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Journal of Property Research

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/rjpr20

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To cite this article: Nosipho Moloi, Omokolade Akinsomi & Woei Chyuan Wong (2024) The impact of corporate governance and corporate social responsibility on SA REITs' performance, Journal of Property Research, 41:3, 193-227, DOI: 10.1080/09599916.2024.2357108

To link to this article: https://doi.org/10.1080/09599916.2024.2357108

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Published online: 31 May 2024.

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JOURNAL OF PROPERTY RESEARCH
2024, VOL. 41, NO. 3, 193–227
https://doi.org/10.1080/09599916.2024.2357108

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The impact of corporate governance and corporate social responsibility on SA REITs' performance

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ABSTRACT
Corporate governance (CG) is one of the most sought after areas of research globally. This paper employs a corporate governance index (CGI) formulated from the KING III and IV reports to examine the link between corporate performance and the quality of CG and corporate social responsibility (CSR) of SA REITs listed on the Johannesburg Stock Exchange (JSE). The CGI index is created from King III and IV to measure the compliance of 33 SA REITs listed on the JSE as of January 2023. These REITs are assessed from 2013. The empirical investigation using multiple correspondence analysis (MCA) reveals that CG practices have a positive influence on firm performances measured by TSR (such as total share return). The results imply that CG's standard principles influences the firm performance of SA REITs with a higher magnitude. The CSR index is created from the King reports, and the MCA was also used. This indicates that an SA REIT that complies with CSR regulations will improve returns.

ARTICLE HISTORY
Received 16 November 2023
Accepted 15 May 2024

KEYWORDS
Corporate governance; corporate social responsibility; REITs; performance

Introduction

In the early 1900s, corporate governance (CG) was introduced (Berle & Means, 1932; Low, 1920) to better understand the functioning of the firms and corporates. Later, Shleifer and Vishny (1997, pp. 737–783) defined CG as the ways in which investors of corporations assure themselves of getting a return on their investment. It is clear that the primary intent of an organisation is to increase its returns.

Several researchers have examined CG. The main CG theory was introduced by Berle and Means (1932) who studied the relationship between agents and principals. A few decades later, Williamson (1988, pp. 567–591) found that a strong CG mechanism reduces agency costs. Among other methods employed to reduce the adverse impact of agency cost is the debt instrument, confirmed by Tuan et al. (2019, pp. 294–309). Ahmad and Nafiah (2020, pp. 59–66) considered the relationship between firm value and management; Koirala et al. (2020, p. 101396) focused on CG reform and its positive effects on firm value; and Haj-Salem et al. (2020, pp. 123–140) considered firm performance and CG. In emerging economies, several studies investigated CG and

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Supplemental data for this article can be accessed online at https://doi.org/10.1080/09599916.2024.2357108
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performance. Some of these were carried out in Asia; for instance, Cheung et al. (2007, pp. 86–122) and Cheng (2008, pp. 157–176) found that unitary board members consist of executive officers that have a set of rules on how to govern corporations. Incorporating good CG is linked to firm financial performance, and the researchers found a positive impact of CG on firm performance. In an African context, using South Africa as a laboratory, Ntim (2013, pp. 373–392) found that better governed corporations significantly improved the performance of SA corporations. However, these were CG and firm performance in general, not industry-specific or mainly in finance.

Initially, CG theories were mainly applied in finance (Berle & Means, 1932; Daily et al., 2003, pp. 382, 371; Denis & McConnell, 2003, pp. 36, 1; Low, 1920; Shahrier et al., 2020, pp. 388, 365; Shleifer & Vishny, 1997, pp. 783, 737; Solomon, 2007; Williamson, 1988). Then, other industries adopted these. For example, in the field of law, Lipton and Lorsch (1992, pp. 59–77) explained all mechanisms to improve corporate law, and laid out how politics shape CG, and additional CG theories have since been applied to listed corporations (Haniffa & Cooke, 2002, pp. 349, 317; Xu & Wang, 1999, pp. 75–98). Yermack (1996, pp. 185–211) concentrated on board structures of listed corporates and Guest (2009, pp. 385–404) found that board size has a significant negative impact on profitability. Most of this work was mainly carried out in the developed country context.

The South African CG framework is built from an arrangement of King reports that adopted the Anglo-American form and the United Kingdom's Cadbury reports, see Table 1. SA became the first country to have introduced such a model in the African region (Rossouw et al., 2002, pp. 321–333). This model has been reviewed over the years, after the introduction of the Employment Equity Act of 1998 and the international UK changes to attain better supervision and monitoring. Reviews were undertaken in 2002, then in 2010, and again in 2016. Our CG index is created from King III with 75 principles and King IV with 17 principles (see Appendices A1, A2). The study uses REITs as a laboratory; REITs in SA were introduced in 2013. A few years after the King III report was enacted in 2013. We measure whether compliance with CG principles influences REIT performance. We also test compliance with CSR and REIT performance. The explanation on the measurement of compliance is detailed in the method section.

REITs experienced a surge in CG research globally, focusing on their relationship to firm performance, such research includes studies by Bianco et al. (2007, p. 175), Bauer et al. (2010, pp. 91–104), and Lecomte and Ooi (2013, pp. 664–684). REITs are corporations that own, operate, or finance income-generating real estate. REITs own many types of commercial real estate, ranging from office and apartment buildings to warehouses, hospitals, shopping centres, hotels, and commercial buildings (Block, 2011; Chan et al.,

Table 1. King reports.

Item	KING I	KING II	KING III	KING IV
Inception	1994	2002	2010	2016
Changes	After the end of apartheid, SA adopted the American and UK Corporate Governance framework.	After the execution of the Employment Act of 1998, the King report was revised. This new report included new listing rules for listed corporations.	After the changes made to the US and UK framework after the 2008 recession after the birth of the new companies Act of 1998, the changes to the report were made.	Disclosure policies became compulsory for all corporates to report their CSR.

2003; Han & Liang, 1995, pp. 235–265). REITs are under-researched in South Africa, although they were a top performing class in SA from 2013 until 2017, and exceeded equities and bonds (Ntuli & Akinsomi, 2017, pp. 365–388).

From the South African context, there is evidence from Carstens and Freybote (2018, pp. 103–128) on the impact of the introduction of REITs. Other studies on SA REITs' performance include Akinsomi et al. (2016, pp. 3–26) and Ajayi and Akinsomi (2023, pp. 50–75). However, none of these used SA REITs as a laboratory to study CG and CSR and formulated indices. This paper seeks to examine CG and its impact on SA REIT performance. Much of the CG literature in SA and other emerging economies is mainly focused on other industries. These studies found a positive relationship between CG and firm performance, including Ntim (2013, pp. 373–392), Pamburai et al. (2015, pp. 115–131), Hörnmark (2015), Ul Rehman et al. (2023, pp. 184–209), and Erasmus et al. (2017, pp. 33–43).

The SA REIT is the prominent real-estate investment in an emerging market like SA and is model nation in the African region (FTSE/EPRA NAREIT and WFE, 2018). Prior to 2013 real estate companies operated as PUT/PLS.[1] Foreign and local investors require more studies on SA REITs (Carstens & Freybote, 2018, pp. 103–128). On average, SA REITs have around 30% of their investments offshore and approximately 30% to 40% of their earnings come from outside SA (Johannesburg Stock Exchange, 2019). In addition, REITs are important to the investor globally, as nearly 40 countries have Real Estate Investment Trusts (REITs) with a market capitalisation of approximately USD 1.7 trillion in 2020. This fell slightly in 2021 to USD 1.6 trillion, but on 1 February 2023 it went up to USD 2.5 trillion (FTSE Russell, 2024). Market capitalisation determines the value of a company that is traded on the stock market (Bauer et al., 2010, pp. 1–29).

South African REITs now account encompass 5.8% of (JSE). The SA REITs market was liquid as of January 2023, and the market capitalisation of 33 listed REITs as of 1 February 2023 was R549,22 billion (JSE, 2019).

Table 2, below, shows the sampled performing REITs by market capitalisation. A REIT can either be managed internally or externally. Internal mechanisms include an effectively structured board, compensation contracts that encourage a shareholder orientation, and concentrated ownership holdings that lead to active monitoring of executives. The market for corporate control serves as an external mechanism that is typically activated when internal mechanisms for controlling managerial opportunism have failed (Feng et al., 2022, pp. 79, 56; Shleifer & Vishny, 1997, pp. 737–783). A REIT becomes a natural experiment to study performance because of its structure. REITs operate in parallel markets where they raise funds in capital markets and invest in the property market in a portfolio context. Our sample REITs have had a longer holding period which makes it easier to measure performance. A REIT that comprises various portfolios is diversified, whereby it could be different sectors, office, retail, or industrial, among others. In SA, a REIT can either outsource management where a REIT is externally managed, or it can be managed internally otherwise. The SA REIT is ranked tenth globally in terms of market capitalisation (Real-estate Investment Trust Association, 2017; Simply Wall Street, 2024).

There is no evidence on board dynamics, management structures (internal and external), and the application of CG theories on REITs, even though nearly 40 countries have REITs with a market capitalisation of USD 2.5 trillion (FTSE Russell, 2024). No

Table 2. SA REITs listed on the Johannesburg stock exchange.

