl-Davies et al., 2011). This event may have incited a strategic transformation in visual disclosure techniques, involving the application of pie charts and infographics as a form of graphical representations that are incompatible with the GDI calculation (Beattie & Jones, 2008). The COVID-19 pandemic significantly affected financial performance across multiple sectors, simultaneously escalating scrutiny from investors and regulatory bodies, thereby encouraging corporations to rigorously manage their public representation Ho et al. (2023) which may help explain the decline of graphs for GDI calculation in 2023. Consequently, the constant ratio of graphs deemed unsuitable for GDI calculation (approximately 33-36% annually) presented in this study and the increased frequency of missing or unusable data in 2023 (15.1%) may reflect persistent modifications in disclosure style, reporting challenges or the growing use of visuals that obscure rather than clarify performance trends.

The results present that 58.5% of graphs were materially distorted, with 30.7% exaggerating and 27.8% understating the underlying data. Only 41.6% were found not to be distorted or not materially distorted. The basis of the distortion was calculated based on the accepted threshold of equal to or more than 5% or equal to or less than -5% as an accepted threshold (Beattie & Jones, 2008; Kathrada et al., 2021; Varachia & Yasseen, 2020). These results agree with those of Beattie and Jones (2008), who noted that 60% of U.K. companies' graphs were distorted. These findings provide strong empirical evidence of visual distortion in corporate graphs and support the claim that South African companies may be engaging in impression management through the manipulation of graph scaling and presentation. Varachia and Yasseen (2020) found that 68.2% of the graphs tested were distorted. A study performed by Maleka (2021) shows that 75.8% of graphs were found to be distorted, and Kathrada et al. (2021) found 67% of graphs to be distorted. The findings of this study have found that compared to other studies performed in South Africa, the rate of graph distortion observed was lower. It should be noted that this comes from a time when there has been an increase in the percentage of graphs for which the GDI has been calculated (52.4% in 2021 versus 49.2% in 2023) while Varachia and Yasseen (2020) managed to calculate the GDI on 61.3% of graphs in 2017, which shows a decrease over the years.

The finding that nearly 3 in 5 graphs are materially distorted is significant and suggests that graph-based impression management is not incidental but systematic. In Italy, Šimunović et al. (2024) found that 71% of graphs were distorted. Cardoso et al. (2024) found that 40.2% of

graphs in Brazil were distorted. Cüre et al. (2020) found that 54.8% of graphs were distorted in Turkey. Falschlunger et al. (2015) found in Europe that 43.2% of graphs were distorted. In Australia, according to Beattie and Jones (1999), 34.0% of graphs were distorted, and in the U.S., 24.0% of graphs were distorted (Beattie & Jones, 1997). The results obtained in this study reinforce prior literature indicating that visual disclosures are often manipulated, particularly in jurisdictions or contexts where regulatory oversight of non-numerical disclosures is weak or ambiguous (Falschlunger et al., 2015; Godfrey et al., 2003; Kathrada et al., 2021; Tufte, 1983; Varachia & Yasseen, 2020).

The findings are that the financial (KFV) graphs are 56.6% distorted. These graphs include revenue, profit, earnings per share and dividends per share and are highly scrutinised figures, and therefore a high distortion rate reflects efforts to enhance performance signals or mask volatility. Manipulating KFV graphs could mislead stakeholders by exaggerating growth or minimising losses, which are typical of impression management. Other financial graphs are distorted by 56.5%, which is nearly identical to KFV graphs. These graphs involve other financial information such as operating information, expenses and taxes, which although receive less attention, still provide insight into the financial health of organisations. The similar distortion suggests that impression management is applied broadly across financial disclosures. Non-financial graphs are 61.3% distorted, which is the highest rate among the financial categories. These graphs cover ESG factors, sustainability and community investment. The higher distortion rate may allude to greater subjectivity and less regulatory oversight, making them easier targets for subtle manipulation (Cho et al., 2012; Davison, 2014).

The findings of the current study contrast with those of Varachia and Yasseen (2020), who reported that 63.1% of graph distortions occurred in financial graphs and 36.9% in non-financial graphs. Kathrada et al. (2021) found that 67% of distortions occurred in non-financial graphs, while 33% of distortions occurred in financial graphs. Falschlunger et al. (2015) exhibited greater instances of financial (KFV) graphs being distorted, which is in contrast to that of this study. Davison (2014) and Cho et al. (2012) argue that, as non-financial information is highly subjective, more subtle forms of impression management can be made. Michelin et al. (2015) found that companies selectively emphasise positive ESG results and omit negative aspects, which substantiates the reason why more than half of the non-financial graphs in the current study are materially distorted.

