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Board composition and company performance in the South African real estate sector.

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Abstract

The drive behind a study of this nature was to provide an examination of the key elements that impact on company performance within the South African real estate investment sector is presented. Specific attention is paid to board size, age of the CEO, gender representation and the proportion of independent directors. A total of 33 publicly listed real estate investment firms on the Johannesburg Stock Exchange were studied. A quantitative analysis was carried out in order to determine the impact that certain dependent variables had on the performance of the company. Company performance was measured by the return on assets (ROA).

The research finds that board size is significantly negatively correlated to the firms' performance, which is line with similar international research. The paper also found that the percentage of independent directors serving on a board is positively correlated to its ROA.

Lastly, a comparison to other similar international studies is discussed in order to better contextualise the findings of this paper. The academic and real-world impact of the results is also examined.

Keywords

Board diversity; real estate investment Trust; financial performance; corporate governance

List of abbreviations

REIT	–	Real Estate Investment Trust
INED	–	Independent Non-Executive Directors
ROE	–	Return on Equity
CEO	–	Chief Executive Officer
ROA	–	Return on Assets
IFRS	–	International Financial Reporting Standards
JSE	–	Johannesburg Stock Exchange
ROCE	–	Return on Capital Employed
M/B	–	Market to Book Ratio
MRP	–	Mandatory Retirement Policy
EVA	–	Economic Value Add
EBITDA	–	Earnings Before Interest, Tax, Depreciation and Amortisation
CISP	–	Collective Investment Scheme in Property

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Chapter 1: Definition of problem and purpose

1.1: Introduction

The world has been compelled by the increase in corporate scandals to acknowledge the important role that corporate governance practices have on the global economy (Vaughn & Ryan, 2006). The research from Lefort and Urzua (2008), found that the board is a fundamental establishment responsible for the internal control of a company. Ramakrishnan (2012) stated that boards are essentially responsible for the overall performance of a company and more importantly they ensure that a suitable return on investment is achieved through sound management and investment decision making.

People are guided to achieve the results required through an agency relationship (Arntz, 2010). An agency relationship is defined as “a contract under which one or more persons (the principal(s)) engages another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent” (Jensen & Meckling, 1976, p.308). This delegation is extremely difficult to manage because “it is difficult or expensive for the principal to verify what the agent is actually doing” (Eisenhardt 1989, p. 58). This inability to verify the agent’s true commitments is central to the conflict that arises between agents and their principals and is sometimes called the monitoring problem; boards are used as a mechanism to solve the issues that arise due to this monitoring problem (Jensen and Meckling, 1976).

Later on, Ryan and Wiggins (2001), showed that bigger firms that possess more complicated operations have to contend with monitoring challenges. Furthermore as a company increases in size, the management has more assets that require attention and this increase in assets in turn results in much more complex operations, which ultimately increases the potential for an agency conflict to arise.

In order to mitigate agency risks, robust mechanisms need to be in place both internally as well as externally (Hart & Moore, 1990). According to Subramanian

and Swaminathan (2003) the most important internal corporate governance mechanism is the board of directors. The link between the board and company performance is crucial in the success of company performance (Arntz, 2010) and this linkage has spurred numerous research papers into the characteristics of boards such as the type of firm (Voordeckers, Gils, & Heuvel, 2006) the country (Dan R. Dalton and Idalene F, 1987), the differing legislation that they need to adhere to (Luoma & Goodstein, 1999) and adapting to changes in the environment (Boeker & Goodstein, 1991). The researcher has discovered that very limited research into the composition of the board of an organisation and the company performance specifically in the real estate sector has been conducted locally. According to Shaw (2012) the real estate sector being is excluded from analysis is due to the sector typically operating as trusts and being managed by boards, rather than a CEO and management team (Shaw, 2012).

1.2: Real Estate Boards

Following on from the study by Shaw (2012) further investigation revealed that real estate investment trusts (REITs) operate in a unique regulatory environment (Ghosh & Sun, 2014). This is highlighted by the fact that in order to qualify as a JSE-listed REIT, the investment vehicle must adhere to the following rules as set by the South African REIT Association (2015):

Table 1: REIT Qualifying Criteria

No	Qualifying Criteria
1	Own at least R300 million of property.
2	Keep its debt below 60% of its gross asset value.
3	Earn 75% of its income from rental or from property owned or investment income from indirect property ownership.
4	Have a committee to monitor risk.
5	Not enter into derivative instruments that are not in the ordinary course of business.
6	Pay at least 75% of its taxable earnings available for distribution to its investors each year.

Due to the fact that REITs have to satisfy several special regulations in order to operate, it is not unreasonable to assume that this may result in weak or ineffective mechanisms that are put in place to control agency problems (Han, 2006). One such problem was the ability of larger shareholders (blockholders)

being able to expropriate wealth from smaller outside shareholders (Friday, Sirmans, & Conover, 1999). This unique operating environment and structure provide an exceptional opportunity to study this issue from a corporate governance and company performance perspective.

1.3: Previous research

From an international perspective, the association between the structure of the board and a company's performance has been researched quite extensively, with research spanning across various countries such as India (Chatterjee, 2011), China (Wu, 2009), Malaysia (Johl, Kaur, & Cooper, 2015), Bangladesh (Rashid, De Zoysa, Lodh, & Rudkin, 2010), New Zealand (Bathula, 2008) and Pakistan (Awan, 2012).

In developed countries, research has been conducted in the USA (Bhagat and Black, 2002), (Brick and Chindamba, 2010), UK (Guest, 2008), (Kaczmarek, Kimino, & Pye, 2012), Japan (Miwa & Ramseyer, 2005), Canada (McIntyre, Murphy, & Mitchell, 2007), Switzerland (Schmid & Zimmermann, 2008) and numerous others (Larmou & Vafeas, 2009), (Gill, Vijay, & Jha, 2009).

In Africa, research on the topic is more limited, with one paper being published in Ghana (Kyereboah-Coleman & Biekpe, 2006). Similarly, research on the subject is limited in South Africa , and to the best of the researcher's knowledge, comprises wholly of (Ntim, 2013), (Khumalo, 2011), (Semosa, 2012), (Meyer & de Wet, 2013) and most recently (Muchemwa, 2014).

In order to better contextualise the state of the industry, a summary of all extant literature follows.

At the start of the decade, Ntim (2011) attempted to prove a relationship between the proportion of independent directors serving on a board and the firms performance. The paper found first-hand backing for agency theory and proved that boards that have a higher level of independence are also inclined to have an augmented capability to successfully advise, monitor and discipline corporate

executives. These firms were thus more capable of enhancing the firms' value and ultimately the overall performance.

The study by Ntim (2011) was a pioneering study in the efforts to examine the connection between independent non-executive directors (INED's) serving on a board and the performance of a company in South Africa. One shortcoming of the study by Ntim (2011) was that it was carried out on data over a five-year period commencing in 2002, and consequently, the study reflects currently obsolete governance practises. This is due mainly to the enactment of the Companies Act of 2008 as well as the release of the latest King III Report (2009). (Meyer & de Wet, 2013).

Shortly thereafter, Khumalo (2011) examined the impact that board size has in relation to shareholder value over a span of four years (2005-2008). The study found no correlation amoung board sizes the return on equity (ROE), nevertheless, evidence was presented that showed that the number of independent directors are negatively correlated with the return on equity. Although promising at first, a shortcoming to the study carried out by Khumalo (2011) is that dual-listed companies were used and as a consequence, the composition of the board may be influenced by foreign policies because company listings outside of South Africa will need to conform to a separate set of rules that are governed by the country in which they operate. His results may thus not accurately describe the board structure of South African firms (Meyer & de Wet, 2013).

Soon thereafter, Semosa (2012) investigated the relationship between board structure and company performance specifically in the South African platinum industry. The research findings showed that that a small proportion of the boards of directors had a statistically significant negative relationship compared with performance of the company. However, a major limitation of the research is that it only examined five firms within the platinum industry, and this limited the comparability to South African firms outside of the platinum industry. The small size of the sample raises concerns about the quality of empirical evidences (Meyer & de Wet, 2013).

The next year, Meyer & de Wet (2013) attempted to examine the relationship between board structure and firm performance of all South African JSE-listed companies. Data was collected for a total of 126 companies over a three-year period (2010 to 2012), which coincided with the King III governance code that came into effect in 2010, and it therefore addressed the limitation of the Khumalo (2011) study. Meyer & de Wet (2013) found that as the number of independent non-executive directors increased, the percentage of shares owned by board members decreased. Furthermore, a significant inverse relationship between the number of directors serving on the corporate board and the percentage shares owned by board members was also found.

The main limitation of the study was that it focussed only on the number of directors as a measure of the composition and failed to consider aspects such as age, gender or qualifications of the board members.

The most recent study conducted by Muchemwa (2014) included an analysis of JSE listed firms between 2006 and 2012 in order to determine if there was an association between board structure, board size, and the performance of the firm. The findings suggested that the independence of the board of directors was not a significant contributing factor of company performance as measured by Tobin's Q. A positive insignificant relationship was shown between a large board and performance of the company.

Muchemwa (2014) goes on to state that that there is insufficient research into factors that affect company performance and much more needs to be done in this sector with special emphasis on the structure that a board employs.

1.4: Motivation for the Study

The motivation for this study is thus based on the gap in research identified in the contradictory findings of Meyer & de Wet (2013) and Muchemwa (2014) as well as the limited research into the effect board composition (i.e. age and gender) on firm performance. Also, according to Brennan (2006), the monitoring duties of a

board are influenced by various factors such as the size of the board, the culture of the board and the diversity of the board. Numerous studies have been conducted internationally which will be dealt with in detail in the literature review, however, many have yielded contradictory results in establishing any link between board composition and firm performance (Uadiale, 2010). The contradiction of the results in the papers mentioned emphasises the need for a study of this nature.

Furthermore, little has been done by way of research in this area that specifically focuses on the real estate investment sector in South Africa. The focus on real estate is motivated by the unique regulations that real estate trust structures have to satisfy, and this has the potential to weaken mechanisms to control agency problems.

In support of this point, it was shown in the study by Han (2006) that the interests of shareholders and managers in real estate trusts are far better aligned since shares can be sold quickly if firm performance deteriorates. Thus the findings of this research study will provide unique insights into the effect these regulations have on the structure of real estate boards and further what impact structure of these boards has on the performance of the company as a whole, if any.

1.5: Significance of the study

The findings of this paper will have both academic and managerial relevance. The findings will have academic relevance because very limited research has been carried out in the South African real estate market sector that specifically deals with the unique composition of board structures that are prevalent in the real estate investment trust category. Furthermore, to the best of the author's knowledge, this paper will be the first of its kind in the South African real estate investment sector and thus a robust analysis of firm performance in relation to the composition of boards in the real estate investment trust sector is required. Practically, the findings of this paper could also be used by management of both real estate and real estate investment companies when considering recruitment

strategies for their companies as well as the decisions of staffing boards that play a critical role in driving the company's strategy and future sustainability

1.6: Objectives of the Study

The main objective of this research was to investigate the effect board composition (that was represented by the variables age of CEO, size of the board, proportion of independent directors and proportion of female representation) has on a firm's financial performance (that was measured by return on assets (ROA). For the purposes of this study, the effects of board performance were benchmarked against ROA, as this has been used in previous research papers conducted internationally and locally.
The main objectives of this research are thus:

- To examine the association between the size of the board and REIT performance in South Africa.

- To examine the association between the age of the CEO and REIT performance in South Africa.

- To examine the association between the proportion of independent directors and REIT performance within South Africa.

- To empirically examine the relationship between the proportion of female representation and performance of REITs in South Africa.