REITs	Focus	Market Cap (R)	Market Cap (US)	Management
1. GRT-Growth Point	Diversified	R38.1b	$2.03bn	Internal
2. RDF-Redefine	Diversified	R26.7b	$1.42bn	Internal
3. VKE- Vukile	Diversified	R15.7b	$838.24m	Internal
4. RES-Resilient REIT	Diversified	R15.5b	$827.56m	Internal
5. HYP-Hyprop Investment	Retail	R11.1b	$592.64m	Internal
6. EQU-Equites Property Fund Limited	Industrial	R10.0b	$539.25m	External
7. CVW-Castleview Property Holding	Diversified	R8.4b	$448m	Internal
8. ATT-Attacq	Diversified	R7.5b	$400.43m	Internal
9. SSS-Stor-Age Properties	Storage	R6.4b	$341.70m	
10. FTA-Fairvest	Diversified	R6.2b	$331.02m	Internal
11. SAC-SA Real Estate	Diversified	R6.2b	$331.02m	Internal
12. BTN-Burstone Group	Diversified	R6.1b	$325.68m	Internal
13. L2D-Liberty Two Degrees	Diversified	R4.9bn	$261.61m	External
14. EMI-Emira property Fund Limited	Diversified	R4.2b	$224.24m	External
15. EXP-Exemplar REITail	Diversified	R3.8b	$202.88m	
16. DIB-Dipula Properties	Diversified	R3.8b	$202.88m	External
17. HET-Heriot REIT	Diversified	R3.4b	$181.53m	External
18. Collins Property Group Ltd	Diversified	R2.57b	$137.21	External
19. OCT-Octodec Investment	Diversified	R2.6b	$138.81m	External
20. Acsion	Diversified	R2.56b	$136.68m	External
21. SEA-Spear REIT	Diversified	1.8b	$96.10m	Internal
22. SAR-Oasis Crescent	Diversified	R1.4b	$74.74m	Internal
23. TPF-Transcend Residential Property Fund	Residential	R1.0b	$53,39m	External
24. Balwin Properties Ltd	Diversified	R903.78m	$48.25m	Internal
25. TEX-Texton property	Commercial	R745.5m	$39.80m	Internal
26. APF-Accelerate Property Fund	Diversified	R622.0m	$33.20m	External
27. NRL-Newpark REIT	Diversified	R480.0m	$25.62m	External
28. Afine Investment	Diversified	R262.8m	$14.03m	External
29. APO-aREIT Prop	Diversified	R250.0m	$13.34m	External
30. Capital & Regional plc	Diversified	R116.48m	$6.21m	External
31. Rebosis	Diversified	R112.0m	$5.97m	External
32. DLT-Delta property	Diversified	R100.0m	$5.33m	External
33. Deutsche Konsum REIT-AG	Diversified	R88.92m	$4.74m	External

Sources: Centre for Affordable Housing Finance in Africa (2017); Real-estate Investment Trust (website) (2023); Simply Wall Street (2024).

single theory explains firm performance, as elaborated by Nicholson and Kiel (2007, pp. 585–608), and Gaur et al. (2015), pp. 911–931; thus, it is important to understand how boards add value. Agency problems may be experienced when it comes to managers and shareholders, when applying just the agency theory without considering the other CG theories. To mitigate agency costs and to avoid disloyalty issues, it is important to note that managers will not always be good stewards. Previous work determined the relationship between CG and firm performance: in the US, Cremers and Nair (2005, pp. 2859–2894), Gompers et al. (2003, pp. 107–156), Guest (2009, pp. 385–404), Larcker and Tayan (2020), and Yermack (1996, pp. 185–211); in Europe, Bauer et al. (2004, pp. 1–29), Brounen et al. (2004, pp. 71–101), and Drobetz and Momtaz (2020, p. 101594); and in SA, Cerbone and Maroun (2020, p. 100876), C. G. Ntim et al (2012, 2013, pp. 373–392), Pamburai et al. (2015, pp. 115–131), and Ul Rehman et al. (2023, pp. 184–209). The association between CG and operating performance of REITs has been extensively researched in other parts of the world, but not in SA, even though REITs account for 10% of the top 100 corporations listed on the Johannesburg Stock Exchange. Some of the REIT's literature proves that there is no significant relationship between CG and firm performance; for example, in the US as reported by Bianco et al. (2007) and Bauer et al. (2010, pp. 91–104) and in Asia by Lecomte and Ooi (2013, pp. 664–684). However,

others, such as Cheng (2008, pp. 121–145) and Cheung et al. (2007), pp. 121–145), found a positive link between CG and performance in Asia. One review by Simons et al. (2023, pp. 48–66) determined that ESG (Environment Social Governance) is one of the most sought-after areas of research globally.

The issue is that a theoretical approach to the study of CG in SA does not exist focusing on REITs. This current study includes 75 principles extracted from the King III report and 17 principles from the King IV report as the main independent variable, while CSR is the second independent variable. To the best of our knowledge, this study is the first time to contribute to the literature in several ways. First, the main gap in the literature is with regards to the African stock markets is as follows. There is no evidence of previous work on REITS and CG performance. Second, the comprehensive CG is adopted with localised attributes like employment equity and HIV/AIDS included on the CSR index. The developed nations studied cannot be generalised to SA because the CG structure and compliance is not the same. Previous SA studies did not sample REITs; however, the performance measurement of REITs is different than other listed corporations Third, the previous sampled work includes the top five performing JSE industries and REITs are mostly excluded in these studies, even though they show promising growth since their inception. Fourth, this study for the first time contributes to the literature by testing each principle with REIT performance. The highly influential CG principles applicable to REITs include BOD, leadership, risk management, compliance governance, and stakeholder relationship. Our tests also include macro-economic variables.

We also fill the gap in the literature by testing CSR and performance; for example, Zahid et al. (2021, pp. 2–13) determined that CSR could generate brand perception and, thus, improve revenue. R. Ali et al. (2020, pp. 273–294) adopted the agency theory and determined that CSR improves firm's valuation. The agency problems were also highlighted in this study. Ntim and Soobaroyen (2013) reported on CG using SA as a laboratory. At that time, there were no revisions of the King III and IV reports, and the study was not industry specific, like a REIT study, and CSR was a control variable. This paper expands on Ntim and Soobaroyen (2013) paper. The gap in the literature is with regards to the African stock markets. We ascertain the level at which CG impacts the performance of SA REITs; we also assess the evolution of CG and uncover the performance of REITs over time.

This paper determines why CG and SA REITs' performance are statistically associated. The literature has shown an association between performance and how a firm is managed. In corporations with better CG, investors of these corporations reward their organisations with greater financial performance. Many researchers choose board and audit committees, but these do not provide a full picture of all the provisions. Thus, a comprehensive CG index is adopted. South Africa offers an interesting research context – it has a seasoned corporate sector, strong equity culture, good regulations, and a CG mechanism like developed nations and emerging markets. Depending on the context, there might be variations. For instance, a comprehensive framework was created for the Asian market; however, an Indian study adopted the same framework, and the results were different compared to Singapore and China. South Africa adopted Anglo-American-style CG, so South Africa's model was different from the other countries. Because of apartheid policies that segregated races, the King reports were designed to re-address inequalities and place emphasis on disclosure policies especially in the last King

report, as there are unique country-specific attributes. A South African study will be different because of SA's uniqueness. In addition, investors are paying more attention to corporations that regularly report CSR; this has led to investor confidence, as the corporation's reputation is enhanced from its competitors. The latest King report requires that all listed corporations report their CSR. SA corporations report more on Employment Equity and Occupational Health and Safety, and smaller listed corporations are less compliant. There is a relationship with corporations that comply with CSR and firm performance.

Our empirical results further confirm our hypotheses formulated at the end of the literature review. The standard CG principles are statistically significantly influencing the performance of SA REITs. As the study spans almost 10 years of SA REITs, time-varying factors have been included and different CG mechanisms were adopted for these periods extracted from the King III and IV reports, all of which support the hypotheses. Furthermore, the results prove that CSR significantly influences SA REITs' performance.

Literature review

Corporate governance issues date back to the 1900s when performance reports of listed firms were emerging (Goergen & Renneboog, 2006, pp. 100–131). Berle and Means (1932) explained that the purpose of CG is to reduce agency costs that arise from separation of ownership and control. CG theories essentially decrease agency cost. One review by Simons et al. (2023) determined that CG is one of the most sought after areas of research globally.

CG theories

The first and most popular theory is the agency theory, first introduced by Berle and Means (1932) to understand the relationship between agents and principals and, in 1976, Jensen and Meckling, determined how to mitigate agency problems by separating ownership and control of shareholders and corporate executives.

These conflicts of interest were later formalised by Michael Jensen and William Meckling in their principal – agent theory which was introduced in their seminal 1976 paper. Goergen and Renneboog (2006, pp. 100–131) named the two types of agency problems – perquisites and empire building. Perquisites (perks) are also benefits offered to the manager. These benefits increase the manager's costs but are financed by the shareholders. They come in various ways; for example, the use of the company car, exquisite private offices, and CEO mansions, all funded by shareholders. In addition, managers can also jobs to family members instead of the most qualified candidate; this is known as nepotism (Goergen & Renneboog, 2006, pp. 100–131). Yermack (2006, pp. 185–211) found that CEOs that used private jets underperform by 4% compared to CEOs who do not utilise private jets. Cheng and Firth (2005, pp. 291–302) also found a correlation between personal use of private jets and membership of long-distance golf clubs. This implies that managers take projects that support self-interest.

Jensen's (1986, pp. 323–329) paper identified the second agency problem as empire building, also known as the *free cash flow problem*. In this case, shareholders are more concerned about pursuing growth than *value maximisation*.

Cashflow that remains after an investment is known as free cashflow. When a firm has free cashflow then conflicts of interest may arise between its shareholders and management.

Managers may require renegotiation over pay-out policies because of free cash flow. Various scholars (Jensen, 2009, pp. 25, 3; Lee & Chen, 2011, pp. 265, 252; Rozeff, 1982, pp. 249–259) stated that a reduction of agency costs can be achieved through free cash flow (FCF) dividends and managerial ownership substitutes. Bénabou and Tirole (2010, pp. 1–19) and Eccles et al. (2012) argued that high-sustainability companies are more likely to establish a formal stakeholder engagement process which limits the likelihood of short-term opportunistic behaviour.

This problem comes as a result of the fact that managers can enter projects that would not add value to the organisation. These projects may support the self-interest of managers, who can take non-optimal actions such as value-destroying investment (Chung et al., 2005, pp. 51–61). Managers can also inflate reported earnings and invest in value-destroying investments (Chen et al., 2007, pp. 251–261); however, dividend-paying firms have higher earnings than no-dividend-firms. Because of this issue, managers prefer projects with negative net present value (NPV). These are discounted future expected cashflows which are lower than the initial investment outlay. These destroy shareholders' wealth.

The other major agency problem is financing the organisation. When a firm does not have enough equity, they may use debt to finance their projects. The problem arises when managers enter high-risk projects that may fail, in which case the costs will be borne by the debtholders. However, if the project is successful, the shareholders will benefit (Goergen & Renneboog, 2006, pp. 100–131). This problem usually happens when firms are in financial distress. Jensen (1986, pp. 323–329) argued that there should be optimal mix of debt and equity; later, this was supported by Cheffins (2020, p. 29).

The second most popular theory is the stewardship theory, first introduced by Hamilton (1918), which espouses that managers will act as good stewards. However, Gaur et al. (2015, pp. 911–931) proved that the theory fails to account for instances where managers do not act as good stewards. Ali et al. (2020, p. 149) pointed out that monitoring alone does not guarantee management performance; thus, to mitigate this issue, a multi theoretical framework should be adopted.

The third theory is the resource dependency theory, initially introduced by Srinavakatrakul (1919). This focuses on the role of the board of directors in providing access to company's resources needed by the firm or corporates (Li et al., 2020, pp. 43–74). The board of directors is perhaps the most central internal governance mechanism in CG; these include the board's expertise, diversity, and size, Shahrier et al. (2020, pp. 365–388) determined that a balanced approached in sourcing these resources is required to mitigate other issues that may come from applying this theory on its own.