Across all financial categories in this study, the use of exaggeration in graphs has remained relatively consistent. Specifically, 31.1% of financial (KFV) graphs, 30.6% of other financial graphs and 30.4% of non-financial graphs exhibited exaggerating, indicating a narrow range and suggesting that this form of distortion is uniformly applied, regardless of the subject matter. Understatement is highest in the non-financial category at 30.9%, lower in the other non-financial category at 27.8% and at the lowest in the financial category at 25.4%. The results show that non-financial graphs are the category that is most distorted overall. This complements the findings by (Cho et al., 2012) and (Michelon et al., 2015) where companies often manipulate non-financial information to enhance their legitimacy and reputation.

The findings of this study present that out of the 858 materially distorted graphs, 52.5% were overstated or exaggerated. compared to 47.6%, which was understated. In the study performed by Varachia and Yasseen (2020), found that trends tend to be exaggerated (57.1%) versus trends that are understated (42.9%) of materially distorted graphs. Maleka (2021) found that 59.6% of materially distorted graphs have positive trends while 40.4% of materially distorted graphs have negative trends. Firms deliberately downplay negative performance in areas to avoid reputational damage (Merkl-Davies et al., 2011) as understatement often occurs in less scrutinised areas to deflect attention and delay investor concern (Clatworthy & Jones, 2003). Falschlunger et al. (2015) found that graphs are more often used to make positive trends look better than they really are, rather than downplaying them, which substantiates the results of the findings in this study. Furthermore, in the U.K., graphs for 2004, it was found that there was a higher proportion of exaggeration at 55.0% compared to the understatement of 45.0% (Beattie & Jones, 2008).

Financial graphs show the largest exaggeration at 121% average distortion, which indicates that these graphs overstate changes or growth by more than double the actual figure. Non-financial graphs show the largest understatement at 69.6%, which means that the actual values were reduced by nearly 70% of their visual representation. This supports the notion of defensive impression management (Clatworthy & Jones, 2003; Michelon et al., 2015). All the graphs with no material distortion in this studies had values which were were close to 0%, which confirms the validity of the GDI threshold of +/-5% set in this study, as there is no meaningful manipulation below this threshold, and also supports the GDI's reliability as a meaningful tool for distortion. Financial graphs showed exaggeration of 289.7% in the study by Varachia and Yasseen (2020) while Kathrada et al. (2021) presented the average material

exaggeration to be 361%. The exaggeration is consistent with the high distortion concern of Tufte (1983). The non-financial understatement of 69.6% shows concealment behaviour, which is in line with Merkl-Davies et al. (2011), who states that understatement is used strategically, especially in non-financial graphs.

There has been an increasing trend in the magnitude of both exaggeration and understatement of graphs over the three years. This is potentially due to COVID-19, market trends or a shift in disclosure practices. There has been a significant increase in distortion in 2023, where exaggeration rose from 81.9% in 2022 to 127.0% in 2023, which indicates an increase of more than 50%. Understatement also increased significantly from -52.1% to -74.2%. This suggests that companies used graphs more aggressively to amplify positive trends and suppress negative impacts. This may reflect that post-pandemic financial recovery narratives were pressured to restore investor confidence and strategic impression management to mask volatility. This is in line with “performance repair” and legitimacy management suggested by Merkl-Davies et al. (2011) used to change perceptions of stakeholders during periods of reputational or financial risk. During COVID-19 in 2021, exaggeration was at 94.5% average and understatement at -43.0%. In 2022, the results suggest that companies adopted a more cautious impression management due to economic uncertainty and possibly more stakeholder scrutiny because of the pandemic. This is in line with Clatworthy and Jones (2003), who noted that bad performance is concealed more often during downturns, often using understatements.

According to a study performed by Varachia and Yasseen (2020), average GDI for material exaggeration was 304.8%, while the material understatement was -92.8%. The results presented in this study show an increase in material exaggeration from 2021 of 94.5% to 127.0% in 2023. The exaggeration in this study is significantly lower. Furthermore, it is seen in this study that there was an increase in the material understatement from -43.0% in 2021 to -74.2% in 2023, which, although it has increased, is still significantly lower than that experienced by (Varachia & Yasseen, 2020).