The final objective of this paper is to collate the results and compare them with previous international studies of a similar nature in order to gain better insights into how the South African REIT sector compares to other countries and also other sectors of the economy based on its composition of the board.

1.7 Conclusion

The real estate sector has previously been one that was difficult to assess in comparison to other companies in terms of board composition. The main reason for this according to Shaw (2010) is that many real estate companies do not operate in the traditional structure of CEO and management team, but rather as a board of directors that is tasked with guiding the financial performance of the entity.

However in analysing the listed REITs on the Johannesburg Stock Exchange it was found that all of them operate in the conventional CEO and management team structure, making this ideally placed for the analysis. Other studies have included all sectors of the economy into the analysis citing that adherence to International Financial Reporting Standards (IFRS) and the implementation of corporate governance code are crucial in analysing companies. (Mahadeo, Soobaroyen, & Hanuman, 2012).

Given that REITs operate within the ambit of IFRS standards and adhere to the requirements of the JSE, not only is data reliable but also publicly available. The real estate sector is thus a prime sector of the market in which to analyse the diversity of the board as given by age, gender, size and independence in relation to the performance as measured by return on assets (ROA).

Chapter 2: Theory and Literature Review

2.1 Introduction

According to Hermalin & Weisbach (2003), boards exist simply as a product of regulation that consists of a combination of insiders and outsiders functioning as the principal to management's agent as outlined in the classic principal agent framework.

According to Eisenhardt (1989), a board's main function is to protect the stakeholders that invest their money into the business. This is achieved through ensuring that all decisions made are reviewed and are cognisant of the best interests of the investors and ultimately ensuring the success of the corporation through effective decision control. The definition of board effectiveness remains open to interpretation, due to the fact that there is still much argument about the tasks and the roles that a board should execute (McIntyre et al., 2007). Most recently, Leblanc and Gillies (2005), found that the structure of the board is critically important in ensuring the best interests of the board are always kept in the foreground of decision making.

Numerous studies have been conducted into the relationship between the composition of a board and the firm's performance, however the majority of the studies focused on the size of the board and independence of the directors as the unit of analysis (Khumalo, 2000; Kyereboah-Coleman & Biekpe, 2006; Muchemwa, 2014; Semosa, 2013). In this section there will be a discussion of the relationship between board composition and company performances derived from existing literature on the subject. This will then be followed by an explanation of the rationale in choosing board size, independence, female representation and age of CEOs as the variables for analysis, and finally a conclusion that will summarise the main ideas of this section.

2.2: The agency problem

Although beyond the scope of this research, it is important to highlight the agency relationship that exists between the managers and shareholders and to draw the

distinction between ownership and control in order to better grasp the concepts that follow.

As mentioned in the introduction, a board's main function is to protect the stakeholders that invest their money into the business (Eisenhardt, 1989). The agency problem arises when the "separation of ownership from control produces a condition where the interests of owner and of ultimate manager may, and often do, diverge'' (Berle & Means, 1968, cited from McIntyre, Murphy, Mitchell, 2007, p. 548). In order to mitigate the agency problem, theorists suggest that board independence will greatly assist in aligning the interests of shareholders and boards as they are better monitored (Hillman & Dalziel, 2003).

2.3: Board composition and company performance

As discussed above, board composition is crucial to overcoming the agency problem. Board composition can be defined as a measure of the proportion of independent non-executive directors to the total number of directors in a company (Kyereboah-Coleman & Biekpe, 2006). Common assessments of board composition include executive and independent non-executive (Muchemwa, 2014).

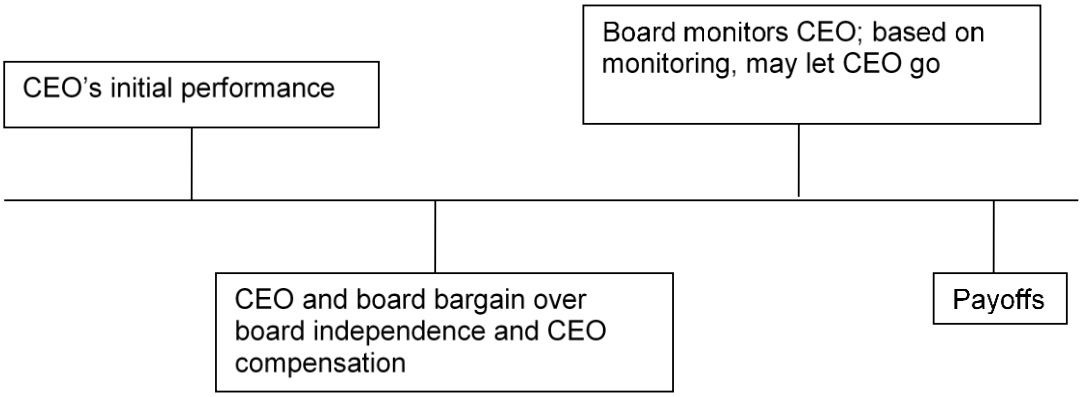
According to Ramakrishnan (2012), boards are formed to not only ensure that the performance of the company is kept at an acceptable level to shareholders, but also to manage the shareholder expectations while complying with the relevant legal, statutory and regulatory requirements. Along with issues of corporate governance, boards' optimal composition is becoming more critical (Khumalo, 2000). Williams and Anne-Ho (2000) showed that increased diversity on boards correlates with increased company performance. Erhardt, Werbel, and Shrader (2003) purported that diversity can be viewed as a "functional" characteristic of a group of a people assigned to a particular common task (i.e.: board), and that such functionality provides a significant competitive edge to the organisation as a whole.

On the flipside, Murray (1989) found that although diverse boards possess the advantage of "enhanced capability" and "greater creativity" over the longer term,

there are more shorter term tangible benefits for a homogeneous board as these types of boards have the ability to better influence other members, are more consistent and allow for better relational communication, which in turn leads to improved organisation and executive results. This point is reinforced in Carter, Simkins and Simpson (2003), who found that diversity could first be seen as an ethical concept and does not hypothesise a link with organisational performance.

In order to properly assess the impact that board composition has on the performance of a company one also needs to consider the CEO, who can also be viewed as an important director as well (Hermalin & Weisbach, 2003). A board specific model presented by Hermalin and Weisbach (1998), focused on decision to hire or fire the CEO and the timing impact the decisions a CEO makes today will have on the board in the future. A summary of the model is presented in Figure 1.

Figure 1: Hermalin-Weisbach Model of Timing



Source: (Hermalin & Weisbach, 2003)

The Hermalin-Weisbach model helps to predict and explain the CEO and board relationship. From Figure 1, one can easily see that the CEO's performance is monitored at a point much later than the time that the initial decision was made. This has the effect of creating a bargaining process concerning compensation between the CEO and the Board. Once the effect of the decision is realised down the line, the CEO can either be fired or kept on to run the business.

In order to address this issue of timing, this research paper will include data for real estate investment companies since their inception, which will add credibility to the findings by showing the performance and effects of decisions made over the lifespan of the company, and not just at a point in time.

Previous research has not provided an undisputed indication on the dominance of mixed boards over non-mixed boards with regards to organisational efficiency. The published evidence focussed on developed economies such as the USA, UK and Australia (Mahadeo et.al, 2011). In order to enable a comparative study of the impact of diversity of board structure and company performance, the objective of this paper is to examine the elements of diversity given by size, age, gender and independence.

2.4: Board Size

Board size is quiet simply calculated as the total number of directors serving on the company's board (Meyer & de Wet, 2013).
In order to determine whether a bigger board size results in better financial performance of a company, an analysis of the board of directors that serve on a particular company is required (Barroso, Villegas, & Perez-Calero, 2011). Lipton and Lorsch (1992). found that a smaller board was more beneficial to the performance of a company as board with a smaller number of directors allows for a more interactive culture that promotes a sense of comradery between the directors and most importantly decisions are made quicker as consensus on items are reached much quicker in smaller boards.

Hermalin and Weisbach (2003) suggested that large boards can be less effective than smaller boards, as larger boards are more prone to agency problems such as director free riding. Pablo, Valentin and Felix (2005) argued that boards with a smaller number of directors are cohesive and dynamic and are thus capable to produce much better results for a business than larger sized boards.

Stewardship theorists contend that smaller boards promote involvement and social unity, whereas larger boards hinder the boards' capability in achieving

finality on significant judgements which can affect the overall performance of a firm (Muth & Donaldson, 1998).

Counter to this point, Nicholson and Kiel (2003) found that larger boards also provide certain benefits over smaller board sizes, because larger boards have a much greater propensity to review key decisions due to the sheer number of people that are involved in the decision making process. This creates a more efficient review process internally for key decisions.

Lipton and Lorsch (1992) proposed that boards containing eight or nine directors are seen to be better performing than boards with wither higher or a lower number of directors. This is supported by Jensen (1993), who suggested that the most efficient number of board members is approximately eight directors, and that any board with a larger number of directors are detrimental to the firms performance due to a breakdown in communication.

It could also be debated that the size of the board is not the most vital component to benchmark performance, instead it is the level of independence that is present on a board that is the driver of success (Dalton, Daily, Johnson & Ellstrand, 1999).

The three main views above are further reinforced in the work of Chatterjee (2011), who found that there are three main overarching schools of thought that exist when assessing the impact that board size has on corporate performance. The first stream of thought is that there is a positive link between board size and firm performance, and it is argued that as the size of a board increases, the ability of the board to make complex strategic decision is also increased as a consequence of the diverse knowledge, skill and expertise that each member of the board brings to the table. Golden and Zajac (2001) found that companies with smaller boards are presumed to have uncertain understanding in the ability to execute strategic changes.

The second school of thought is that larger boards have an undesirable influence on board structure, due mainly to group dynamics and social psychological reasons that infer that as board sizes increase, communication breaks down within the team. (Sundaram & Yermack, 2007). Moreover, a board with a large

contingent of member is much more expensive to fund an to manage due to the management and communication costs associated with it (Raheja, 2005).

The final school of thought according to Chatterjee (2011) is that there is an optimal board size that allows for the board to make the most optimal contribution to the company, anything below which will have positive relationship and anything above which will have negatively affect company performance. This view is further reinforced by the research of Lipton and Lorsch (1992) and Jensen (1993).

The aim of this paper was to determine what impact the size of a board has on its performance, from a South African real estate investment perspective.

In formulating the research question, the framework of Rodríguez Fernández, Fernández Alonso and Rodríguez Rodríguez (2013) was used, where a comprehensive list of studies relating to board composition and company performance was analysed. Various different measurements of profitability were used, ranging from market to book ratio (M/B), Return on Assets (ROA), Tobin's Q, Annual Stock Return (RET), and return on capital employed (ROCE). The results are shown in Table 1.