Corporate governance mechanisms provide shareholders some assurance that managers will strive to achieve outcomes that are in the shareholders' interests (Shahrier et al., 2020, pp. 388, 365; Shleifer & Vishny, 1997, pp. 737–783). Shareholders employ both the internal and external governance mechanisms to help bring the interests of managers in line with their own (Walsh & Seward, 1990, pp. 421–548). Internal mechanisms include an effectively structured board, compensation contracts that encourage a shareholder orientation, and concentrated ownership holdings that lead to active monitoring of

executives. On the other hand, the market for corporate control serves as an external mechanism that is typically activated when internal mechanisms for controlling managerial opportunism have failed.

While agency theory dominates corporate governance research (Daily et al., 2003, pp. 371–382), parts of the governance literature stem from a wider range of theoretical perspectives. Many of these theoretical perspectives are intended as complements to, not substitutes for, agency theory discussed above. Combining these theories of CG is essential for recognising the many mechanisms and structures that might reasonably enhance organisational functioning. For example, the board of directors is perhaps the most central internal governance mechanism.

Impact of CG on REIT performance

The impact of CG on REITs has been studied globally. We review some of the past work that focused on CG and REITs' performance. Bianco et al. (2007, p. 175) explored the CG index modified by Gompers in 2003. Their study spanned from 2004 until 2006 with 50 specifically selected REITs in the US. Using the performance measures, ROA, ROE and funds from operations (FFO), they found a negative impact of CG and protective barriers on the performance of REITs in 2004, and that there was little effect of external governance on performance in 2006. Even with slight improvement in 2006 on performance, their study was inconclusive over whether, in 2006, REITs were managed more by management companies or whether these were managed internally. Assets also depreciate and ROA could also influence negative results. Bauer et al. (2010, pp. 1–29) applied a CG index from 2003 to 2006 using a US sample of 216 REITs in 2004 and 225 REITs by 2005 and found that REITs' CG Index was not related to value. They employed Tobin's Q and also the performance variables ROA, ROE, and funds from operations (FFO). This means that REITs do not appear to be driven by assets that they invest in and, also, REITs with experienced managers experienced improved performance.

Chong et al. (2016, pp. 317–344) applied the APREA, the Asian CG index, using the generalised method of moments and found a positive relationship between the CG index with ROA, and on excess returns, which helps to address agency problems. A study by Campbell et al. (2011, pp. 451–480) found that corporations with experienced CEOs had higher performance. Moreover, Chong, Ting, et al. (2017, pp. 75–99) applied a CG index that proved that not only does it help to improve ROA, but it also helps to gauge excess returns of REITs. Ramachandran et al. (2018, pp. 586–612) also concluded similar results – that all three performance measures were positively correlated. However, it was also noted that highly indebted REITs are risky to investors. Experienced managers of REITs show improved performance and positive correlation to CG's impact. Contradictory to the above, however, here, the ROA is positively linked to CG.

Other CG studies considered score cards, such as Bauer et al. (2010, pp. 1–29), Ooi (2000, pp. 316–331), and Sirman (1997, pp. 75–79) in the US. Their studies usually determined the CG score of firms. These researchers considered either the individual CG components or composite CG via construction of a CG index. Much of the CG literature focuses on other industries not REITs (Erasmus et al., 2017, pp. 43, 33; Hörnmark, 2015; Ntim, 2013, pp. 392, 373; Pamburai et al., 2015, pp. 115–131; Ul Rehman et al., 2023, pp. 184–209).

Lecomte and Ooi (2013, pp. 664–684) discovered that market performance is associated with a reduction in *information asymmetry* that is mainly enjoyed by corporates with good CG mechanisms as implied by the positive relationship between REIT performance and CG.

REITs are under-researched in South Africa (SA). Much of the CG literature in SA is mainly focused on other industries. Ntim (2013, pp. 373–392) studied listed firms' performance in SA and CG; Pamburai et al. (2015) focused on the evolution of CG in SA; and Erasmus et al. (2017, pp. 33–43), Hörnmark (2015), and ul Rehman et al. (2016) also considered the CG evolution in SA. Mans-Kemp (2014) focused on listed corporation performance and CG, even though SA REITs account for 10% of the top 100 companies listed on the Johannesburg Stock Exchange (JSE), the African world class exchange (Johannesburg Stock Exchange, 2019).

CG firm performance for non-REIT firms

Overall, the literature in emerging economies showed a significant a positive association between performance and good Rahman et al. (2020, pp. 213–222) found that the impact of CG on firm performance could vary by economic conditions in a Bangladesh study, while Farooq et al. (2022, pp. 42–66) reported similar findings in Pakistan. They used three measures of short-term debt (STD), long-term debt (LTD), and total debt (TD) and found a weak association with firm performance when tested through return on assets (ROA) and return on equity (ROE) in Pakistan listed companies. Hab et al. (2016, pp. 575–595) proved a persistent negative correlation for substantial supervisory panel meetings by the board and this had an impact on performance, using ROA as a performance measure. Corporates with an adverse ROA discover that an upper ratio of self-governing board members can achieve a positive outcome by reversing the trend. Other findings on CG are traced in Bangladesh by Islam et al. (2015, pp. 43–51), whereby there was no association among banks' performance and CG practices when ROA was applied, they adopted practices approved by the banks.

Other studies were carried out in conventional emerging markets of Asia–Pacific, Europe, and America. For instance, Baek et al. (2004), Black (2001, pp. 89–108), Black and Khanna (2007, pp. 749–796), B. Black et al. (2006, pp. 361–379), Cheung et al. (2007, pp. 86–122), and Garay and González (2008, pp. 194–209), examined the relationship among a wide-ranging complex CG index and monetary performance by means of a sample of Indian, Hong Kong, Russian, Venezuelan, and South Korean listed companies, respectively. The outcomes of these research contribute to literature, backing the positive link amid comprehensive CG indices and corporate performance stated for industrialised markets.

Prior evidence shows that improved governed South African firms is related to higher performance. Ntim (2013, pp. 329–345) and Pamburai et al. (2015) establish a positive connection with Tobin's Q (TQ), and accounting measures (ROA, ROE, etc.) with CG.

Erasmus et al. (2017, pp. 33–43) used models that specified a positive alpha for portfolios of corporations showing strong CG practice. A positive alpha means that the fund did well.

Largely, previous studies have established a positive statistically significant association with performance and noticeable CG (Rahman et al., 2020, pp. 329–345) subject to the

setting and performance agencies adopted. There could also be dissimilarities; for instance, China has a different outcome. Compared to other emerging economies, Ntim (2013, pp. 373–392) proved that corporations with improved performance are associated with how an organisation is managed when there is a positive connection between Tobin's Q and CG and Pamburai et al. (2015, pp. 115–131) determined a connection between the ratio of junior managers of TQ. Moreover, Erasmus et al. (2017, pp. 33–43) found a positive alpha for corporations having CG practice, while Hörnmark (2015) reported a positive alpha for the JSE. However, the outcomes were dissimilar for Russia, Brazil, China, and India when the CAPM was adopted (Das & Thomas, 2016, pp. 103–131).

Impact of CSR (ESG) on REIT performance

As one of the agency problems mentioned above – empire building (Jensen, 1986, pp. 323–329) – managers are more concerned about a free cash flow problem than focusing on the growth of an organisation. Cheng (2008, pp. 157–176) found that firms with superior CSR have better access to capital because of reduced agency costs, with greater stakeholder engagement. Lopatta et al. (2023, p. 19) found that engaging managers and other stakeholders to practise CSR initiatives assist with firm performance.

Ali et al. (2020, p. 149) adopted the agency theory and CSR. This policy has also been linked to firm performance by Ntim (2013, pp. 373–392) and Ntim et al. (2012) where, in SA, corporates are expected to be responsible citizens by giving back to society. CSR influences SA REITs' performance, as reported in the above studies. Westermann et al. (2018, pp. 92–110) conducted a systematic review from 2010 until 2016 and found no significant literature on CSR and REITs globally. They found that the CSR of REITs outperforms its counterparts and identified that a gap in lower and higher rated CSR firms appears to be closing.

Joshi (p. 153) and Smith and De Leon (2023) reported that, in the US, CSR reporting has some form of influence on stock performance. Cohen (2017) found that governance influence only seems to be important when CSR is practiced or reported by corporations, whereas Ali et al. (2017, pp. 272–294) found that one accounting measure (ROA) had a significant relationship with CG and CSR, although this measure was not applied on REITs. Other CG principles like corporate panel and attendance of review commission have no significance with any of the accounting measures.

Hypothesis formulation

There are three key CG theories – agency theory, stewardship theory, and the resource dependency theory. The application of just one is not sufficient to understand the complexities of CG multifaceted CG (Shleifer & Vishny, 1997, pp. 737–783). Some literature proved the relationship between performance and CG in SA (e.g. Ntim et al., 2012; Pamburai et al., 2015, pp. 48–66) even though there are other studies that have proven otherwise. In line with the theories, we therefore formulate the study hypotheses. As one of the disclosure policies, CSR is also linked to firm performance by Ali et al. (2020, p. 149) who adopted the agency theory and CSR. This policy has also been linked to firm performance by Ntim (2013, pp. 373–392)

and Ntim et al. (2012). The present study tried to understand the CG mechanism, the different types of management, and the influence of CSR policy on the performance of SA REITs. There are two hypotheses from this study.

H1: The performance of SA REITs is positively influenced by the all-inclusive CG and CGI indices.

H2: The performance of SA REITs is positively influenced by CSR.

Conclusion review

This research endeavours to overcome shortcomings in prior studies on SA REITs in SA in a number of ways. First, 33 REITs are analysed over the period of 2013 to 2022. Prior to 2013 in SA, there were PUTs/PLS as explained above, which were converted to REITs in 2013. Dissimilar from prior studies, the influence of both cross-sectional and sequential discrete time data variations in CG index on company performance is investigated, as well as on the 75 CG principles of the King III report and 17 principles from the King IV report. Unlike previous work that focused on certain industries of listed corporations on the JSE, the current study expands from existing literature. The study creates CG and CSR Indices from the Kings III and IV reports. Last, to develop the steadfastness of the outcomes, complications that may be posed by the presence of endogeneity, with corporate-level fixed effects, are openly addressed.

Nevertheless, however, with the growing interest on REITs globally, Africa has recently had several studies covering similar topics, although Africa has a number of challenges that are not so common to industrialised nations, such as HIV/AIDS, poor administrative climate, poverty, corruption, and inconsistent economic conditions. Most African countries are experiencing some of these; hence, the CSR index is needed to address if firms are addressing them with their CSR initiatives and compliance (Coleman, 2008; Esser & Dekker, 2008; Markus, 2007, pp. 69–98).