In the findings related to the average GDI per sector, the most exaggerated sectors are personal care, drug and grocery stores with 327.0%, retail with 243.0% and chemicals with 141.0%. These are mainly consumer-facing sectors that often need to project strong financial performance to stakeholders, and therefore, this proves potential evidence of impression management. The highest understatement is presented from basic resources with -62.4%,

industrial goods and services with -56.1% and insurance with -50.5%. These sectors may possibly minimise the concern of investors by downplaying volatility and negative performance. All sectors have very low percentages of graphs which appear not to be distorted, which indicates a widespread distortion of graphs. The common use of exaggerating or understating information presented in graphs may be strategic to manipulate stakeholder perception, which is consistent with impression management. These findings support the idea that graphs presented in annual reports are not neutral tools; they are subject to manipulation to influence perceptions (Cardoso et al., 2024). This is in line with the legitimacy theory as the emphasis of positive aspects while downplaying negative ones to maintain and enhance legitimacy (Roman et al., 2019). In line with the agency theory, from the findings of the current study, it is evident that management exaggerates positive trends and understates negative trends to present information in a manner that improves how the company is perceived to shareholders (Bozzolan et al., 2024).

The third research objective aimed to analyse the distortion of graphs presented in the annual reports for South African listed companies. This objective was addressed by computing the GDI on 1 468 graphs. Distortion was evident across all categories, including financial (KFV) graphs at 56.6%, other financial graphs at 56.5% and non-financial graphs at 61.3% which highlighted that visual impression management is both widespread and systematic. These results confirm that graphs disclosed in annual reports are not neutral representations of data, but rather that they are often manipulated to enhance legitimacy and manage impressions.

4.5 Summary

Chapter 4 presented the data presentation and analysis of this study. All companies in this study disclosed graphs in their annual reports. The most preferred graph was the column graph, while the stacked-bar graph was the least used due to its complex nature. Non-financial graphs were the most prevalent. There was a decline in the disclosure of the number of graphs used from 2021 to 2023. The results of this study indicate that 58.5% of graphs were materially distorted, with more financial graphs showing distortion than non-financial graphs. The levels of distortion have increased from 2021 to 2023 which could be due to macro-economic factors of COVID-19, market trends and a shift in disclosure.

This chapter included the following sections: Introduction, descriptive statistics, findings of the study, discussion of the results and concluded with a summary of the chapter.

The next chapter presents the study's summary, conclusions and recommendations of this study.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter is the final chapter of the dissertation. It presents the summary, conclusions and recommendations of the study. This chapter includes the following sections: Summary of the study, conclusions, recommendations, suggestions for further study and the chapter is concluded with a summary. Chapter 4 presented and examined the results obtained from this study.

5.2 Summary of the Study

This study investigated, from a South African context, the potential misrepresentation of graphs disclosed in annual reports and assessed the magnitude of such distortion in South African listed companies post-COVID-19. It responded to concerns of whether graphs were used responsibly to enhance comprehension or whether they were strategically manipulated as an impression management tool. The objectives of the study were to assess the frequency of graph use, examine the subject matter of graphs, and analyse the level of distortion of graphs presented in the annual reports of South African listed companies.

The literature review encompassed both theoretical and empirical literature. The theoretical literature emphasised the accountability of companies to their stakeholders and to communicate transparently and sincerely. Empirical studies reviewed previous studies that focused on impression management in the disclosure of graphical representations in annual reports. There was a notable gap in the literature, as no prior studies have specifically examined the use of impression management over a longitudinal, post-COVID-19 period in the context of South African listed companies.

This study followed a post-positivist research philosophy, employing a quantitative approach. The population comprised all companies publicly listed on the JSE index for the financial years 2021 to 2023. Purposeful sampling was used, and the final sample amounted to 78 integrated reports (26 companies x 3 years), as companies which were not in the top 40 companies for all

three years were excluded, together with financial institutions. Secondary data was collected from publicly available integrated reports, accessed via each company's official website.