Table 2: Studies, characteristics, and board size

Study	Country	Board Size	Listed (Y or N)	Profitability Measurement
Alves and Mendes 2004	Portugal	+	Y	ROA
Barroso et al. 2009	Spain	+	Y	Economic profitability as a control variable
Barroso, Villegas, & Perez-Calero, 2011	Spain	+	Y	-
Crespi 2010	Spain	No relation	Y	ROA, ROE, Tobin's Q
Dalton R. & Idalene, 1987	International	+	N	ROA, ROE, Tobin's Q

Study	Country	Board Size	Listed (Y or N)	Profitability Measurement
Daraghma and Alsinawi 2010	Palestine	-	Y	Return on revenues/sales
Dey and Chauchan 2009	India	-	Y	Market Value Added and Tobin's Q
Di Pietra et al. 2008	Italy	No relation	Y	M/B
Fernandez et al. 1998	Spain	+	Y	Tobin's Q
Gill et al. 2009	International	No relation	N	ROA, ROE, Tobin's Q
Guest 2009	United Kingdom	-	Y	ROA, Tobin's Q
Jackling and Johl 2009	India	+	Y	ROA, Tobin's Q
Kiel and Nicholson 2003	Australia	+	Y	ROA, Tobin's Q
Kota and Tomar 2010	India	-	Y	Tobin's Q
Larmou and Vafeas 2010	International	+	N	M/B and operating income before depreciation divided by total assets
Lehn et al. 2009	USA	No relation	Y	M/B
McIntyre et al. 2007	Canada	+	Y	ROA, Tobin's Q, EVA
O´Connell and Cramer 2010	Ireland	-	Y	RET and FINANCIAL Q
Raja and Kumar 2008	India	+	Y	Tobin's Q
Reddy et al. 2010	New Zealand	+	Y	ROA, Tobin's Q, M/B
Uadiale 2010	Nigeria	+	Y	ROE, ROCE
Yammeesri and Herath 2010	Thailand	No relation	Y	Tobin's Q

Source: (Rodríguez Fernández et al., 2013)

Based on the evidence provided from the studies carried out in various countries, it was shown that of the 23 papers associated with the size of the board, 12 studies identified the relationship between board size and firm performance as positive, six found the relationship negatively correlated, and five found no

relationship. Although the majority of research does point to a positive link between board size and firm performance, there is no definite answer and it is clear that board size is dependent on various factors unique to a firm's operating environment and no one-size-fits-all recommendation can be given that would benefit all councils (Rodriguez-Fernandez, 2015). It is for this reason that the size of boards will form the basis for the first independent variable for analysis.

2.5: Age of CEOs

The connection between the age of the CEO and company performance is a topic that has not been extensively considered, although there is evidence in prior research that provides evidence of a connection between the two variables (Arntz, 2010). The importance of the association between age of the CEO and company performance is a topic that cannot be ignored. According to Adhikari, Bulmash, Krolikowski, and Sah (2015), one of the most significant deliberations associated to CEOs is their age. Yim (2013), found an inverse relationship between CEO age and a firms propensity of acquisition and reports that a firm with a CEO who is 20 years older is approximately 30% less likely to announce an acquisition. This is explained mainly by age-related CEO characteristics. Bertrand and Mullainathan (2003) argue that CEOs by nature prefer to live a life with little stresses and this tendency seems to increase over time. For CEOs undertaking strategies that will benefit the company such as acquiring other companies are seen to be expensive and stressful and are thus avoided.

Cline and Yore (2016) found that the age of the CEO is significantly inversely correlated to performance, and that mandatory retirement policies (MRPs) are an effective corporate governance mechanism to ensure success.

It was also revealed that from the literature that more mature personnel are more challenging to teach, have trouble adapting to new ways, are typecast, and as a consequence, companies steer clear of recruiting them (Adhikari et al., 2015). In support of this point, Zwick (2011) found that training effectiveness of older employees is diminished compared to younger counterparts. Henkens (2005) offers confirmation of certain mental devices that describe people's opinion on

the stereotyping of older employees. De Hek and van Vuuren (2011) found that older employees are less employable and that wages tend to exceed productivity at the end of a worker's career.

On the flipside, there is also literature that suggests older employees tend to behave more ethically as was demonstrated by a direct correlation CEO age to the standard of financial reporting (Huang, Rose-Green, & Lee, 2012). Furthermore, Adhikari, et al. (2015) argues that one of the most significant considerations associated to CEOs is their age, with younger CEOs inclining to want to progress their statuses with short-term goals, while older CEOs would opt for assignments that have a long term view (Sundaram & Yermack, 2007). This creates a "CEO horizon problem", which is a form of agency conflict that results when the managers' vision for the business does not coincide with the business' long term investment strategy.

There is much deliberation regarding whether or not to hire younger or older CEO's and how to remunerate them (Adhikari et al., 2015). It was argued by Sundaram & Yermack (2007), that the more mature CEOs focus on protecting their pensions and thus are more inclined to take decisions that benefit the business in the long run, contrast to this point, Prendergast and Stole (1996), found that younger CEOs tend to want to prove their abilities through riskier short term investment decisions that may not benefit the company in the long run (McKnight & Tomkins, 2004). This increase in firm performance should lead to higher compensation for younger CEOs, however there is also research that suggests older employees are more sought after due to the skills and wisdom they and thus are more desirable in the market (Loretto & White, 2006). These conflicting results were compounded by the study by Nelson (2005) that found no relationship between CEO ages, tenure or compensation, which has resulted in this becoming a secondary hypothesis to this paper.

Another argument that was presented by Kang, Cheng, and Gray (2007) was that the CEO's age is not the only factor that should be considered, but rather the entire age diversity of the board serving the company. It was argued by Gilpatrick, K. (2000), whilst it is not uncommon to perceive directors to be mature, middle

aged and experienced individuals, a company board should include a diverse array of age groups in order to remain competitive and to ensure that the board synergises correctly. The rationale behind this argument is that the older directors would provide experience, wisdom, and usually the economic resources that are required to support the business, while the middle group carries the major positions of active responsibilities in corporations and in society that will place the company in good stead for future growth. Finally the younger group would possess the energy and drive to succeed and plan ahead for the future. All three of these qualities are necessary if the company is to succeed over its competitors and remain at the forefront of growth and performance (Houle, C. O., 1990). For the purposes of this study, only the CEO's age shall be considered, because the CEO is considered to be the most important driver of strategy and vision on the organisation Rindova (1999).

2.6: Gender on boards

Gender diversity in companies and boardrooms is a modern ethical issue for companies and a significant contributor to entrenching ethical culture in an organisation is due to diversification at senior management level (Carrasco, Francour, Labelle, Laffarga, & Ruiz-Barbadillo, 2015).

Perrault (2014) showed that the presence of females on boards contributes significantly to the perception of the boards' trustworthiness and legitimacy, which in turn fosters shareholder trust. Another benefit of having high levels of gender diversity, according to Gilbert and Ivancevich (2000), is that the board is augmented with greater flexibility in the decision-making process due to a wider set of perceptions and views being represented.

Prior research on the subject of the positive contribution of female representation on boards has shown that female directors have the same, if not greater, levels of skills viewed in relation to the organisation in comparison to their male colleagues, and thus it was proven that companies can benefit from women's involvement in a firm (Arntz, 2010).

However, counter to the argument presented, research has also shown that boards with more females or females in top management do not seem to generate significant excess returns (Carrasco, Francoeur, Labelle, Laffarga, & Ruiz-Barbadillo, 2014). As recently as last year, Post and Byron (2015) found that board diversity has no effect on the performance of a company and that diversity served mainly as an enabler of action that are aligned to the primary responsibilities of the board.

A South African study conducted by Williams and Anne-Ho (2000), proved a statically significant positive relationship between company performance and the number of female directors. The study was concluded based on evidence from JSE listed companies. The main limitation of the study was that only the boards of two companies was analysed and no analysis of age or overall board size was conducted.

Furthermore, to the best of the researcher's knowledge, no such investigation has been carried out within the REIT sector in South Africa and it is for this reason that the gender of board members will be used as the third independent variable in the analysis of firm performance and board composition in REITs.

2.7: Board independence

With the onset of more stringent corporate governance codes, the need for independence is becoming increasingly important. South African governance codes maintain that the board of directors of any firm should reflect an equal balance of power and that the proportion of directorship should lean toward independent non-executive directors (IODSA, 2016).

Independent directors are also known as non-executive directors and they are primarily responsible for oversseing the management team (Geddes & Vinod, 2002).

Independent non-executive directors are very similar to non-executive directors however, according to the Institute of Directors (2009), they are distinguished by the following key traits:

Table 3: Description of key traits of INED's

Trait	Description
1	They are not a representation of a shareholder.
2	They do not have a direct or indirect interest in the company.
3	They have not been employed by the company or the group of which they currently form part, in any executive capacity for the preceding three financial years.
4	They are not a member of the immediate family of an individual who is, or has been in any of the past three financial years, been employed by the company or the group in an executive capacity.
5	They are not a professional advisor to the company or the group, other than as a director.
6	They are free from any business or other relationships that could be seen to interfere with their capacity to act in an independent manner.
7	They do not receive remuneration contingent upon the performance of the company.

Source: Institute of Directors, (2009)

In contrast to this is the concept of inside directors or executive directors who are involved with the everyday running of the business and serve as part of a greater executive committee, they might also own equity of the company (Geddes & Vinod, 2002).

Agency theorists have argued that the more independence a board possesses, the better the decision making potential of that board and the higher the potential for a positive impact on firm performance (Fama & Jensen, 1983; Shleifer & Vishny, 1997). There are numerous rewards to a mixed board as measured by a combination of outsider and insider directorships. These advantages arise as a consequence of the heightened decision making from more diverse boards, and this benefit would come at a considerable cost (Sanda, Garba, & Mikailu, 2011). According to Higgs (2003),"non-executive directors are elected for their 'independent' opinion and refreshing ideas."

Previous studies conducted in emerging economies have proved the positive impact non-executive directorship has specifically in relation to the reduction of

fraudulent financial reporting (Beasley, Carcello, Hermanson, Lapides, 2000). However, Mahadeo et al., (2012), argued that the state of being independent erodes over time and consequently the perceived benefit that the director brings is subject to the time that he/she serves. It is also possible that outside independent directors may serve on too many boards and thus might not be able to execute their duties effectively (Core, Holthausen, & Larcker, 1999).

King III recommends that boards should comprise an equal number of insider and outsider directors, with a slight weighting toward INED's/outsiders as this has the potential to reduce conflicts of interest (IOD, 2009). In contrast, other research suggests that there is no noteworthy association concerning the number of executive and INED's serving on a board and the firm's performance. This is reinforced in the study by Finegold, Benson and Hecht (2007) where it was found that of all the previous research carried out there is no consistent proof that supports the view that a larger number of INED's serving on a board will in any way increase the firms' performance. They go on further to state that reducing the number of executive directors will actually inhibit company performance as the company will now be starved of the industry skills and expertise insider directors will have.

According to Muchemwa (2014), there are numerous reasons for the indecisive results mentioned above. The three main reasons are:

1. A perfect balance between executive and independent directors would cause an irrelevant relation of the board (Wu, 2003).
2. Relationships between variables muddles the interpretation of the results in certain studies (Finegold et al. 2007).
3. Company performance and board structure are internally related and thus are a function of both past and future board structure. (Panasian, Prevost & Bhabra, 2008).

While majority of the research is centred around developed economies, there remains a gap in determining whether such directorships can lead to better financial performance overall (Mahadeo et al., 2012). Further, Panasian et al., (2008), remarked that even though there is unconvincing evidence based on the

results of previous research there is still a large international following that supports a higher level of independence on boards.

2.7: Conclusion

In order to provide a suitable context for this study, a summary of relevant research of a similar nature that was carried out using board size and CEO age is provided in Table 2. The research shows no conclusive result on the impact board size or CEO age has on the firm's financial performance as a whole. This paper will thus make use of similar approaches used in previous literature which shows statistical regressions to be the most common method of analysis when investigating the impact of variable on the performance of a company (Mahadeo et al., 2012).

It has been shown that the board size, gender, age and independence are all critically important factors in selecting aboard. Yet much doubt still remains whether each factor creates or destroys value for the shareholders of the company. Given the numerous contradicting findings from studies conducted across various sectors of the economy and within different countries around the world, it becomes abundantly clear that there is no "one-size-fits all" answer in determining if these factors relate positively or negatively to firm performance.

Table 4 summarises previous pertinent studies relating to board composition and performance.