The Asian framework was developed for all Asian nations; however, an Indian study by Black and Khanna (2007, pp. 749–796) and Singaporean studies by Chong et al. (2016, pp. 317–344) and Lecomte and Ooi (2013, pp. 664–684) proved that there are nation-specific attributes that were not highlighted in the CG structure. Nevertheless, these revisions were led in Asia although they could not decide on whether the CG structure is able to quantify the CG of REITs for the Indian and Singaporean markets. Thus, each country should have a structure that takes into account country-specific challenges. In Africa, though, nothing like the Asia Pacific Real Estate Association (EPREA) exists, although SA does now have a newly constructed CG index extracted from the King III report with 75 provisions and the King IV report with 17 principles.

Chong et al. (2016, pp. 317–344) utilised certain requirements enclosed in the CG index, with a disparity in outcomes to Lecomte and Ooi (2013, pp. 664–684) who employed an all-inclusive CG index that showed that firms with a decent CG are likely to perform better for REITs. The CG index was developed with Asian-specific attributes. The present study includes South African challenges and formulates a comprehensive CG mechanism to measure SA REITs' performance (Klapper & Love, 2004, pp. 728, 703; Morey et al., 2009, pp. 254–262).

Larcker and Tayan (2020) also confirmed that a composite CG index is mandatory (Bianco et al., 2007). The other indices were difficult to replicate. Other indices were very western (Bauer et al., 2010, pp. 1–29) and the differences between the westernised CG model and the SA model were discussed above. Unique from previous studies, context-specific attributes are adopted (Klapper & Love, 2004; Morey et al., 2009).

This study for the first time contributes to the literature in more ways than one. First, the main gap in the literature is with regards to the African stock markets as follows. There is no evidence of previous work on REITS and CG performance in SA except for other industries and these adopted different CG construct Cerbone and Maroun (2020, p. 100876), Pamburai et al. (2015, pp. 115–131), and UL Rehman et al. (2023, pp. 184–209), however Ntim et al (2012, 2013, pp. 373–392). created a CG index excluding REITs, this CG construct was replaced by a new CG mechanisms and their study did not test each principle. REITs were introduced in SA in 2013; all the SA CG studies were conducted before REIT inception, and even PUTs and PLs were not sampled. Previous SA studies did not sample REITs, and the performance measurement of REITs is different to other listed corporations. Second, the comprehensive CG is adopted with localised attributes like employment equity and HIV/AIDS included on the CSR index and the 75 CG provisions extracted from the King III report and 17 principles from the King IV report. REIT studies from developed nations cannot be applied to SA because of different CG construct and compliance measures. Third, the previous sampled work includes the top five performing JSE industries and REITs are mostly excluded in these studies, even though they show promising growth since their inception. This study contributes to the literature as, for the first time, it tests each principle that influences REITs. The most influential principles include BOD, leadership, risk management, compliance governance and stakeholder relationships. Our tests also include macro-economic variables. Several Americas studies on REIT have tested each principle and found that BOD is the most integral governance mechanism/principle that influences performance, see Cremers and Nair (2005, pp. 2859–2894) Gompers et al. (2003, pp. -107–156), Guest (2009, pp. 385–404) and Larcker and Tayan (2020), in Europe several studies have tested individual principles, and these principles affect firm performance differently in Europe, Bauer et al. (2004, pp. 1–29), Brounen et al. (2004, pp. 71–101), and Drobetz and Momtaz (2020, p. 101594). This study for the first time tests each principle and REITs in the African context and taking into consideration country- and continent-specific attributes as discussed previously. We further contribute to the literature on CSR and performance since the mandatory compliance of REITs was enacted in SA.

Data and research methodology

The study investigates the impact of corporate governance and corporate social responsibility on the firm's performance for SA REITs listed on the Johannesburg Stock Exchange (JSE). The datasets are sourced from the company's annual report and Bloomberg for the period between 2013 and 2022.

The sample is drawn from 33 SA REITs listed on the JSE as of the end of December 2022. To observe the relationship between CG and SA REITs returns, CG financial data are taken from the *Annual Reports*. The accounting variables are extracted from *Datastream*.

Model specification

The current study draws from the work of Wu et al. (2016, pp. 109–122) for a panel analysis with slight modification to obtain a specification as follows:

$$TSR_{it} = \alpha_i + \beta_{i1} CGI_{it} + \beta_{i2} CSR_{it} + \beta_{i3} X_{it} + \varepsilon_i, \qquad \mathrm{t} = 1, 2, 3..\mathrm{T} \tag{1}$$

where TSR_{it} denotes the firm's performance, CGI_{it} represents the corporate governance index, CSR_{it} is the corporate social responsibility, and X_{it} represents covariates (such as total assets, debt ratio, audited by the Big 5, and cross listing). α_i is constant or intercept; $\beta_{i1,,}, \beta_{i2}, , \beta_{i3}$ are the vectors of explanatory variables; i is individual firm; t is time variable; and ε_i is the error term.

Cross-listing – This is measured on foreign stock markets tend to have better CG structures (B. Black et al., 2006, pp. 379, pp. 361; C. Ntim & Soobaroyen, 2013, pp. 373–392). A positive relationship with CG is hypnotised. It will take the value of 1 if a REIT is cross listed on foreign stock, or 0 otherwise.

Big 5 – This is a corporation audited by large corporations that are reputable (DeAngelo, 1981, pp. 183–199). We predict the value of 1 if the firm is audited by one of the Big 5 audit firms in SA, or 0 otherwise.

Debt ratio – This means the ratio of debt to equity.

For our robustness check, the model is specified as follows.

$$TQ_{it} = \alpha_i + \beta_{i1} CGI_{it} + \beta_{i2} CSR_{it} + \beta_{i3} X_{it} + \varepsilon_i, \qquad \mathrm{t} = 1, 2, 3..\mathrm{T} \tag{2}$$

where TQ_{it} denote the Tobin's Q (or market-to-book (MTB) ratio).

Identification of key variables

Table 3 provides a detailed explanation of each variable, what it represents, and how it is measured.

CGI

There are various restructuring methods; these include principal component analysis (PCA) and multiple correspondence analysis (MCA) among others. The measurement of the nature of the variables always informs the preferred and most appropriate method to use. The commonly used method is PCA, but this is only appropriate for the restructuring of continuous variables (Adediran et al., 2020), whereas MCA is appropriate for the restructuring of categorical variables (Greenacre & Blasius, 2006). We constructed a CG index using MCA. MCA is a dataset to formulate applications; this will allow the exploration of associations with a set of variables by transforming the whole datasets into dummy variables to form an indicator matrix cross tabulation among variables, we adopt the use of singular value decomposition on stata we use catvar1 and catvar2. The important part of MCA is its use of a singular decompositions and weighted least squares techniques to find low-dimensional best fitting subspaces with minimal inertia and information loss (Le Roux & Rouanet, 2010). When the firm is identified with these criteria, it is allotted 1, and 0 otherwise if it does not meet these criteria. Since the variables are categorical (dummy), the study applied MCA to create an index of corporate

Table 3. Variable table.

Variable	What the variable represents	Type of variable	How it is measured
TSR	Firm Performance	Dependent variable	TSR—Total share returns are the total share returns made up of share price and dividends. Tobin's Q—For a robustness check of our results, we use Tobin's Q that is total assets minus book value of equity plus market value of equity to total assets. It is also known as an economic ratio to compare the corporate's index or market value to its book or replacement value. Our measure of corporate financial performance is the commonly used Tobin's Q. Tobin's Q—For a robustness check of our results, we use Tobin's Q that is total assets minus book value of equity plus market value of equity to total assets. It is also known as an economic ratio to compare the corporate's index or market value to its book or replacement value. Our measure of corporate financial performance is the commonly used Tobin's Q.
CGI	CG Principles	Main independent variable	We obtain these from individual SA REITs' annual reports for the King III and IV reports, from 2013 to 2022, and MCA is used to analyse the data. A CG index was constructed using MCA. MCA[2] is a dataset to formulate application, and this will allow the investigation of association with a set of variables by converting the whole datasets into dummy variables to create an indicator matrix cross-tabulation among variables. CG from the King III report—The 75 principles formulated from King III (see Appendix A1) are applicable for 2013 until 2016 December A corporation that complies with each principle is allotted a 1 for compliance, and 0 for non-compliance. A corporation that complies with all principles is given 100%. CG from the King IV report—The 17 principles extracted from the King IV report are applicable from 2017 January to date (see Appendix A2). for each principle of the corporation complies a 1 is allotted, and 0 otherwise. If there is compliance with all principles, a 100% compliance is granted
CSR	CSR areas of compliance	Second independent variable	There are four areas that corporations are expected to report on (see Appendix B) *Workplace*—The corporation must adopt employment equity laws, should report how they support employee's health and how they preserve employees' dignity (1 is allotted for compliance, and 0 for non-compliance). *Economy*-—The corporation should report on economic initiatives, corruption reduction and tax compliance (1 is allotted for compliance, and 0 for non-compliance). *Society*—The corporation must report on community safety initiatives, customer protection and protection of human rights (1 is allotted for compliance and 0 for non-compliance). *Environment*—the corporation should report on initiatives on pollution reduction, and plans on waste removal (1 is allotted for compliance and 0 for non-compliance).
a_i	constant or intercept	$\beta_{i1,,}, \beta_{i2},, \beta_{i3}$	
Xit	Total assets, MTB, D/E, Firm Size, Big 5, Cross-listing	covariates	*Total Assets*—Directly obtained from Bloomberg and logged. *MTB*—Market to book value (market capitalisation divided by book equity). *D/E*— Debt equity ratio is debt divided by equity. *Firm size*—We use the log market capitalisation to capture the size of REITs. *Big 5*; —1 is assigned for representation, and 0 otherwise. *Cross-listing*—1 is assigned for representation, and 0 otherwise.
Y	is a factor of macro-economic- CPI, GDP, Interest rates, and employment		These are directly obtained from Datastream and Quantec.

Table 4. Descriptive statistics.

Variables	N	Mean	p50	SD	Min	Max
Firm performance	201	.683414	.852553	.9800819	−1.515288	2.208543
Corporate social responsibility index	201	.1567914	.6668863	.976756	−1.086726	1.198669
Managing stakeholders' relationship	201	.641791	1	.4806712	0	1
Leadership/BOD/BOD composition	201	.920398	1	.2713519	0	1
Risk governance	201	.8905473	1	.3129859	0	1
Compliance governance	201	.8756219	1	.3308364	0	1
Corporate governance index	201	.063271	.5252578	.918347	−2.832699	.5252578
Tobin's Q	201	−.2113029	−.132493	.3383518	−.7254826	.5049333
Total asset	201	−1.694909	−1.665791	.1150089	−1.937788	−1.564755
Equity ratio	201	−.3605875	−.4010842	.3761925	−.8934967	.3495164
Cross listing	201	.6865672	1	.4650469	0	1
Big 5 Audit firm	201	.4427861	0	.497956	0	1
Consumer price index (CPI)	201	4.457968	4.463223	.1199511	4.260448	4.64831
Gross domestic product	201	15.3152	15.31997	.0215367	15.27652	15.34141
Interest rates	201	9.223259	9.416667	1.152783	7.041667	10.45833
Total employment	201	16.10219	16.11322	.0315741	16.04107	16.14647

Notes. CSR index denotes corporate social responsibility index; Corporate Governance index consists of the King III and IV reports, jointly.

governance. The result of the MCA outcomes can be divided into two sections. The first section reveals the normalised principal inertia. The compliance data are retrieved from annual reports, and CGI is the collective of principles from the King III and IV reports.