The study found that companies across all sectors consistently use a high number of graphs in their annual reports, with a strong preference for easy-to-understand graphs such as column graphs, bar graphs and pie charts, suggesting an emphasis on accessibility for stakeholders. Financial graphs made up most of the graphs disclosed, although there was a decrease in financial graphs over time, while the number of non-financial graphs increased. This shift signified an increased commitment to address the wider concerns of stakeholders and potentially manage the perceptions of stakeholders under periods of uncertainty. The choice and presentation of graphs appeared to be influenced by strategic communication goals rather than objective reporting. A significant portion of the graphs were materially distorted through both exaggeration and understatement. These distortions were systematic and consistent across graph types and sectors, which indicates deliberate efforts by management to shape stakeholder perceptions.

5.3 Conclusions

The first research objective assessed the frequency of graphs included in annual reports of South African listed companies. This study concludes that companies across all sectors consistently use a substantial number of graphs in their annual reports. The predominant types of graphs used were column, pie and bar graphs, which indicate a preference for straightforward and easily interpretable graphs. More complex graphs, such as stacked bar, line graphs, and combined graphs, were used less frequently. This suggests that companies favour straightforward graphs to present information more clearly and ensure clarity and accessibility of the stakeholder audience, particularly when conveying financial and performance data.

The second research objective examined the subject matter of graphs included in annual reports for South African listed companies. This study found that financial graphs represent most visual disclosures in the integrated reports, although there has been a decline in their use over the three years. At the same time, the use of non-financial graphs has increased. This suggests that companies are placing greater emphasis on communicating non-financial information, possibly to address stakeholder expectations or manage perceptions during uncertain periods.

The findings indicate that graphs disclosed in annual reports do not function as neutral instruments. Their use indicates that graphs disclosed are strategically chosen by communication goals, sector characteristics and external pressures. The widespread use of straightforward graphs together with the selective presentation of data supports the view that companies may use graphs as a tool of impression management strategies.

The third research objective analysed the distortion of graphs presented in the annual reports for South African listed companies. This study found that most of the graphs examined contained significant distortions, with both exaggeration and understatement used as techniques of impression management. These distortions were not isolated but appeared to be systematic across all graph types and sectors. The consistent use of distortion techniques suggests management effort to deliberately influence stakeholder perceptions.

The findings of this study indicate that impression management is demonstrated through the disclosure of graph distortion, either by exaggerating or understating information to influence stakeholder perceptions. These results contribute to the legitimacy theory and stakeholder theory by highlighting that management discloses and manipulates graphs in annual reports to maintain legitimacy, particularly during periods of financial risk, to manage stakeholder perceptions. Furthermore, the findings support agency theory as they suggest that management may act in self-interest by selectively presenting information that reduces potential conflicts to shareholders.

The findings of this study mostly align with previous research on graph distortion and impression management. Consistent with prior studies, a significant number of graphs disclosed in annual reports were materially distorted, supporting the idea that companies use graphs to shape stakeholders' perceptions of performance. Although the overall level of distortion found in this study was slightly lower than that of past South African research, the use of exaggeration and understatement conformed to the general trends as seen in international studies. The increase in distortion, particularly in 2023, also reflects earlier findings suggesting companies are likely to manipulate graphs during periods of uncertainty. In contrast to some prior literature, the study observed more distortion in non-financial graphs, which could indicate a shift in reporting practices as organisations focus more on ESG performance.

The results of this study addressed several gaps in the existing literature. While prior research in South Africa has largely focused on general impression management techniques, this study specifically investigated the strategic use of graphs and how graphs disclosed in annual reports are manipulated. By examining graph use and distortion over three years following the COVID-19 pandemic, this study provides a rare longitudinal perspective that has been missing in research.

This study provided compelling evidence that graphs in South Africa do not serve as impartial visual instruments but rather are frequently used as strategic tools of impression management. The use of exaggeration and understatement across different sectors suggests that these distortions are intentional and part of a broader strategy to manage impressions, especially during times of economic uncertainty. By focusing on the period of COVID-19 and examining reports over a three-year period, this study has highlighted that these practices have increased over time. Furthermore, it highlights the need for more rigorous examination of graphs disclosed in annual reports as these can significantly influence how companies are perceived.