Table 4: Summary of Previous Studies

Article ID	Sample/Data	Approach/Method Used	Variable Measured	Results
Adhikari, Bulmash, Kroklikowski, Sah (2015)	Annual observations of CEO tenure and age from 1992–2012. This period of data is divided into two periods, namely, before and after SOX	Analytical techniques including multivariate regressions (OLS, median regression, pooled regression, and fixed effects regression), regressions with interaction terms, regressions on split samples (based on CEO age),	CEO Age	Evidence suggests that older CEOs have an "age advantage" as they are perceived as ethical, reliable, and responsible
Bermig and Frick (2007)	German firms listed in the DAX, MDAX and SDAX over the period 1998-2007 (n=294 companies with some 2,400 firm-year-observations)	A series of cross-sectional multivariate regressions ROE, Shareholder Return & Tobin's Q	Board Size	Not able to show a consistent effect of board size and structure neither on valuation nor on performance.
Chatterjee, Sh. D. (2011)	Attempts to describe the relationship between board composition and performance in Indian firms	Tobins' Q as well as accounting-based measures used are profit before interest and tax (PBIT), profit after tax (PAT)/ sales, economic value added (EVA)	Board Size	Larger boards are less effective than small boards in all the categories apart from PSUs.
Cline and Yore (2016)	Studied the merits of CEO mandatory retirement policies (MRPs) using a sample of 12,610 firm-year observations from 2143 unique firms	Tobins' Q	CEO Age	CEO age is significantly negatively related to firm value, operating performance, and corporate deal-making activity

Coleman and Biekpe (2006)	Examined the impact of board size, board composition and CEO duality on performance	ROA, Tobin's q and Growth in sales of non-financial listed firms on the Ghana Stock Exchange	Board Size, CEO Duality	Firms in Ghana are encouraged to maintain smaller board sizes and adopt the two-tier board structure for effective performance.
Dalton and Kesner (1987)	This paper provides an empirical assessment comparing board composition and CEO duality between samples (n=150) of Japanese, United Kingdom, and United States industrial firms	Series of correlation matrices	Board Composition	Results indicate gross differences between CEO duality and board composition when comparing industrial companies in Japan to either the United Kingdom or the United States.
Deysel and Kruger (2015)	Determine whether a long-term correlation is present between South African CEO compensation and company performance in the banking sector	Two measures of company performance, namely market performance (share price) and accounting performance (return on equity, EBITDA and HEPS).	CEO Compensation	No correlation was found with company size
FitzRoy and Kraft (2005)	179 firms in 2 unbalanced panels for the periods 1972-1976 and 1981-1985	Estimation of Cobb-Douglas production functions with sales as dependent variable (estimation with difference-in-differences approach as suggested by Hausman-Taylor)	Co-Determination (Relationship between managers and employees)	While all forms of codetermination have a positive impact on sales growth, firms with parity-codetermination show the highest growth
Friday, Sermans and Conover (1999)	Examine the relationship between ownership structures and firm value for REITs	Market-to-book ratios, regression analysis	Ownership	Increased insider ownership leads to increased market-to book ratios

Gorton and Schmid (2000)	82 German firms in 1975, 56 in 1986	OLS-regression to determine the effect of codetermination on market-to-book ratios and return on equity	Co-determination (Relationship between managers and employees)	Parity-codetermination has no significant impact on market valuation, but a negative impact on ROE by 3.25 basis points
Guest (2008)	The impact of board size on firm performance for a large sample of 2746 UK listed firms over 1981–2002.	Tobin's Q and share returns	Board Size	No evidence that firm characteristics that determine board size in the UK lead to a more positive board size–firm performance relation
Han (2006)	Relationship between insider ownership and firm value in REITs	Panel regression technique, Tobins' Q	Ownership	significant and robust nonlinear relationship between REIT insider ownership and Tobin's Q that is positive at low levels but turns negative at high levels of insider ownership
Johl, Kaur, Cooper (2015)	To examine the impact of board characteristics and firm performance	Various Accounting measures	Board Size	Board independence does not affect firm performance, whilst board size and board accounting/financial expertise are positively associated with firm performance.
Kulliman (2011)	Investigates a relation between the size, composition and remuneration of a firm's supervisory board and that firm's performance.	Tobin's Q, Return on Assets and monthly returns used to calculate the Average Abnormal Return and Cumulative Abnormal Return.	Board Size, Remuneration	Finds a negative relation between the fraction of independent board members and the performance as measured as ROA, Tobin's Q, AAR and CAR.
Larmou and Vafeas (2009)	Examine the relation between board structures and board workings to firm value has	Statistical regressions	Board Size	Board size is found to be positively correlated with firm value in between-firms tests, and changes in board size are found to be positively associated with annual stock returns

Lefort and Urzua (2008)	Investigate board independence and firm performance in Chile	Tobins' Q and Regressions	Independence of Board	An increase in the proportion of outside directors affects company value
McIntyre, Murphy and Mitchell (2007)	Empirically examines the relationship between key board composition variables and firm performance	cross-sectional regression analyses to examine the nature of the relationships between board composition and firm performance	Experience/Age	High levels of experience, appropriate team size, moderate levels of variation in age and team tenure were correlated with firm performance
Schmid and Seger (1998)	160 observations of German firms for the years 1976, 1987, and 1991 (number of firms not available,1991 sample contains 63)	Regression of market-to-book ratios on codetermination dummy	Co-determination (Relationship between managers and employees)	Equity of firms subject to parity codetermination valued on average 18% below firms subject to 1/3 codetermination
Strom (2007)	All non-financial firms listed on the Oslo Stock Exchange (OSE), 1989-2002, n=1135	Estimation of relationship between employee representation and other corporate governance measures on market valuation (measured by Tobin's Q) using simultaneous equations regressions		Negative impact of employee directors on the board on firm performance

Source: Adapted from Deysel & Kruger, (2015)

It can thus be inferred that each segment of the economy can be viewed independently as each would have its own contributing factors that affect the performance and composition of its respective board. Furthermore, to add to the complexity of the analysis, one needs to be cognisant of the unique environment that each sector operates in. In this research paper REITs were identified as a segment for analysis because a REIT operates in a very unique legal context. The legislation surrounding both the formation and running of these companies is unique to the real estate sector and cannot be found in any other company or listed segment in South Africa.

This will naturally require the CEO and management team to think about operating the company differently to ensure that the legal requirements are fulfilled. It is yet unknown whether the adherence to these regulations impacts the way the company performs financially or how the board structure is decided upon. It is for this reason that the importance of this study is reinforced to establish how these factors affect the unique structures found in REITs and more importantly how they can affect the real estate sector has a whole.

Chapter 3: Research Questions

The primary research questions are based on the conflicting findings presented by Rodríguez Fernández et al. (2013), who analysed various research papers across the world and found that of the 23 papers associated with the size of the board, 12 studies identified the relationship between board size and firm performance as positive, six found the relationship negatively correlated, and five found no relationship. It was inferred from the results that the expectation is thus that an increase in the size of the board will lead to better firm performance. The research questions are thus proposed as follows:

Research Question 1: What impact does the size of a board have on the performance of a real estate investment company?

Research Question 2: What impact does age of the CEO have on the performance of a real estate investment company?

Research Question 3: What impact does the gender proportion have on the performance of a real estate investment company?

Research Question 4: What impact does independence of the board members have on the performance of a real estate investment company?

The research method that was employed in this investigation was a regression analysis and bi-variate correlation (Keller & Warrack, 2003). This method was used because the aim is to investigate whether a relationship between two variables exists or not. According to Sekaran (2003), bivariate correlation tests whether the relationship between two variables is linear, so that if the value of one variable increases, the other variable also increases or decreases as the case may be.

The results are then be presented in a tabulated format that shows the number of variables and their respective correlation coefficient at a 95% confidence level (Arntz, 2010). In order to predict the relationship variables, a regression analysis will be performed.

3.2: Conclusion

The primary research questions that were answered revolved around four variables, namely, the size of the board, the age of the CEO, the proportion of female representation on the board, and the number of independent directors. Each variable will be assessed independently in order to ascertain whether it has a positive, negative or no impact on the return on assets of the respective company. The results will then be statistically analysed and a view of the overall real estate investment sector will be formed.

Lastly, from the data that is presented, a comparison of similar international studies will be undertaken in order to contextualise the findings of this paper with that of international research.

Chapter 4: Proposed research methodology and design

4.1: Choice of methodology

The research method was quantitative in nature, characterised by the use of secondary numerical data which allowed a robust statistical analysis in the form of a regression to be performed. This research followed on from previous research of a similar nature conducted by Shaw,(2000), Kyereboah-Coleman & Biekpe (2006), and Larmou & Vafeas (2009), which involved a desktop study that was archival in nature and where the researcher gathered information from a range of secondary sources that was publically available in order to analyse either the EBITDA, ROA or Net Income of the sample companies.
For the purposes of this study, ROA was be used. This proxy was selected as it performed better overall in comparison to the other independent variables with regards to their significance-level and absolute value (Arntz, 2010).

In instances where incomplete data was found, annual financial reports of that specific company were used to supplement the data. These annual financial reports are publicly available in accordance with JSE regulations and are therefore credible.

4.2: Population

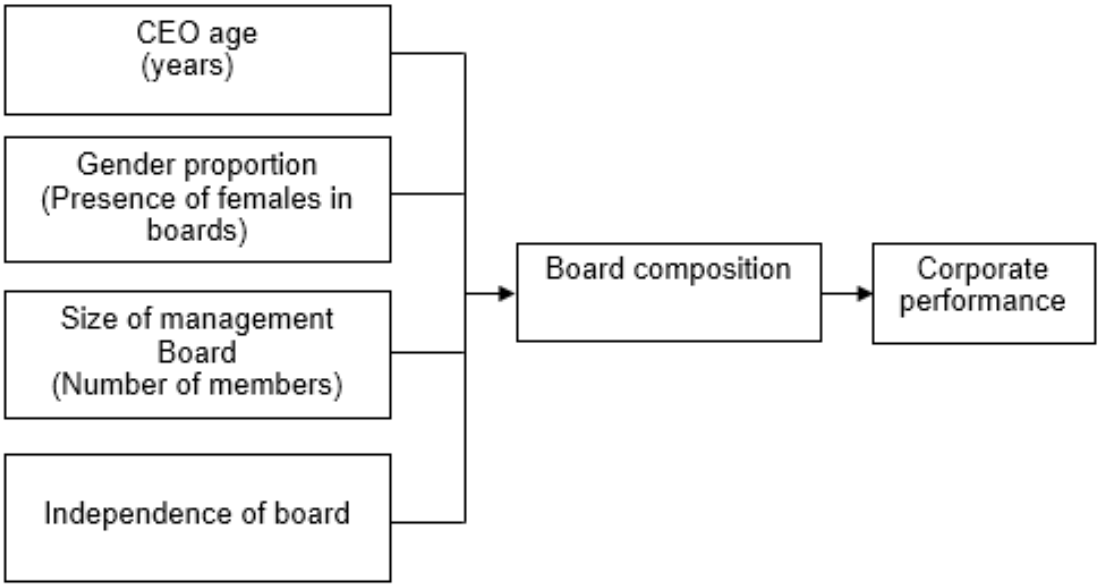
The population for this study comprised 33 real estate investment trusts (REITs) that are listed on the Johannesburg Stock Exchange. It was decided to limit the population to REITs only due to their unique structure and legislative requirements. Due to the fact that REITs are relatively young and were only introduced into the South African market in 2003, data for the companies will be collected from the date of inception of the company up to present year.