In South Africa, all companies are required to comply with CG provisions. After the publication of the King IV report in 2017 all companies must show compliance in their income statements. King IV has 17 principles (see Appendix, A2), although the 17th principle only applies to institutional investors; thus, corporations must comply with 16 principles. REITs must comply with these from 2017 to date. The King III report has 75 principles that are made up of nine broad principles and REITs had to comply with these from 2013 until 2016. The nine broad principles are from King III: (1) board and directors; (2) corporate citizenship, leadership, integrity & responsibility; (3) audit committees; (4) risk management; (5) internal audit; (6) integrated sustainability reporting & disclosure; (7) compliance with laws, regulations, rules, and standards; (8) managing stakeholder relationships; and (9) fundamental affected transactions.

C. Ntim and Soobaroyen (2013, pp. 373–392) adopted the 50 provisions of the CG for listed corporations except REITs from the King II report, finding positive correlations to performance, and Klapper and Love (2004, pp. 703–728); and Morey et al. (2009, pp. 254–262) studied specific CG provisions. Different from previous studies, this paper employs the MCA to formulate the CGI index grouped the level of compliance for each REITs and the whole dataset is formulated as a dummy variable, where, when there is compliance with a principle, a value of 1 is given and no compliance is given a value of 0. These are inclusive of the SA unique attributes – EE (Employment Equity) and AA (Affirmative Action). In older King reports, these attributes were separate. The present study tests each principle from both King III and IV reports, and the most influential CG principles include BOD, Leadership, Risk management and stake holder relationship. The SA REIT is the prominent REIT in the African market and also in emerging stock markets. The current SA REIT studies did not proxy CG and its principles. Studies from Carstens and Freybote (2018, pp. 103–128) also from on the Akinsomi et al. (2016, pp. 3–26) and Ajayi and Akinsomi (2023, pp. 50–75). We hypothesise a positive relationship between CG Index and SA REITs' performance.

These results are analysed in the next chapter.

Table 5. Pairwise correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Firm Performance	1.000									
(2) CSR index	0.199*	1.000								
	(0.005)									
(3) CG Index	0.087	0.387*	1.000							
	(0.220)	(0.000)								
(4) Equity ratio	0.427*	−0.560*	−0.251*	1.000						
	(0.000)	(0.000)	(0.000)							
(5) Cross listing	0.007	−0.034	0.014	−0.019	1.000					
	(0.924)	(0.627)	(0.846)	(0.794)						
(6) Bid 5 Audit	0.013	0.016	−0.139*	0.030	0.019	1.000				
	(0.849)	(0.820)	(0.048)	(0.674)	(0.785)					
(7) CPI	0.253*	0.702*	0.315*	−0.402*	0.024	−0.025	1.000			
	(0.000)	(0.000)	(0.000)	(0.000)	(0.735)	(0.729)				
(8) GDP	−0.134*	0.411*	0.191*	−0.464*	0.014	−0.016	0.492*	1.000		
	(0.058)	(0.000)	(0.007)	(0.000)	(0.842)	(0.824)	(0.000)			
(9) Interest rate	−0.566*	−0.222*	−0.088	−0.377*	−0.008	−0.001	−0.479*	0.311*	1.000	
	(0.000)	(0.002)	(0.216)	(0.000)	(0.915)	(0.992)	(0.000)	(0.000)		
(10) Employment	−0.004	0.745*	0.329*	−0.758*	0.025	−0.029	0.784*	0.630*	−0.012	1.000
	(0.953)	(0.000)	(0.000)	(0.000)	(0.725)	(0.682)	(0.000)	(0.000)	(0.871)	

Note: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

CSR

Since the C. G. Ntim et al. (2012) paper where the CSR variable was tested using word count, much has changed as they proxied the King II report; thereafter, the King III report made it mandatory that all listed corporations should report CSR, and in 2017 the King IV report provided a list of compliance areas that each corporation should report on. Ackers and Eccles (2015, pp. 515–550) conducted a review on CSR reporting and compliance, and they found that South Africa is among the first countries to make provision of CSR disclosure mandatory for listed corporations, and that companies should use their auditor assurance like the Big 5 (the top five auditing firms) to assist in reporting.

Adapted from the King IV report, these are the recommended practices that each corporation should report on. The CSR index is formulated using MCA, exploration of association is applied with a set of variables, and the datasets are transformed into dummy variables to form an indicator matrix cross-tabulation among the variables. The important part of MCA is its use of a single decomposition and weighted least squares techniques to find low-dimensional best fitting subspaces with minimal inertia and information loss, like the previous index created. When the firm is identified with these criteria, it is allotted yes, denoted as 1, and 0 otherwise. Since the variables are categorical (dummy), the study applied MCA to create a CSR index. The list of these practices that should be on annual reports of corporations is presented in Table 3.

The CSR[3] variable is taken from the annual reports and the companies' financial statements. We hypothesised a positive relationship with SA REITs' performance.

Performance variables

Our measure of corporate financial performance, which is commonly used in the literature, is total share returns (TSR) is made up of share price and dividends.

Nevertheless, to monitor the robustness of our outcomes, Tobin's Q is used as an alternative and market-based accounting measure. Tobin's Q (R) is the total assets minus book value of equity plus market value of equity to total assets. We do not use return on assets (ROA) which is the ratio of operating profit to total assets, as these have an impact on the depreciation of assets on the balance sheet.

Results

Estimation procedures

The study employs ordinary least squares (OLS) with a standard error robust check in a panel data analysis to investigate the relationship between SA REITs' firms' performance and the corporate governance (CG) index that consists of 75 principles from the King III report and 17 principles from the King IV report. Using CG as the main independent variable, the results report on principles with an association with firm performance. These are some of the standard principles since the introduction of CG in SA. These include leadership/board of directors (BOD) and composition, risk governance, managing stakeholder relationship, and compliance with laws and regulations (King I, 1994; Rossouw, 2002, pp. 321–333). SA adopted the initial King report from the Anglo-American model derived from the USA and Cadbury reports from the UK. This was later modified with changes in laws, which makes the SA model unique (Andreasson, 2011, pp. 673, 647; Cerbone & Maroun, 2020, p. 100876; C. G. Ntim, 2013, pp. 373–392). The SA CG framework has some similarities with other regions: the Americas (Letza et al., 2004, pp. 262, 242; Toms & Wright, 2005, pp. 267–295); Europe (Dahya & McConnell, 2007 –564, pp. 535; Jones & Pollitt, 2004, pp. 162–171); and Asia (European Public Real-Estate Association, 2018; Lecomte & Ooi, 2013, pp. 373–392). The CSR index is also a key independent variable. For both the CG index and the CSR index, the study uses MCA, which is a restructuring tool that is suitable for categorical variables (that is, dummy and ordered or ranked measured variables). The inertia value indicates the amount of variation accounted for by the corresponding principal dimension (Ayele et al., 2014, pp. 1036–1045). The index constructed ranges from negative to positive values, which implies that negative is non-compliance and positive is compliance with both CSR and joint King III and IV reports.

The study investigates the presence of overlay and outliers in the data use for the analysis, graphically. Figure 1 shows that there are two (2) data points that are outside the CG index, while there is no obvious data point outside the expected sequence for the CSR index.

Overlay

Further, the study examines specific firms that had overlay. Figure 2 shows the overlay of corporate social responsibility and corporate governance by the firms' data points. From the graph, three companies have outliers in the corporate governance index data, these include hypro investment, liberty two degrees and SA Corporate.

Graphical displays are essential for demonstrating the detection of outliers. On the other hand, the empirical results are easier to compute and have a higher degree of

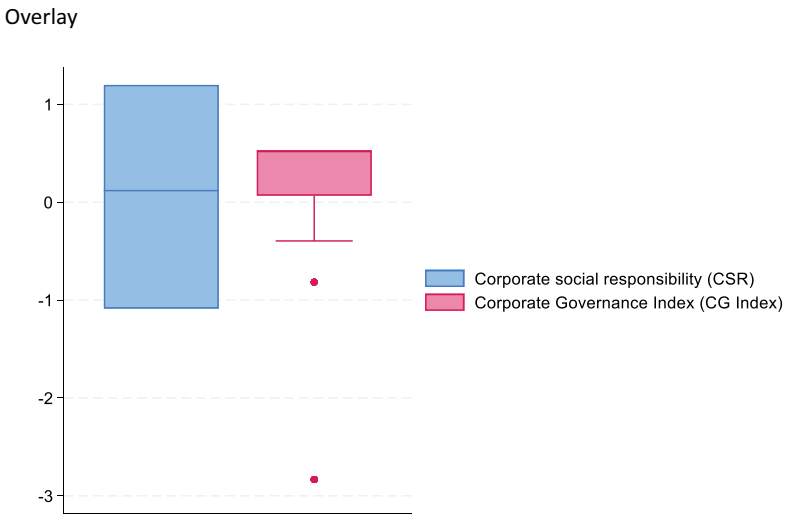

Figure 1. Graph box for corporate social responsibility and governance corporate index. Source: computed by the authors.