5.4 Recommendations

It is recommended that graphs presented in annual reports become more regulated. Regulatory bodies such as the JSE and IRBA should issue standardised guidelines about graphs disclosed in annual reports, such as avoidance of the misuse of pie charts, clearly marked axes and numerical scales, to ensure that more graphs can be analysed for distortion. A mandatory training for preparers of integrated reports should be undertaken on ethical visual communication disclosed to reduce the instances of impression management in qualitative disclosures. External auditors should audit material graphs in annual reports to possibly reduce management bias disclosed in the graphs of annual reports and enhance their credibility, and reduce manipulative reporting. To mitigate the risk of financial loss, stakeholders should scrutinise not only the graphs but also the financial statements to identify whether impression management tactics have been employed in annual reports.

5.5 Suggestions for Further Study

An extended study can compare companies that are listed on the JSE and state-owned companies. Studies can be performed on companies that are listed on AltX and/or private

companies, which will provide insight into the possible distortion of graphs in smaller companies. Studies can be conducted on sector-specific cases to understand the reason behind the greater distortion observed in certain sectors. Studies can consider all listed companies for longer observational periods.

Further studies can assess the degree to which graphs of ESG and sustainability align or contradict the narrative disclosures in integrated reports. Studies can survey investors to test how the distortion of graphs influences stakeholder perception and trust. Additional research can examine the function of audit committees, auditors' assurance and corporate governance practices in alleviating graph-based impression management techniques. Studies can be performed using a multi-method approach to studying impression management in corporate reports to alleviate the reliance on quantitative distortion metrics such as the GDI. Finally, additional research can be performed to develop and evaluate a framework to assess the distortion in graphs such as pie charts, which are excluded from the GDI analysis due to their nature.

5.6 Summary

This chapter outlines the introduction, summary, conclusions, recommendations and suggestions for further study. The summary of the study discussed the aim and objectives of the study, outlined the methodology used in the study, provided a summary of the major findings, presented the theoretical and empirical contributions of the study and concluded on the significance of the study. The conclusions provided direct answers to the research objectives, interpreted the key findings of the study, highlighted how the conclusions relate to the literature reviewed, and indicated the gaps filled by this study before providing an overall conclusion of the results of this study.

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APPENDICES

APPENDIX A: ETHICAL CLEARANCE



22 July 2024

Mrs Felicia Anita Junie (224173033)
School Of Acc Economics&Fin
Westville

Dear Mrs Felicia Anita Junie,

Original application number: 00027051

Project title: Impression management: The use of graphs in integrated reporting in South Africa.

Exemption from Ethics Review

In response to your application received on 19 July 2024, your school has indicated that the protocol has been granted **EXEMPTION FROM ETHICS REVIEW**.

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

In case you have further queries, please quote the above reference number.

PLEASE NOTE:

Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely,



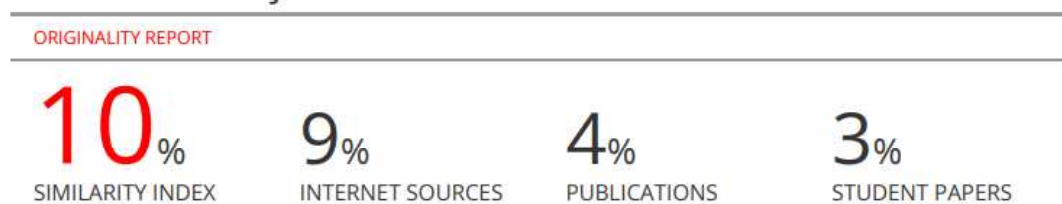
Prof Claire Lauren Vermaak
Academic Leader Research
School Of Acc Economics&Fin

UKZN Research Ethics Office
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Website: <http://research.ukzn.ac.za/Research-Ethics/>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

INSPIRING GREATNESS

APPENDIX B: TURNITIN REPORT



APPENDIX C: LETTER FROM THE LANGUAGE EDITOR

NzuFire Language Editing

PhD in Accountancy (UKZN), PhD in Management Sciences (DUT), Professional Accountant (SA)

CERTIFICATE OF LANGUAGE EDITING

To whom it may concern

This is to certify that the dissertation titled "**Impression management: The use of graphs in integrated reporting in South Africa**" submitted in complete fulfilment of the requirements of the Degree of Master of Accountancy by Felicia Jurie Student number 224173033.

Has been edited for language by NzuFire Language Editor. Neither the research content nor the author's intentions were altered. The editor guarantees the quality of the English Language in this work. The following issues were corrected: grammar, spelling, punctuation, sentence structure, and phrasing.

Date issued: 15 July 2025

Certificate number 102

Dr, Dr Zwelihle Nzuza