4.3: Unit of analysis

In this study, the effects on firm performance comprised four independent variables, namely: CEO age, gender diversity, independence, and board size. A graphical representation of the flow of analysis is represented in Figure 1, which

shows CEO age, gender, independence and board size together, showing the board composition that in turn affects company performance.

Figure 1: Relationship between board composition and firm performance (adapted from (Arntz, 2010)).



4.4: Sampling method and size

This study focussed on 33 South African JSE listed businesses. A total population sampling method was employed in this study as the sample size for this study at the time of the writing consisted of 33 JSE-listed real estate investment companies. All 33 companies were used in the analyses of this paper which provided a sufficient sample size to conduct the analyses.

A detailed analysis of four main factors that make up the board structure was undertaken. The sample group is listed in Table 4.

Table 5: Sample Group

1. Accelerate Property Fund Ltd	2. Arrowhead Properties	3. Ascension Prop Ltd	4. BK One Ltd
5. Capital & Regional Plc	6. Delta Property Fund Ltd	7. Dipula Income Fund	8. Emira Property Fund
9. Equites Property Fund Ltd	10. Fairvest Property Holdings Ltd	11. Fortress Income Fund Ltd	12. Growthpoint Properties Ltd
13. Hospitality Property Fund Ltd	14. Hyprop Investments Ltd	15. Indlu Place Properties Ltd	16. Intu Properties Plc
17. Investec Australia Property Fund Ltd	18. Investec Property Fund Ltd	19. Octodec Investments Ltd	20. Orion Real Estate Ltd
21. Rebosis Property Fund Ltd	22. Redefine International Plc	23. Redefine Properties Ltd	24. Resilient REIT Ltd
25. SA Corporate Real Estate Fund	26. Safari Investment RSA Ltd	27. Schroder European REIT Plc	28. Stor-Age Property REIT Ltd
29. Sycom Property Fund	30. Synergy Inc Fund Ltd	31. Texton Property Fund Ltd	32. Tower Property Fund Ltd
33. Vukile Property Fund Ltd			

The main objective of the research was to determine whether or not a positive correlation exists between the board composition of a real estate investment firm (measured by age, gender, independence and size of the board) with the performances of their respective companies listed on the JSE. Data analysis was done through R-project (a software that aids in carrying out statistical analysis), and the tests that were incorporated were a bivariate correlation analysis and a regression analysis (Keller & Warrack, 2003).

A bivariate correlation tests whether the relationship between two variables is linear, so that if the value of one variable increases, the other variable also increases or decreases as the case may be (Sekaran, 2003). A simple linear regression analysis will also be performed. Regression analysis are carried out when one needs to explain the relationship between variables.
The process requires that an equation be developed which will describe the relationship between the respective variables and more importantly allow the research to predict the outcome given the value of certain variables (Keller & Warrack, 2003).

The analysis of data followed two main work streams. The first stream was the data collection and the second was the regression analysis to determine the impact that the independent variables had on the performance of each respective company. Data for the analysis was secondary in nature and is freely available due to the fact that the all the companies studied are publicly listed entities and are required by law to publish their financial results to the public.

4.5: Measurement instrument

As mentioned, all data that was used in this study was secondary data and was sourced from online databases such as McGregor BFA. If there was any missing data, it was supplemented by company reports and/or financial statements where appropriate.

The data used in this study was reliable as it would be necessary for the respective companies to comply with the requirements of the Johannesburg

Stock Exchange (JSE) and International Financial Reporting Standards (IFRS). These bodies ensure that all data companies provide adheres to a code of standards in line with international norms.

4.6: Analysis approach

As already mentioned, all data was sourced from McGregor BFA, an online database that stores company information. An extract of each company's financial statements, its board composition, the name of the CEO and the age of CEO was sourced from the database. The database also allowed for the calculation of the return on assets (ROA) ratio over the lifespan of the company.

The Return on Assets as an independent variable was calculated annually as with the following equation:

$$ROA = \frac{Net\ Income + Interest\ Expenses\ \times\ (1 - Tax\ Rate)}{\{\frac{Total\ Assets\ (start\ of\ period)}{Total\ Assets\ (end\ of\ period)}\} \div 2}$$ **Equation 1**

The dependent variables of age, gender proportion, board size and independence were calculated as follows:

$$Age\ of\ CEO = \frac{1}{n} \times \sum_{i=1}^{n} x_i$$ **Equation 2**

Where: n = is the number of years the CEO has been at the company
x = is the cumulative age of the CEO over his tenure

Board size was determined by simply counting the number of directors that were serving on the board of the company at the time of analyses.

The gender proportion variable was calculated from the perspective of female representation (Williams & Anne-Ho, 2000) and was calculated as the total

number of female board members in relation to the total size of the board. Equation 3 was used to determine this ratio:

$$Gender\ Proportion = \frac{Total\ Number\ of\ Females}{Total\ Board\ Size} \qquad \textbf{Equation 3}$$

The final dependent variable of independence was calculated in a similar fashion to that of gender proportion; however this variable was calculated from the perspective of the number of independent directors in relation to the total board size. This was done because the variable that is being studied is whether or not a higher level of independent directors affects company performance. The following equation was used.

$$Independence = \frac{Total\ Number\ of\ Independent\ Directors}{Total\ Board\ Size} \qquad \textbf{Equation 4}$$

Once the information was extracted, a rigorous analysis was conducted in Microsoft Excel in order to sort data by company name and date. Companies that did not comply with the JSE standards or that did not submit any revised financial statement for a specific year were disqualified and thus do not form part of this analysis, and the ROA of all remaining companies was then calculated. The resultant spreadsheet thus contained all raw data that would be used for further analysis.

The statistical analysis was carried out with the use of R-Core team, a software intended to execute various statistical tests on data. As mentioned previously, A detailed analysis of four main factors that make up the board structure will be undertake.

For the study on hand, we examine features of South African boards in terms of age, independence, gender and size. Secondly, a regression was employed to predict the association between the combined effects of various elements (Keller & Warrack, 2003).

A regression analysis includes the derivation of a mathematical equation that shows the association between the dependent variable (forecast variable) and the dependent variable (Keller & Warrack, 2003).

This equation is expressed as follows:

Company Performance = β_0 + β_1.boardsize+ β_2.age of CEO + $\beta_3$gender + $\beta_4$independence for all research questions.

In order to provide a better comparable model, the data was compared against previous similar research. This not only provided more context to the data but also provided some perspective into how the South African sector is structured in relation to other countries. The studies that will be used to contextualise the results of this study to are Erhardt et al., (2003); Kang, Cheng, & Gray, (2007) and Mahadeo et al., (2012). These studies were chosen as they all have very similar independent variables and used a similar method analysis as this paper.

4.7: Research limitations

Due to this study focussing specifically on JSE listed companies, the results might not be applicable to non-listed firms. Furthermore, the results are limited to the real estate sector and more specifically REITs and thus might not be generalised to all sectors of the economy.

The dependent variables used only comprised of factors that are widely used in existing literature and thus it is not known whether better results could be achieved by using other or more variables.

Furthermore, the results are based on the context of the South African economy and operating environment and thus might not be applicable in countries out of South Africa.

Finally, due to the time constraints imposed on this study, the sample size was reduced to include only REITs and a much better result could be achieved in the

South African context with a much larger sample size that could be extended to the entire JSE.

4.8: Conclusion

This study is based on a sample size of 33 JSE-listed companies. The research methodology was based on data gathered from credible secondary sources that was analysed through the primary dependent variables of ROA, with the independent variables being age of CEO, gender proportion on the board, the number of independent directors and the size of the board. The research questions being tested are whether the factors of board size, gender, age of the CEO and independence of the board impacts on the firm's performance in the context of South African real estate investment trusts.

Chapter 5: Results

5.1: Introduction

As mentioned in the literature review, the study was limited to JSE listed real estate investment companies. A full list of the companies that were assessed as well as those that were disqualified is listed in Table 5.1.

Table 5.1: List of Companies Assessed

Name of Company	Compliant	Reason for Disqualification
1. Accelerate Property Fund Ltd	Yes	
2. Arrowhead Properties	Yes	
3. Ascension Prop Ltd	Yes	
4. BK One Ltd	No	No data submitted–company suspended
5. Capital & Regional Plc	Yes	
6. Delta Property Fund Ltd	Yes	
7. Dipula Income Fund	Yes	
8. Emira Property Fund	Yes	
9. Equites Property Fund Ltd	Yes	
10. Fairvest Property Holdings Ltd	Yes	
11. Fortress Income Fund Ltd	Yes	
12. Growthpoint Properties Ltd	Yes	
13. Hospitality Property Fund Ltd	Yes	
14. Hyprop Investments Ltd	Yes	
15. Indlu Place Properties Ltd	Yes	
16. Intu Properties Plc	Yes	
17. Investec Australia Property Fund Ltd	Yes	
18. Investec Property Fund Ltd	Yes	
19. Octodec Investments Ltd	Yes	
20. Orion Real Estate Ltd	Yes	
21. Rebosis Property Fund Ltd	Yes	
22. Redefine International Plc	Yes	
23. Redefine Properties Ltd	Yes	
24. Resilient REIT Ltd	Yes	

Name of Company	Compliant	Reason for Disqualification
25. SA Corporate Real Estate Fund	Yes	
26. Safari Investment RSA Ltd	Yes	
27. Schroder European REIT Plc	No	No data submitted – Company is listed in Europe
28. Stor-Age Property REIT Ltd		
29. Sycom Property Fund	No	Not a REIT
30. Synergy Inc Fund Ltd	Yes	
31. Texton Property Fund Ltd	Yes	
32. Tower Property Fund Ltd	Yes	
33. Vukile Property Fund Ltd	Yes	

From Table 5.1, a total of 33 companies make up the entire JSE listed REIT sector. Two companies were excluded due to no data being submitted and another company was removed because it is classified as a Collective Investment Scheme in Property (CISP) and not as a REIT, which is beyond the scope of this research paper. No analysis was possible for these three companies and as such they were excluded from the sample.

Due to the fact that three companies were not included in the analysis due to non-compliance, the total sample size was 30 companies.

A descriptive analysis of each of the company's boards will be presented, followed by an analysis of each of the factors constituting board diversity as highlighted in the literature review. For the purposes of this study these factors are age, gender, size of the board and independence of the board. This will then be followed by a regression analysis to examine the effects each element of diversity has on performance of a company.

The independent variables comprise of:

1) Board size: Calculated as the total number of directors on a particular board.

2) Age: Categorised in terms of the number of directors on a particular board that falls within a specific age range.

3) Gender: Reflected as the proportion of male/female directors in relation to board size.

4) Independence: Reflected as a proportion of independent directors in relation to board size.

Following on from research of Mahadeo et al., (2012), Erhard et al., (2003) and Kang et al. (2007), return on assets (ROA) will be used as the dependent variable to benchmark financial performance.