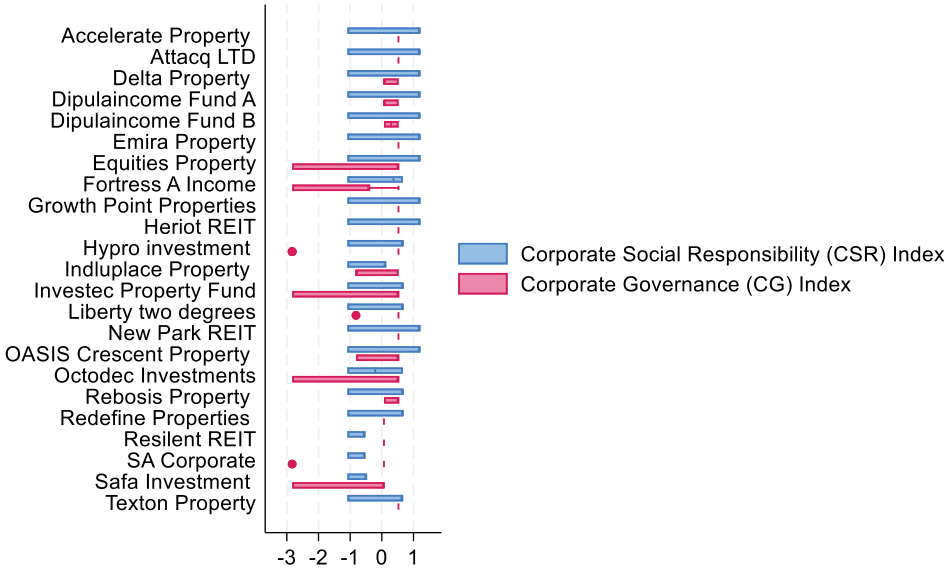

Figure 2. Graph box for corporate social responsibility and governance index by REIT firms. Source: computed by the authors.

reliability. Additionally, we analytically look at whether the outliers are there in the data without a graph. We removed 23 data points listed for the model that includes CSR. In a similar vein, the study found six outliers for the CG model (see column 1), which we removed before performing a second analysis (see column 2). See Table 4 for descriptive results.

Correlation analysis

It is expected that the firm's performance will have a positive relationship with the CSR index, see Table 5. Moreover, there is a positive relationship between firm performance and equity ratio. CPI is significantly correlated with SA REITs' performance; however, GDP shows adverse correlation. CG is significantly correlated to SA REITs' performance on the second column.

Variance inflation factor

Table 6 presents the variance inflationary factors (VIF) analysis. The rule of thumb is that the VIF must not exceed 10. Otherwise, there is a probability of collinearity in the model. Hence, the analysis is not likely to suffer multicollinearity in the estimation.

Empirical results

Bauer et al. (2004, pp. 71–101, 2010, pp. 91–104), Bianco et al. (2007) and Campbell et al. (2011, pp. 451–480) report that the typical governance principles studied on REITs and performance includes board of directors, board size, and board composition globally. The present SA REIT results show influences on BOD, ethical leadership, risk management, compliance governance, and stakeholder relationship. According to Campbell et al. (2011, pp. 451–480) experienced BODs and CEOs influence returns positively like SA REIT results; there are no dissimilarities with studies from developed nations on this CG principle. The CG principle, ethical leadership, from the SA framework addresses issues like combating corruption and boards are expected to exude characteristics of integrity. The SA government enforces and encourages compliance with CG to combat corruption (Pamburai et al., 2015, pp. 115–131). Developed nations' CG principle leadership is embedded in their BODs. This is shown in various studies by Bauer et al. (2004, pp. 91–104), Brounen et al. (2004, pp. 71–101), and Drobetz and Momtaz (2020, p. 101594). Risk management in SA encourages corporations to have risk policies in place and a detailed plan for risk mitigation. Compliance with these influences the performance of SA REITs. Compliance governance includes compliance with laws, regulations, and tax laws. SA is an emerging economy where corporations must comply with affirmative action and employment equity to assist in readdressing past inequalities on race, gender, and disability in the country. Developed nations' CG studies do not have this principle, although other emerging economies have similar governance issues. Bianco et al. (2007) determined no effect on firm performance and external governance mechanism. SA's CG principles are a combination of internal and external mechanisms

Table 6. Variance inflation factor.

	VIF	1/VIF
CSR index	1.626	.615
Equity ratio	1.465	.683
CG Index	1.209	.827
Bid 5 Audit	1.028	.972
Cross listing	1.005	.995
Mean VIF	1.267	.

Table 7. CG principles and SA REITs' firm performance.

	(1)	(2)	(3)	(4)	(5)
Variables	Firm performance	Firm performance	Firm performance	Firm performance	Firm performance
CSR index	0.527***	0.539***	0.543***	0.541***	0.473***
	(0.0754)	(0.0742)	(0.0748)	(0.0749)	(0.0767)
Stakeholders Relationship	−0.207***	−0.363***	−0.374***	−0.402***	
	(0.0745)	(0.0854)	(0.0868)	(0.0986)	
Leadership/BOD		0.550***	0.799***	0.712***	
		(0.149)	(0.195)	(0.237)	
Risk management			−0.246**	−0.242*	
			(0.122)	(0.123)	
Compliance governance				0.120	
				(0.181)	
CG Index					0.0113
					(0.0440)
Total Asset	16.87***	16.89***	16.91***	16.91***	16.71***
	(0.487)	(0.534)	(0.538)	(0.536)	(0.446)
Equity ratio	4.869***	4.944***	4.956***	4.959***	4.810***
	(0.241)	(0.233)	(0.233)	(0.233)	(0.247)
Cross listing	0.0414	−0.00489	−0.0163	−0.0229	0.0679
	(0.0669)	(0.0667)	(0.0677)	(0.0664)	(0.0656)
bis5	0.0267	0.121**	0.108*	0.124*	−0.0252
	(0.0634)	(0.0613)	(0.0620)	(0.0680)	(0.0643)
CPI	9.528***	9.498***	9.506***	9.512***	9.375***
	(0.626)	(0.630)	(0.628)	(0.628)	(0.617)
GDP	−105.5***	−106.0***	−106.2***	−106.2***	−104.4***
	(3.336)	(3.541)	(3.569)	(3.561)	(3.170)
Interest rate	0.215***	0.239***	0.242***	0.243***	0.196***
	(0.0465)	(0.0456)	(0.0457)	(0.0457)	(0.0482)
Employment	28.23***	27.27***	27.16***	27.12***	28.79***
	(2.794)	(2.741)	(2.743)	(2.746)	(2.854)
Constant	1,148***	1,170***	1,174***	1,175***	1,122***
	(55.84)	(57.75)	(58.34)	(58.16)	(54.62)
Observations	201	201	201	201	201
R-squared	0.804	0.818	0.819	0.820	0.796

Note: Robust standard errors in parentheses: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

(Roussow, 2002), and the top 10 SA REITs by market capitalisation are managed internally. All SA listed companies must follow King reports, but the management of REITs is different and adherence to tax laws is different in SA.

Furthermore, this current study reports on each of the CG principles that have an association with SA REITs performance to address Hypothesis 1. The results are presented in Table 7.

Column 1 shows that CSR has a significant positive relationship with firm performance. This result is not new in the literature as reported by C. G. Ntim et al. (2012), and a review by Westermann in (2018) also proved the same. Moreover, total asset, equity ratio, consumer price index, interest rate, and employment all have a significant positive relationship with firm performance, whereas stakeholder relationship and gross domestic product (GDP) have a significant negative relationship with firm performance. SA has experienced slow economic growth for a while now and has struggled to improve after being hard hit by COVID-19 (Stats SA, 2023); therefore, these results are not surprising.

Column 2 shows that CSR has a significant positive relationship with firm performance. Moreover, leadership has a significant positive relationship with the firm performance. This is expected, as BOD expertise and composition are positively

associated with performance. Campbell et al. (2011, pp. 451–480) found that corporations with experienced CEOs had higher performance; also, W. L. Chong, Ting, et al. (2017, pp. 75–99) applied a CG index that proved that not only does an experienced BOD help to improve ROA, but it also helps to gauge excess returns of REITs. Total asset, equity ratio, consumer price index, interest rate, employment, and Big 5 audit firm have a significant positive relationship with firm performance, whereas stakeholder relationship and GDP have a significant negative relationship with firm performance.

Column 3 shows that CSR and total asset have a significant positive relationship with firm performance. This is also expected, similar to the literature, and reported by Bauer et al. (2010, pp. 1–29), Campbell et al. (2011, pp. 451–480), Chong et al. (2016, pp. 317–344), Ooi (2000, pp. 316–331), and Sirman (1997). Even in this column, stakeholder relationships have a significant negative association with firm performance. The equity ratio, consumer price index, interest rate, employment, and Big 5 audit firm have a significant positive relationship with firm performance, whereas stakeholder relationship, GDP, and risk management have a significant negative relationship with firm performance.

Column 4 shows that CSR has a significant positive relationship with firm performance. Moreover, total asset, equity ratio, consumer price index, interest rate, employment, and Big 5-audit firm have a significant positive relationship with firm performance, whereas stakeholder relationship, GDP, and risk management have a significant negative relationship with firm performance.

Column 5 shows that CSR has a significant positive relationship with firm performance. Moreover, total asset, equity ratio, consumer price index, interest rate, and employment have a significant positive relationship with firm performance, whereas stakeholder relationship and GDP have a significant negative relationship with firm performance.

Table 8 shows the results of CSR and SA REITs' firm performance to address Hypothesis 2. Column 1 shows that CSR has a significant positive relationship with firm performance (Khan et al., 2023). Similar results from R. Ali et al. (2020, p. 149), C. G. Ntim et al. (2012), and a review report by Westermann et al. (2018, pp. 92–110) reported the same. While corporate governance has an insignificant positive relationship with firm performance, total asset and equity ratio have a significant positive relationship with firm performance. This is not new to the literature (Hörnmark, 2015; C. G. Ntim, 2013, pp. 373–392). Consumer price index, interest rate, and employment have a significant positive relationship with firm performance. However, GDP has a significant negative relationship with firm performance.

Column 2 shows that CSR has a significant positive relationship with firm performance, while corporate governance has an insignificant positive relationship with firm performance. Total asset, equity ratio, consumer price index, and interest rate have a significant positive relationship with firm performance. However, GDP has a significant negative relationship with firm performance.

Column 3 shows that CSR has a significant positive relationship with firm performance, while corporate governance has an insignificant positive relationship with firm performance. Total asset, equity ratio, and consumer price index have a significant positive relationship with firm performance, whereas GDP has a significant negative relationship with firm performance.