5.2: Findings

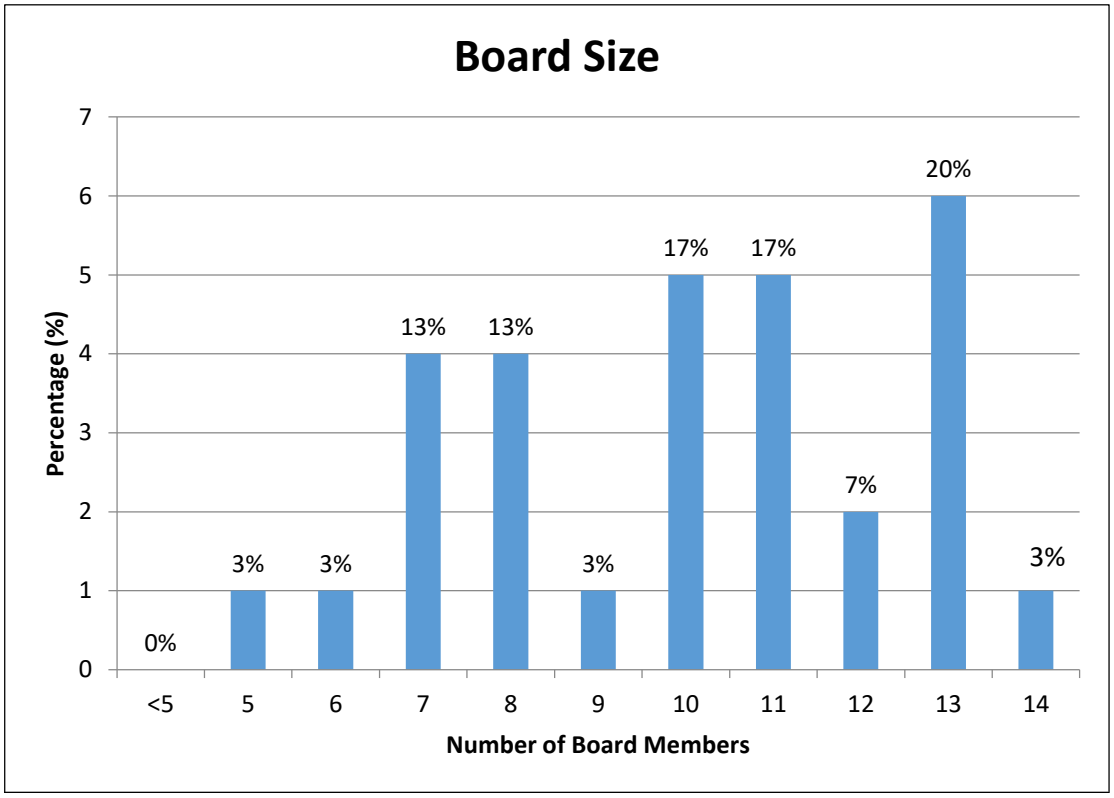
There were a total of 315 directors in all the 33 companies listed on the JSE engaged in real estate management. However, only 30 companies submitted data for their ROA. The 30 companies include a total of 301 directors as shown in Table 5.4.

5.2.1. The size of the board

Table 5.2: Size of board

Board size	Frequency	Percentage
<5	0	0%
5	1	3%
6	1	3%
7	4	13%
8	4	13%
9	1	3%
10	5	17%
11	5	17%
12	2	7%
13	6	20%
14	0	3%
Total	30	100%

Figure 2: **Size of board**



From Table 5.2 and Figure 1, it is shown that majority of the companies (20%) have a board size of 13 members. A detailed inspection of the companies analysed shows that 64% of companies have a board size of greater than 10. The minimum board size for REITs is five with only one company (3%) possessing this structure. The maximum board size is 14 members and only one company (3%) had this as well. The mean board size for listed real estate investment companies from the data collected is ten, and the median is also ten.

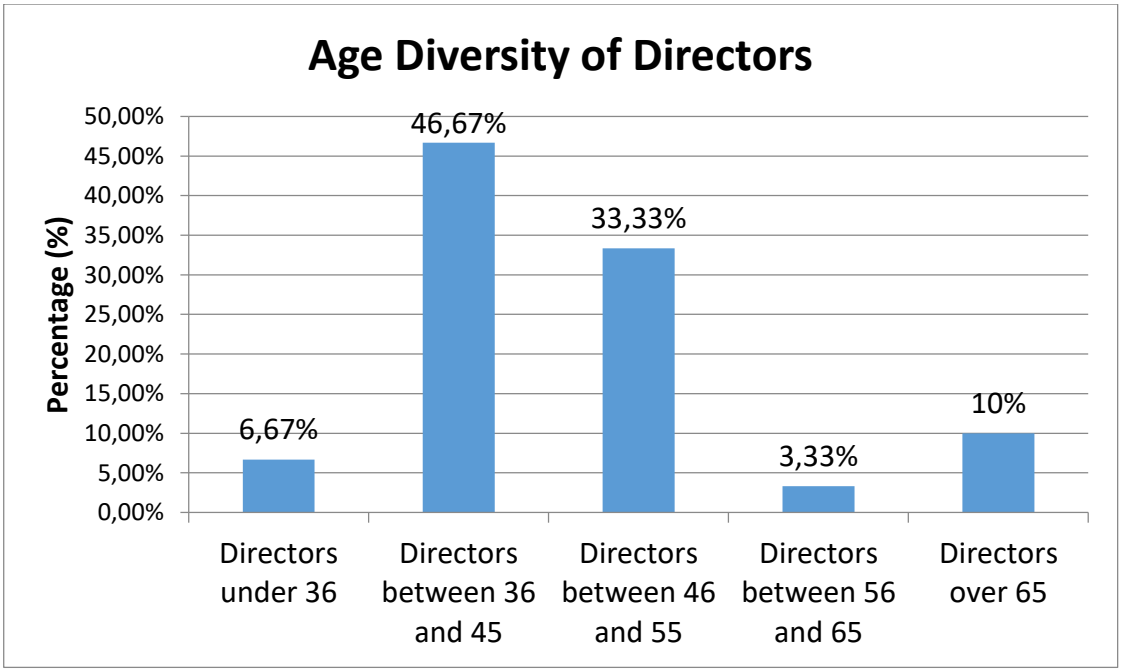
5.2.2. The age of the CEO

The age of CEOs was categorised as under 36, between 36 and 45, between 46 and 55, between 56 and 65 and over 65. This was done due to the spread of ages received from the data and to align with a previous study that will be used in the comparison of results. Mahadeo et al. (2012) found that this age categorisation was the most efficient to categorise the ages of the CEOs and was used in this study to assist in comparability.

Table 5.3: Age of CEOs & Directors

Age of CEO	Frequency (No. of Directors)	Percentage (%)
Directors under 36	2	6.67
Directors between 36 and 45	14	46.67
Directors between 46 and 55	10	33.33
Directors between 56 and 65	1	3.33
Directors over 65	3	10
Total	30	100

Figure 3: Age of CEOs & Directors



From Table 5.3 and Figure 2, it is evident that for real estate investment companies, the majority of directors are between 36 and 45 years of age, followed by 33% being aged between 46 and 55. Interestingly, 6,67% of directors are under the age of 36 and 13,33% of directors are over 56 years old.

From the 30 companies that formed the basis of this study, it is shown that the mean age of a director in a JSE-listed real estate investment company is 46 years old, with the youngest director being 34 years old and the oldest being 74 years old. The median age is 45 years old.

Table 5.4: Gender representation

Description	Frequency (No. of directors)	Percentage (%)
Male	256	85.05
Female	45	14.95
Total	301	100

Figure 4: Gender Representation

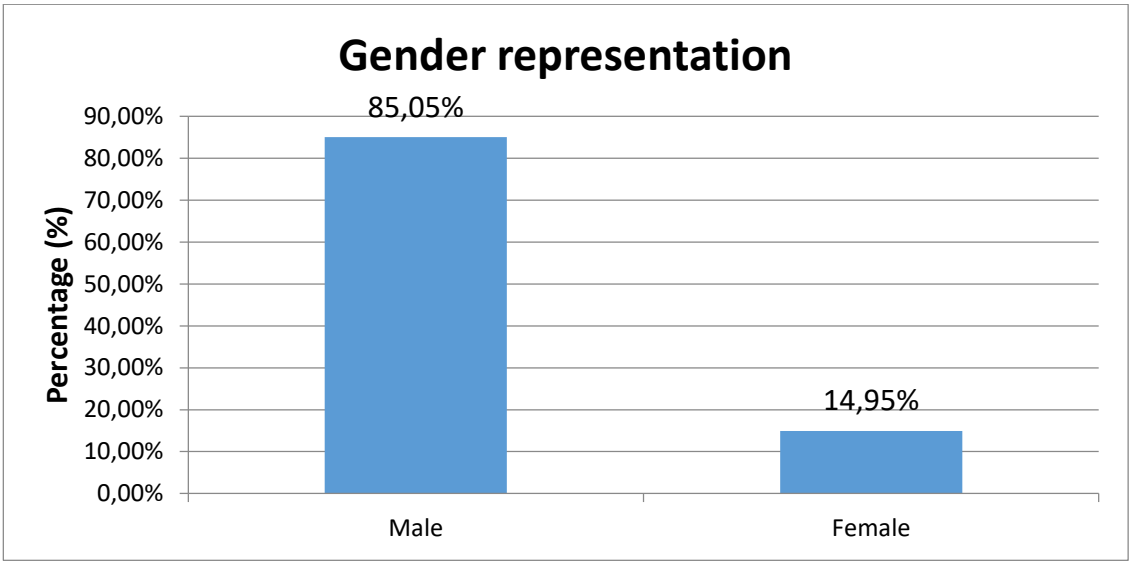


Table 5.5: Gender of CEOs

Composition of the Board	Frequency (No. of Companies)	Percentage
Number of Female Directors	29	96.67
Number of Female CEOs	1	3.33
Total	30	100

Figure 5: Gender of CEO

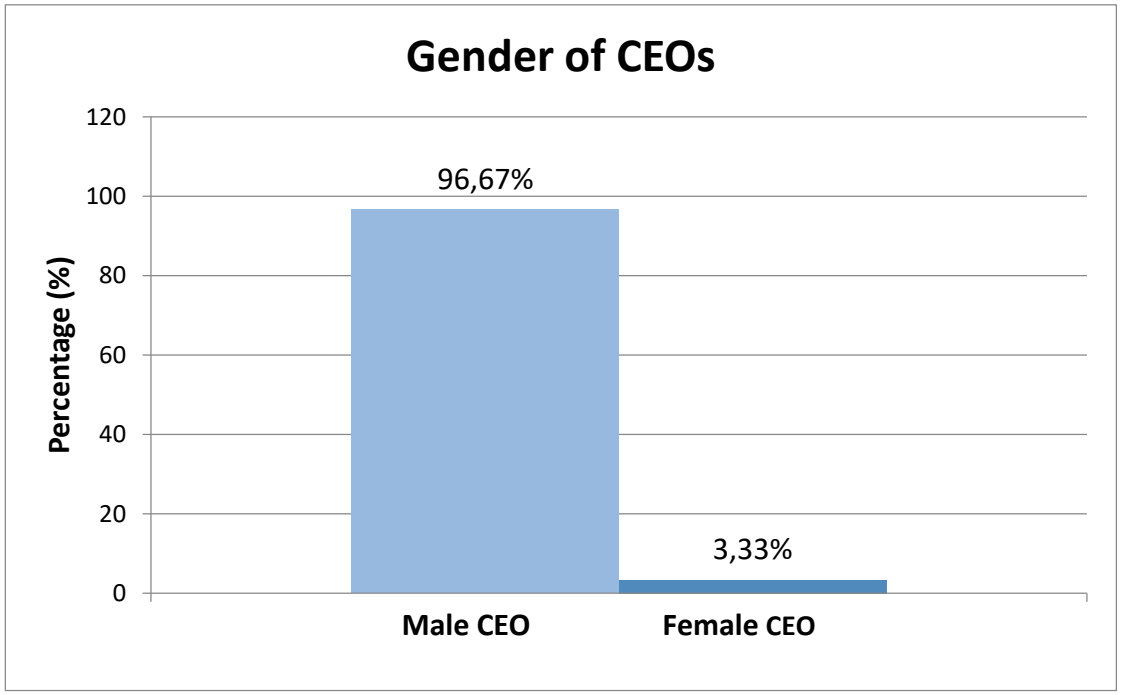


Table 5.4, Figure 3, Table 5.5 and Figure 4 relate to the gender representation of boards. The data shows that of a total of 301 directors in REITs, 256 (85.05%) are male and only 45 (14.95%) are female. Astonishingly, from the 30 total companies presented, 96,67% of CEOs were male, translating to just one female CEO within in the REIT sector. From the data analysed, the average proportion of female to male representation on boards is only 0,14, which means that on average for every 10 males that serve on a board there is only 1,4 corresponding females.

5.2.4. Independence of directors

Table 5.6: Independence of the board

Description	Frequency (No. of Directors)	Percentage (%)
Total number of directors positions	301	100
Executive directors	95	31.56
Non-executive directors	59	19.60
Independent non-executive directors	147	48.84

Figure 6: Indpendence of the board

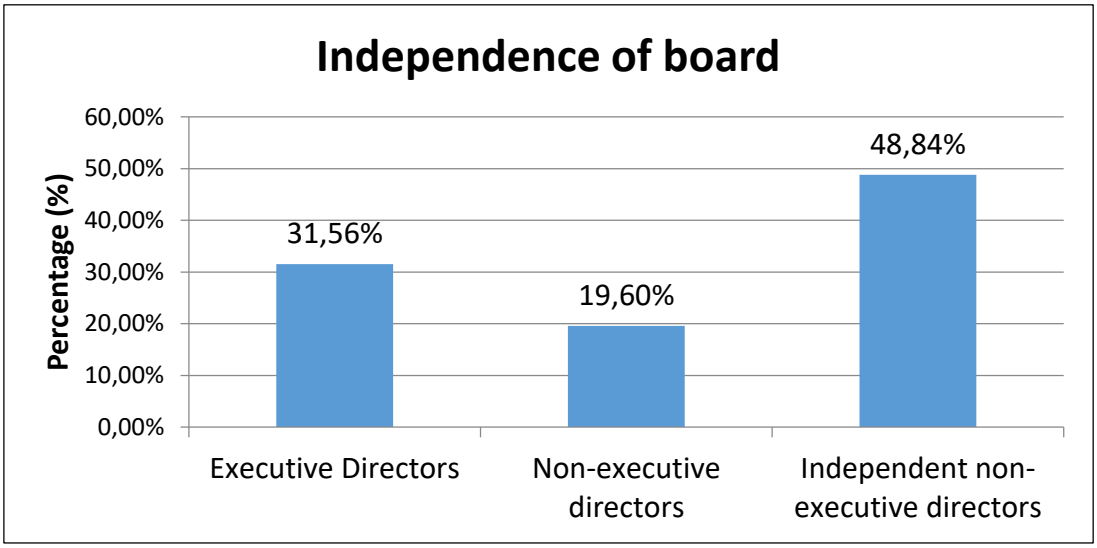


Figure 5 graphically represents the total number of directors split between executive, non-executive and independent non-executive. The majority of boards are made up of independent non-executive directors (48,84%), followed by executive directors (31,5%) and lastly non-executive directors (19,6%). The average proportion of independent directors to executive and non-executive directors is 0,48.

5.3. Data analysis

Table 5.7: Descriptive statistics

Variable	N	Minimum	Maximum	Mean	Median	SD
Proportion of Independent Directors	30	0.1	0.83	0.48	0.8	0.17
Proportion of Female Directors	30	0	0.38	0.14	0.14	0.08
Age of CEO	30	34	74	47	45	10.13
Size of Board	30	5	14	10	10	2.47
ROA	30	0.02563	0.16933	0.10694	0.10565	0.03208

From the descriptive statistics, it was revealed that on average, the boards of REITs comprise 48% independent directors, 14% of directors are female, the average board size is ten, and the average age of the CEO is 47. It is also important to note that the average return of assets is 10,69% for all listed real estate investment companies.

Table 5.8: Regression model (with all variables)

	Coefficient	P-value
Intercept	1.876458	**0.00640***
Gender [M]	-0.303791	0.51632
Female proportion	-0.709114	0.56522
Independence proportion	1.055427	**0.03334***
Age	0.005113	0.45515
Size	-0.108850	**0.00164***

The regression model performed on the dataset is given by the following equation:

$$ROA = 1.876458 - 0.303791\ \beta_1 - 0.709114\ \beta_2 + 1.055427\ \beta_3 + 0.005113\ \beta_4 - 0.108850\ \beta_5$$

The model with only significant predictors is given as:

$$ROA = 1.876458 + 1.055427\ \beta_3 - 0.108850\ \beta_5$$

Where:

β_1 is Gender (Male)

β_2 is Proportion of female directors

β_3 is Proportion of independent directors

β_4 is age of the CEO

β_5 is the size of the board

Table 5.9: Parameter estimates

F statistics	6.552
P value for F statistics	0.0005644
Adjusted R square	48.9
P value for autocorrelation	0.344
P value for homoscedasticity	0.33

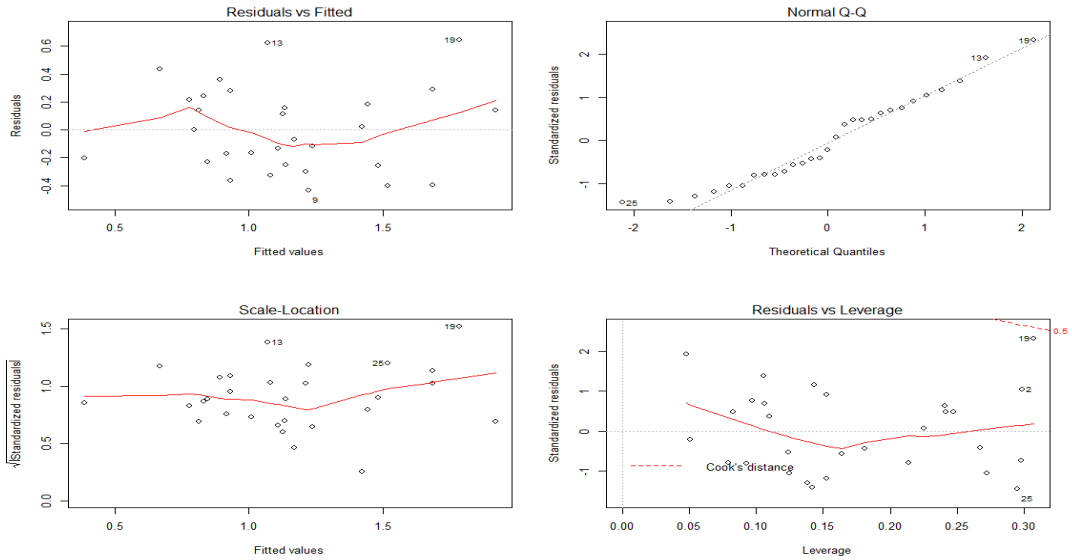
In order to ensure meaningful analysis of data, and to ensure that the assumptions of statistical analyses are met, certain assumptions will be tested (Osborne & Waters, 2002). For this research, data was tested for reliability through the use of the f-statistic, autocorrelation and homoscedasticity. The f-

statistics is 6.552 with a p-value of 0.0005644. A non-significant p-value (p=0.344) suggests a lack of autocorrelation that implies independence of error terms (Johnston, 1972). This means one cannot be able to predict the value of the outcome variable in any observation from the values in the other observations (Kmenta, 1986). A p-value of 0.33 suggests that the constant variance (homoscedasticity) is met and thus the scatter/variability of a variable is equal across the range of values of a second variable that predicts it (Johnston, 1972).

The variance inflation factor (VAF) for each of the predictors is below 5 which suggests that there is low multicollinearity among the predictor variables. The square root of the VAF indicates the size of the standard error; this means that the standard error of the coefficient of that forecaster variable is 2.2 times as large as it would be if that forecaster variable were not related with the other predictor variables (Allison, 1999).

The adjusted R square is 48.9%, which is an indication that the predictor variables explain 48.9% of the variability in ROA. The higher the R square the better the variables explain the outcome. Similar studies have yielded much lower R squares such as (Mahadeo et al., 2012) with a R^2 of 37% and (Chatterjee, 2011) with an R^2 of 22% with similar predictor variables being used.

Figure 7: Model Validation



From Figure 7, the Normal Q-Q plot (upper right) suggests that the residual values are normally distributed. If the points lie approximately on the line then the data is said to be normally distributed (Wilk and Gnanadesikan, 1968).

From the plot of the residuals and the fitted values (top left), there is no observable pattern, which indicates that the error terms have a constant variance. In addition, the points in the Scale-Location graph (bottom left) are random around the horizontal line, which is also an indication that the constant variance assumption has been met. From the Residual versus Leverage plot, observation 25 appears to be an outlier based on the Cook's distance value.

In order to verify whether removing the outlier will impact the model significantly, the regression will be re-run with the outlier removed; the results are presented in Table 5.10.

Table 5.10: Regression model (with outlier removed)

	Original model		**Model with outlier removed**	
	Coefficient	**P-value**	**Coefficient**	**P-value**
Intercept	1.876458	**0.00640***	1.684497	**0.01315***
Gender[M]	-0.303791	0.51632	-0.395787	0.39282
Female proportion	-0.709114	0.56522	-0.953410	0.43446
Independence proportion	1.055427	**0.03334***	1.167074	**0.01901***
Age	0.005113	0.45515	0.010749	0.17072
Size	-0.108850	**0.00164***	-0.107547	**0.00156***

The given model is:

$ROA = 1.684497 - 0.395787\ \beta_1 - 0.953410\ \beta_2 + 1.167074\ \beta_3 + 0.010749\ \beta_4 - 0.107547\ \beta_5$

Where:

β_1 is Gender (Male)

β_2 is Proportion of female directors

β_3 is Proportion of independent directors

β_4 is Age of the CEO

β_5 is the size of the board

The model with only significant predictors is given as:

$$ROA=1.684497+ 1.167074\ \beta_3 – 0.107547\ \beta_5$$

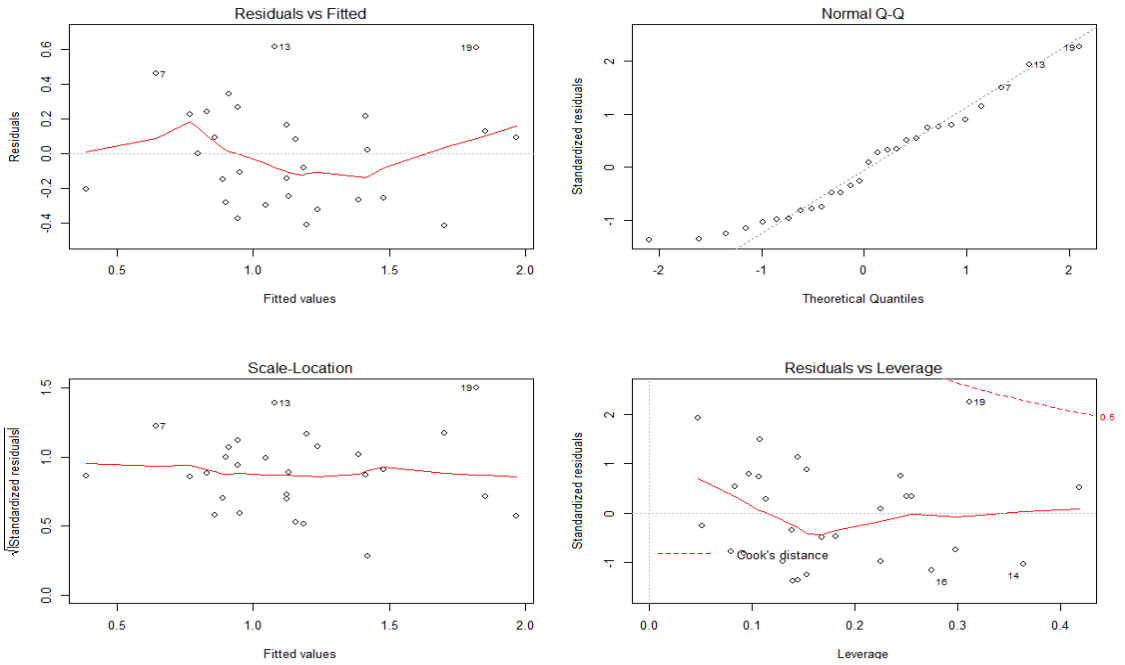
Table 5.11: Parameter estimates (outliers removed)

F statistics	7.31
P value for F statistics	0.0003143
Adjusted R square	53
Autocorrelation	0.248
Homoscedasticity	0.5749715

The f-statistics is 7.31 with a p-value of 0.0003143. A non-significant p-value (p=0.248) suggests a lack of autocorrelation, which implies independence of errors. A p-value of 0.5749715 suggests that the constant variance (homoscedasticity) is met. The variance inflation factor for each of the predictors is below 5, which suggests that there is low multicollinearity among the predictor variables.