Table 8. SA REITs' firm performance and corporate social responsibility.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Firm performance	Firm performance	Firm performance	Firm performance	Firm performance	Firm performance
CSR index	0.473***	0.577***	0.534***	0.475***	0.635***	0.629***
	(0.0767)	(0.0878)	(0.0867)	(0.0847)	(0.0787)	(0.0761)
CG Index	0.0113	0.0154	0.0165	0.0303	0.0419	0.0422
	(0.0440)	(0.0512)	(0.0515)	(0.0835)	(0.0847)	(0.0858)
Total Asset	16.71***	13.85***	13.00***	0.506	0.268	
	(0.446)	(0.909)	(1.012)	(0.578)	(0.603)	
Equity ratio	4.810***	3.534***	3.096***	2.153***	2.104***	2.054***
	(0.247)	(0.246)	(0.209)	(0.241)	(0.245)	(0.193)
Cross listing	0.0679	0.0825	0.0764	0.0677	0.0910	0.0901
	(0.0656)	(0.0789)	(0.0814)	(0.106)	(0.107)	(0.107)
Big 5-Audit	−0.0252	−0.0315	−0.0277	−0.0179	−0.0314	−0.0305
	(0.0643)	(0.0777)	(0.0795)	(0.0996)	(0.102)	(0.101)
CPI	9.375***	11.36***	9.153***	1.979***		
	(0.617)	(0.842)	(0.595)	(0.439)		
GDP	−104.4***	−83.35***	−72.81***			
	(3.170)	(5.879)	(5.994)			
Interest rate	0.196***	0.212***				
	(0.0482)	(0.0680)				
Employment	28.79***					
	(2.854)					
Constant	1,122***	1,249***	1,098***	−6.620***	1.746	1.274***
	(54.62)	(88.53)	(91.32)	(2.340)	(1.080)	(0.123)
Observations	201	201	201	201	201	201
R-squared	0.796	0.694	0.684	0.494	0.465	0.464

Note: Robust standard errors in parentheses: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Column 4 shows that CSR has a significant positive relationship with firm performance. Equity ratio and consumer price index also have a significant positive relationship with firm performance, while corporate governance has an insignificant positive relationship with firm performance.

Column 5 and column 6 show that CSR has a significant positive relationship with firm performance, while corporate governance has an insignificant positive relationship with firm performance. Equity ratio and consumer price index have a significant positive relationship with firm performance.

Sensitivity analysis

Table 9 shows the robustness tests for Hypothesis 1. For a robustness check, the study used firm performance as a proxy using Tobin's Q, as mentioned above.

Table 9, columns 1–4, presents the estimation of CSR and Tobin's Q using ordinary least squares (OLS). CSR has a significant positive relationship with Tobin's Q (C. G. Ntim, 2013; C. G. Ntim et al., 2012). SA corporates are expected to be responsible citizens by giving back.

Column 1 shows that CSR has a significant positive relationship with Tobin's Q. Equity ratio and GDP also have a significant positive relationship with Tobin's Q, whereas consumer price index has a significant negative relationship with firm performance. Interest rate has a significant positive relationship with firm performance. Employment has a significant negative relationship with Tobin's Q.

Table 9. Tobin's Q and CSR.

	(1)	(2)	(3)	(4)
Variables	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
CSR index	0.0452***	0.0305**	0.0312**	0.0333**
	(0.0115)	(0.0124)	(0.0121)	(0.0152)
Equity ratio	0.0850**	0.204***	0.211***	0.250***
	(0.0330)	(0.0371)	(0.0257)	(0.0357)
Cross listing	0.00653	0.00446	0.00456	0.00489
	(0.0152)	(0.0164)	(0.0163)	(0.0205)
Big 5-Audit	−0.00376	−0.00264	−0.00270	−0.00282
	(0.0142)	(0.0153)	(0.0152)	(0.0192)
CPI	−2.587***	−3.022***	−2.989***	−2.370***
	(0.114)	(0.160)	(0.0939)	(0.113)
GDP	7.494***	6.813***	6.697***	
	(0.424)	(0.623)	(0.428)	
Employment	−3.441***			
	(0.621)			
Interest rate		−0.00402		
		(0.0156)		
Total Asset				0.892***
				(0.0980)
Constant	−48.02***	−90.97***	−89.38***	11.95***
	(9.571)	(8.945)	(6.430)	(0.507)
Observations	201	201	201	201
R-squared	0.916	0.903	0.903	0.847

Note: Standard errors in parentheses: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Column 2 shows that CSR has a significant positive relationship with Tobin's Q. Equity ratio and GDP have a significant positive relationship with Tobin's Q, whereas consumer price index has a significant negative relationship with firm performance. Interest rate has a significant positive relationship with Tobin's Q.

Column 3 shows that CSR has a significant positive relationship with Tobin's Q. Equity ratio has a significant positive relationship with firm performance. GDP has a significant positive relationship with Tobin's Q, while consumer price index has a significant negative relationship with Tobin's Q.

Column 4 shows that CSR has a significant positive relationship with Tobin's Q. Equity ratio has a significant positive relationship with firm performance. Total asset has significant positive relationship with Tobin's Q, while consumer price index has a significant negative relationship with Tobin's Q.

For a robustness check, the study used firm performance as a proxy using Tobin's Q, as mentioned above. Table 10 shows the robustness tests for Hypothesis 1.

Table 10, column 1, shows that equity ratio and interest rate have a significant positive relationship with Tobin's Q, while employment has a significant negative relationship with Tobin's Q.

Column 2 shows that equity ratio has a significant positive relationship with firm performance. Interest rate has a significant positive relationship with Tobin's Q, while employment has a significant negative relationship with Tobin's Q.

Column 3 shows that equity ratio has a significant positive relationship with firm performance. Interest rate has a significant positive relationship with Tobin's Q, while employment has a significant negative relationship with Tobin's Q.

Table 10. Tobin's q and CG.

	(1)	(2)	(3)	(4)	(5)
Variables	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
CG Index	0.0243				
	(0.0395)				
Equity ratio	1.441***	1.435***	1.445***	1.441***	1.441***
	(0.177)	(0.177)	(0.177)	(0.177)	(0.177)
Interest rate	0.268***	0.266***	0.271***	0.268***	0.268***
	(0.0415)	(0.0413)	(0.0415)	(0.0414)	(0.0415)
Employment	−4.498**	−4.308**	−4.670**	−4.495**	−4.457**
	(2.178)	(2.163)	(2.182)	(2.173)	(2.179)
Shareholders rel.		−0.0304			
		(0.0767)			
Leadership			0.142		
			(0.134)		
Risk management				0.0830	
				(0.116)	
Compliance					0.0528
					(0.111)
Constant	70.37**	67.37*	73.00**	70.25**	69.68**
	(35.20)	(34.96)	(35.24)	(35.11)	(35.20)
Observations	222	222	222	222	222
R-squared	0.697	0.696	0.698	0.697	0.697

Note: Standard errors in parentheses: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Column 4 shows that equity ratio has a significant positive relationship with firm performance. Interest rate has a significant positive relationship with Tobin's Q, while employment has a significant negative relationship with Tobin's Q.

Column 5 shows that compliance has an insignificant positive relationship with Tobin's Q. Equity ratio has a significant positive relationship with firm performance. Interest rate has a significant positive relationship with Tobin's Q, while employment has a significant negative relationship with Tobin's Q.

Table 11, column 1 shows that CSR has a significant positive relationship with firm performance. Moreover, total asset, equity ratio, consumer price index, interest rate, and employment have a significant positive relationship with firm performance, while GDP has a significant negative relationship with firm performance.

Column 2 shows that corporate governance index has a significant positive relationship with firm performance. Moreover, total asset, equity ratio, cross listing, employment, and relationship with firm Big 5 audit firm have a significant positive relationship with firm performance, while GDP has a significant negative relationship with firm performance.

Column 3 shows that CSR has a significant positive relationship with firm performance. Moreover, total asset, equity ratio, and consumer price index have a significant positive relationship with firm performance. Meanwhile, stakeholder relationship and GDP have a significant negative relationship with firm performance.

Column 4 shows that CSR has a significant positive relationship with firm performance, as do total asset equity ratio, consumer price index rate, and employment have a significant positive relationship with firm performance. GDP has a significant negative relationship with firm performance, while leadership has an insignificant positive relationship with firm performance.

Column 5 shows that CSR has a significant positive relationship with firm performance. Moreover, total asset, equity ratio, consumer price index, interest rate, and employment have a significant positive relationship with firm performance. While

Table 11. Using linear regression with panel-corrected standard error estimator.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Firm performance	Firm performance	Firm performance	Firm performance	Firm performance	Firm performance
CSR index	0.476***		0.527***	0.466***	0.471***	0.472***
	(0.148)		(0.150)	(0.145)	(0.146)	(0.147)
Total Asset	16.72***	15.78***	16.87***	16.69***	16.70***	16.71***
	(2.947)	(3.942)	(2.870)	(2.915)	(2.938)	(2.945)
Equity ratio	4.811***	4.298***	4.869***	4.824***	4.813***	4.811***
	(0.684)	(0.871)	(0.667)	(0.677)	(0.682)	(0.684)
Cross listing	0.0685***	0.0108***	0.0414	0.0580***	0.0678***	0.0657***
	(0.0227)	(0.00385)	(0.0298)	(0.0182)	(0.0209)	(0.0198)
Big 5-Audit	−0.0282	0.0293**	0.0267	−0.00654	−0.0118	−0.0214
	(0.0202)	(0.0127)	(0.0370)	(0.0176)	(0.0170)	(0.0171)
CPI	9.387***	8.964**	9.528***	9.332***	9.362***	9.374***
	(2.874)	(3.766)	(2.795)	(2.843)	(2.865)	(2.872)
GDP	−104.4***	−97.01***	−105.5***	−104.3***	−104.3***	−104.4***
	(19.03)	(25.13)	(18.53)	(18.82)	(18.97)	(19.02)
Interest rate	0.196	0.0471	0.215	0.200	0.197	0.196
	(0.205)	(0.256)	(0.200)	(0.203)	(0.204)	(0.205)
Employment	28.80***	33.59***	28.23***	28.58***	28.73***	28.78***
	(8.800)	(11.17)	(8.567)	(8.703)	(8.772)	(8.793)
CG Index		0.0797***				
		(0.0190)				
Shareholder			−0.207***			
			(0.0735)			
Leadership				0.223		
				(0.176)		
Risk management					0.0993	
					(0.124)	
Compliance						0.0476
						(0.0959)
Constant	1,123***	933.4***	1,148***	1,124***	1,122***	1,122***
	(276.0)	(354.5)	(269.3)	(272.9)	(275.1)	(275.8)
Observations	201	201	201	201	201	201
R-squared	0.796	0.719	0.804	0.799	0.797	0.796
Number of coycode	23	23	23	23	23	23

Note: Standard errors in parentheses: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

GDP has a significant negative relationship with firm performance, risk management has an insignificant positive relationship with firm performance.

Column 6 shows that CSR has a significant positive relationship with firm performance. Moreover, total asset, equity ratio, cross listing, price index, and employment have a significant positive relationship with firm performance. While compliance has an insignificant positive relationship with firm performance, GDP has a significant negative relationship with firm performance.

Table 12, column 1 presents that CSR has an insignificant positive relationship with firm performance. Gross domestic product has a significant positive relationship with firm performance, while total asset has a significant negative relationship with firm performance.

Column 2 shows that CSR has an insignificant positive relationship with firm performance. GDP has a significant positive relationship with firm performance, while total asset has a significant negative relationship with firm performance. Table 12, column 3 shows that CSR, total asset, and equity ratio have a significant positive association with firm performance, while GDP has a significant negative relationship with firm performance.

Table 12. Sub-regime analysis.

	(1)	(2)	(3)	(4)
Variables	2013–2017 Firm performance	2013–2017 Firm performance	2018–2022 Firm performance	2018–2022 Firm performance
CSR index	0.00450	0.00635	0.394***	0.440***
	(0.0120)	(0.0127)	(0.0605)	(0.0599)
Total Asset	−6.681***	−6.684***	15.85***	16.10***
	(0.455)	(0.455)	(0.447)	(0.471)
Equity ratio	−0.0450	−0.0452	3.590***	3.625***
	(0.130)	(0.129)	(0.187)	(0.176)
Cross listing	0.000569		0.0567	
	(0.0104)		(0.0531)	
Bi 5-Audit	−0.000335		−0.0238	
	(0.00977)		(0.0510)	
GDP	20.82***	20.84***	−25.07***	−29.37***
	(2.219)	(2.218)	(5.812)	(5.570)
2013–2017	Yes	Yes		
CG Index		0.00133		0.108***
		(0.00460)		(0.0413)
Shareholders		−0.00605		−0.295***
		(0.0151)		(0.0797)
2018–2022			Yes	Yes
Constant	−329.4***	−329.7***	411.7***	478.2***
	(34.82)	(34.81)	(89.52)	(85.86)
Observations	201	201	201	201
R-squared	0.995	0.995	0.865	0.876

Note: Robust standard errors in parentheses: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Column 4 shows that CSR has a significant positive relationship with firm performance. Moreover, total asset has a significant positive significant relationship with firm performance. Further, the equity ratio has a significant positive association with firm performance. Corporate governance index has a positive relationship with firm performance, and it is statistically significant. While GDP has a significant negative relationship with firm performance, shareholder relationship has a significant negative relationship with firm performance.

Summarily, a recent (2018–2022) dataset contributes to the significant outcome of the results. These make sense because the King III and IV reports have been recently applied in the South African REIT.

C. G. Ntim's (2013) study sample listed non-REIT corporations. Prior to 2013, SA real estate companies operated as PUTs and PLSs. PUTs are restricted to having debts of less than 30% of gross value on the entity while PLSs offered more flexibility based on the extent of debt being determined by company articles. PUTs were also not required to pay tax relief on profits if earnings were distributed to the investor, while PLS receives tax relief on profits paid to the investor. A PLS is required to pay capital gains while a PUT is not required to pay tax; the profits are distributed to the investor. A REIT does not pay capital Gains Tax. However, the PUT/PLS structure did not encourage foreign; although the structure allows SA REIT performance with global REITs (Boshoff & Bredell, 2013, pp. 38–47). PUT/PLS differ from REIT structurally, particularly in areas of legal, tax, and legislation matters (Olaleye & Wood, 2011). The inclusion of South Africa to BRIC in 2011 and the introduction of the REIT structure in 2013 have resulted in SA being in the category of emerging markets with regards to REITs. The SA CG since then has evolved to two versions where there were substantial

changes to the South African CG structure. The other SA studies on CG by Hörnmark (2015), Pamburai et al. (2015), and ul Rehman et al. (2016) focused on the evolution of CG in SA. The present study is novel.

Conclusion

We examine the relationship between CG to performance for commercial real estate assets, using a sample of publicly listed equity real estate investment trusts (REITs). We focus on SA REITs because they operate in parallel markets, they raise funds in the capital market, and invest in the property market in a portfolio context. This unique structure helps us to assess the CG and REITs' performance, using a balanced panel data to control for time-invariant components in the model. We also test a fundamental hypothesis related to CSR and genesis of the REIT performance.

REITs offer a natural experiment in CG because they leave little free cash flow for management, which reduces agency problems. A representative SA REIT in our sample holds their properties for about 10 years.

We document a positive and significant relationship between all CG principles and firm-level performance and profitability. Similar to previous studies by C. G. Ntim (2013, pp. 373–392) and Shahrier et al. (2020, pp. 365–388), board of directors as the significant and most integral CG compliance measure is linked to SA REITs' performance. Experienced board members and boards that practiced ethical leadership influence the SA REITs' performance. We also found that stakeholder relationship does not influence nor improve SA REITs' performance. We conclude that, even though it was previously believed to be mandatory for all organisations, this relationship with stakeholders has an adverse relationship with SA REITs' performance.

We conduct a series of robustness checks to study firm performance as a proxy using Tobin's Q, to present an estimation of CG and firm performance. The results are also complementary to existing studies. We concurrently explore the mechanisms of the positive relationship between CG and SA REIT performance.

The SA CG Index is extracted from the King III and IV reports. Our unique indices feature 17 principles from the King IV report and 75 principles from the King III reports to measure to CG.

The findings support a positive relationship between CG and firm performance and have important implications for REIT managers and investors. The SA CG principles that influence the performance of SA REIT include the BOD, leadership, risk management, compliance governance, and stakeholder relationship principles which are significant contributors to SA REIT performance. First, BOD is known to be the most fundamental internal governance mechanism in CG; this may include the board's expertise and composition (Shahrier et al., 2020, pp. 365–388). In SA, board selection is stringent, and the selection process must be reported annually (Pamburai et al., 2015). Campbell et al. (2011, pp. 451–480) linked experienced boards with firm performance; our result further confirms that SA REITs that comply with this principle will experience improved performance; investors prefer such boards, and these ensure the effective management of a corporation by also combating corruption. Second, SA REITs that comply with risk governance will likely improve performance. The problem arises when managers enter high-risk projects

that may fail. In this case, the costs will be borne by debt holders; however, if the project is successful, the shareholders will benefit. SA corporations are expected to have risk management plans in place as highly indebted SA REITs are risky to investors. Third, compliance governance includes compliance with laws, regulations, and tax laws. SA REITs that comply with this principle will likely notice improved returns. Compliance laws include compliance with affirmative action, employment equity to assist in readdressing past inequalities on race, gender and disability in SA. The last most influential CG principle is stakeholder relationship; however, this CG principle has an adverse relationship with SA REITs. The principle is still a relatively important one even though it is adversely associated with SA REITs' performance. A relationship with stakeholders will not influence returns than as previously believed by managers from Ntim's (2013) study.

Our research also opens the door for future studies on the CG and REIT performance, determinants, and outcomes related to CG and REIT performance. The first hypothesis H1 is not related to the concept of internal and external management – SA REITs are either managed internally or externally which can influence CG compliance level. The top five performing SA REITs are internally managed, whereby the internal mechanisms include an effectively structured board, compensation contracts that encourage a shareholder orientation, and concentrated ownership holdings that lead to active monitoring of executives.

The other major agency problem is financing the organisation. When a firm does not have enough equity, they may use debt to finance projects (Goergen & Renneboog, 2006, pp. 100–131). SA REITs that comply with governance of risk (principle 4) of the King III report will likely improve performance.

Ethical leadership and corporate citizenship contribute more to SA REITs than other principles from the King III report that show a positive relationship with SA REITs' performance. The stewardship theory fails to account for when where managers do not become good stewards (Gaur et al., 2015, pp. 911–931). The board includes expertise, diversity, and size, according to Shahrier et al. (2020, pp. 365–388), while Li et al. (2020, pp. 43–74) state that the board assists in providing access to the resources needed by the firm or stakeholders. This is in line with the resource dependency governance theory; however, the results from other principles from the same report were inconclusive.

It can be concluded that CG has a positive influence on SA REITs. All CG principles, when pooled together, have a positive result with high significance. SA REITs that are also cross listed will likely influence performance; this also applies to those that are audited by the Big 5 auditing firms in SA.

Our second hypothesis, H2, tested the relationship between CSR and SA REITs' firm performance. We document a positive and significant relationship between all CSR and firm-level performance and profitability.

We conduct a robustness check to study firm performance as a proxy using Tobin's Q, to present an estimation of Tobin's Q and CSR performance. Our results are also complementary to existing studies. We concurrently explore the mechanisms of the positive relationship between CSR and SA REIT performance. The SA CSR levels are extracted from the company's annual reports and the King IV report to form an index.

Our findings on CSR and SA REITs' performance close the gap in the literature that currently exists, using our unique index to capture CSR compliance. Not much work was carried out after Westermann et al. (2018, pp. 92–110) conducted a review and found that

there is limited literature on CSR and firm performance. Our index shows a positive relationship with the firm's performance (Khan et al., 2023, pp. 184–209). This implies that CSR is likely to improve firm performance with higher magnitude. CSR and equity ratio have a significant positive association with the firm performance. Chung et al. (2005, pp. 51–61) argued that firms with superior CSR have better access to capital because of reduced agency costs, with greater stakeholder engagement.

R. Ali et al. (2020, p. 149) adopted the agency theory and CSR. This policy has also been linked to firm performance by C. G. Ntim (2013, pp. 373–392) and C. G. Ntim et al. (2012) in SA corporates which are to be expected responsible citizens by giving back. CSR influences SA REITs' performance from the above studies.

This study did not focus on the management structure of REITs; that is, whether a REIT is internally or externally managed. Further research can explore this area on CG. In the SA context, C. G. Ntim (2013, pp. 373–392) formulated an index compiled from older King reports. However, they did not focus on management structure, and they also did not focus on different industries, only on the top-performing industries at the time. The present study will assist SA REITs to comply with reporting and improving their compliance each year if they are to witness higher returns.

CSR compliance has become mandatory in SA, so it should be relatively easy to trace and capture compliance in the coming years. Such a study could capture CSR in earlier years from 2013 until 2016. However, from 2017, reporting improved and this trajectory is expected to continue year on year. In his 2012 study in the SA context, Ntim used word count at the time as the compliance reporting was difficult to trace, and his data were very limited compared to richer data available in more recent years. CSR has been highly linked performance for SA REITs. This encourages firms to improve the CSR reporting on their annual reports if they are to realise promising returns.

Notes

1. SA real estate companies operated as PUT/PLS, and differed from REITs structurally, particularly in areas of legal, tax, and legislation matters (Olaleye & Wood, 2011, pp. 272–282). In 2011, SA joined the BRICS nations, in 2013, the REIT structure was enacted which has resulted in SA being in the category of emerging markets with regards to REITs.
2. MCA (Multiple Correspondence Analysis) is a dataset analysis tool used for categorical data, and it detects underlying structures in a dataset. This was first introduced by the mathematician, Benzéri, in the 1960s and the 1970s in France. This tool is an improvement on the PCA and the CA. the PCA is used for large datasets containing high number of dimensions and the CA is a multivariate statistical technique like the PCA which applies to categorical rather than continuous data.
3. CSR is taken from the annual reports. Prior evidence suggests that they are positively related with the level of disclosure provided through other mediums (C. G. Ntim et al., 2012). Annual reports are not a direct variable; however, after the King IV report of December 2016, companies are required to show this in their income statements.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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