The adjusted R square is 53%, which is an indication that the predictor variables explain 53% of the variability in ROA. The removing of the outlier only slightly increases the R^2 for the model from 48,9% to 53%, and thus for the purposes of this paper, the revised model will be used in further analysis.

Figure 8: Model validation



From Figure 8, the Normal Q-Q plot (upper right) suggests that the residual values are normally distributed. From the plot of the residuals and the fitted values (upper left), there is no observable pattern, which indicates that the error terms have a constant variance. In addition, the points in the Scale-Location graph (bottom left) are random around the horizontal line, which is also an indication that the constant variance assumption has been met. Lastly, from the Residual versus Leverage plot (bottom right), observation 25 appears to be an outlier based on the Cook's distance value, and deleting it had an impact on the parameter estimates and the overall fit of the model.

5.4: Summary

Table 5.12: Summary of parameter estimates

	Model (All Variables)	Model (Outlier Removed)
Intercept	1.876458	1.684497*
Gender of CEO [M]	-0.303791	-0.395787
Female proportion	-0.709114	-0.953410
Independence proportion	1.055427	1.167074*
Age	0.005113	0.010749
Size	-0.108850	-0.107547*
F statistics	6.552	7.31
P value for F statistics	0.0005644	0.0003143
Adjusted R square	48.9	53

Table 5.13: P-Values

	Model (All variables)	Model (outlier removed)
Autocorrelation	0.344	0.248
Homoscedasticity	0.33	0.5749715

A summary of the two models together with the validation of each is presented in Table 5.11 and Table 5.12. From the results of the analysis, the R^2 for the model that excludes outliers is higher and shows that the model explains 53% of the variability of the response data around its mean.

In terms of validation, both the autocorrelation and the homoscedasticity was found to be more favourable when the outlier was removed and thus the model being used for data analysis purposes is the one with the outlier removed.

The research questions that were presented in preceding chapters will be answered in conjunction with the statistical analysis provided above.

Research Question 1: What influence does the size of a board have on the performance of a real estate investment company?

From the data presented it is shown that the size of the board has a statistically significant weak negative correlation with the return on assets. This means that as board size increases, the ROA decreases slightly. From the data presented, an increase in the board size of 1 will result in a decrease in ROA of 0,1.

Research Question 2: What impact does age of the CEO have on the performance of a real estate investment company?

The age of the CEO does not have an influence on the ROA of a real estate investment company, however the correlation is a positive one.

Research Question 3: What impact does the gender proportion have on the performance of a real estate investment company?

Once again, there is no statistically significant relationship that was proved between the proportion of females serving on a board and the return on assets of the company.

Research Question 4: What impact does independence of the board members have on the performance of a real estate investment company?

The number of independent directors that serve on a board was found to be statistically significant with a strong positive correlation. From the data presented it is shown that an increase in the proportion of independence of 1 will result in an increase in ROA of 1.167.

Chapter 6: Discussion of Results

From the data presented in preceding chapters, a more detailed analysis will be carried out in the context of the exiting literature in order to better contextualise the results. A discussion of the results will also highlight whether or not the research objectives were met and will also compare the results presented to the literature

6.1: What impact does the size of a board have the performance of a real estate investment company?

6.1.1: Rationale for research question

The question of whether board size affects the performance of a company is one that has yielded varying results across different countries and industries. From the literature presented above it is clear that there is no universal answer as to whether board size affects performance. From previous research it was shown that three main schools of thought exist when it comes to comparing board size to company performance. The first was that there is a negative relationship, the contrary view was that there is negative relationship and finally a view was presented that stated that there is an optimal board size above or below which the firm will wither be negatively or positively affected.

It was extremely difficult to predict what the result would have been for real estate investment companies and thus the first research question was established that asked what impact the size of a board has on the performance of a real estate investment company.

6.1.2: Results

Table 6.1: Descriptive statistics – size of board

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Size of Board	30	5	14	10	2.47

Table 6.2: P-Value – size of board

Description	Coefficient	P-value
Size of Board	-0.107547	**0.00156***

From the data that was analysed from 30 JSE listed REITs, board size was found to be a significant negative contributor to the overall return on assets for real estate listed companies in South Africa. The means that as board size increases, the ROA decreases by a factor of 0,1 as shown in Table 6.2.

Also of importance to note is that the average board size from the 30 companies that were analysed is ten.

6.1.3: Conclusion

In order to contextualise the results presented, a comparison with similar research is presented in the table below:

Table 6.3: Size of Board Comparison

Author	Factor	Country	Impact on Performance
Chatterjee.S (2011)	Size of Board	India	-0,121
Arntz.R (2010)	Size of Board	Netherlands	+0,184
Mahadeo et al., (2012)	Size of Board	Malaysia	+0,016
This study	Size of Board	South Africa	-0,107

From Table 6.3, the differing results are clearly shown across various countries, all papers used the same control variable (i.e. size of board) and yet the impact on company performance varies substantially from a positive factor of 0,184 in The Netherlands to negative 0,121 in India. The result is significant in that it amplifies the point made in the literature review that board size is not a “one size fits all” predictor of firm performance, and that the category of business as well as the country in which the company operates also plays a key role in influencing the board size and performance.

Following on from the work of Jensen and Meckling, (1976) and Lipton et al., (1992) who argued that there is an optimal board size that will drive performance of a company and that any number above or below the optimal board size will affect company performance, the optimal board size according to their research is eight to nine directors. In order to test this, a comparison of average board sizes across various countries is reflected in Table 6.4.

Table 6.4: Average board size comparison

Author	Average board size	Country	Impact on performance
Chatterjee.S (2011)	11,5	India	Negatively correlated
Arntz.R (2010)	9,26	The Netherlands	Negatively correlated
Mahadeo et al., (2012)	9,6	Malaysia	Not statistically significant
Erhardt et al., (2003)	12,52	USA	Not statistically significant
This study	10	South Africa	Negatively correlated
Average	**~10**		

From Table 6.4, the average board size approximately 10 members. The result is based on research from various countries and there seems to be no direct correlation or relationship between board sizes in developed nations compared to that of developing countries. All companies seem to have an average board size of 10, which is reaffirmed by (Lipton et al., 1992), where it was found that the optimal board size for companies is between 8 and 10 members.

From the previous research conducted, a trend toward negative correlation is seen and the findings of this paper support previous studies of a similar nature that have shown that there is a negative correlation between the size of the board and the performance of the company.

6.2: What impact does age of the CEO have on the performance of a real estate investment company?

6.2.1: Rationale for research question

Whether or not the age of a CEO has any impact on firm performance is also open for debate. According to the literature, there are two main schools of thought that are prevalent when one compares the age of the CEO and the performance of a company.

The first school of thought states that an older CEO is preferred over a younger one because an older CEO provides experience, wisdom, and usually the economic resources that are required in order for a firm to succeed (Kang et al., 2007). Older CEOs also tend to be more strategic and take longer term views (Sundaram & Yermack, 2007). On the flip side, younger CEOs tend to take more risk, increasing the probability of a higher return due to their bolder investment decisions (Mcknight & Tomkins, 2004). These conflicting results were made more complex when Nelson (2005) found no relationship between CEO age and company performance.

Once again there seems to be no clear cut answer to whether or not the CEO's age has any impact on company performance and thus the second research question was formulated to determine what impact the age of the CEO has on the performance of a real estate investment company?

6.2.2: Results

Table 6.5: Descriptive statistics – age of CEO

Variable	N	Minimum	Maximum	Mean	Standard deviation
Age of CEO	30	34	74	47	10.13

Table 6.6: P Value – Age of CEO

Variable	Coefficient	P-value
Age of CEO	0.010749	0.17072

It is clearly shown from the analysis in Table 6.6 that the age of the CEO has no significant impact on the return on assets within real estate investment companies. This is proven by the p-value being >0,05, which means that the variable is insignificant at the 95% confidence level.

6.2.3: Conclusion

Table 6.7: Age of CEO

Author	Factor	Country	Age of CEO	Impact on Company Performance
Mahadeo et al., (2012)	Age diversity	Malaysia	46-55	Negative correlation
Arntz.R (2010)	CEO age	Netherlands	53,8	Positive correlation
Kang et al., (2007)	Age range	Australian	51-60	No data
This study	CEO age	South Africa	47	Not statistically significant

From Table 6.7, interestingly it seems as if emerging economies are more open to having younger CEOs than more developed economies are. Although previous research has shown conflicting results, this paper has shown that there is no statistical significant relationship between the age of the CEO and company performance. Due to the inconsistent results shown in previous research, this item would need to be investigated across each industry to better understand what impact the CEO's age has, as it is clear from the results that there is no "one size fits all" approach that can be implied.

6.3: What impact does the gender proportion of the board have on the performance of a real estate investment company?

6.3.1: Rationale for research question

Gender on boards has always been an extremely longstanding debate, and there have been numerous studies that have shown the benefits firms can achieve by appointing female board members. There are also studies that have shown that female presence has no impact on company performance.

These conflicting views are found in research such as Perault (2014), who found that the role that female directors plays is in enhancing perceptions of the board that employs gender inclusive directors as this will result in the board being perceived as being more legitimate and trustworthy.

The flipside to the argument is found in Gilbert and Ivancevich (2000) who found that the inclusion of female directors increases diversity and thus enhances the board's flexibility and decision-making ability through the differing views.
Lastly, Carrasco et al., (2014) found no impact in the number of female directors on the performance of the firm.

The conflicting views from the literature coupled with the fact that the South African REIT sector is perceived as being a male dominated industry made this research question a pertinent one to answer and thus the third research question was established, asking what impact does the gender proportion of the board have on the performance of a real estate investment company?

6.3.2: Results

Table 6.8: Descriptive statistics – proportion of female representation

Variable	N	Minimum	Maximum	Mean	Standard deviation
Proportion of Female Directors	30	0	0.38	0.14	0.08

Table 6.9: P-Values – Gender of CEO and female proportion

Variable	Coefficient	P-value
Gender [M]	-0.395787	0.39282
Female Proportion	-0.953410	0.43446

6.3.3: Conclusion

Table 6.7 highlights the fact that females are severely under-represented on the boards of listed South African real estate investment firms. The average proportion of females to males is only 0.14, meaning for every 10 males on a board there is 1.4 females, on average. Even more astounding is the fact that only one company out of the total sample had a female CEO. This clearly affirms

the assumption that the South African REIT sector is still a very male dominated industry with minimal representation of females on any of the boards.

In order to ascertain whether the lack of female representation has any impact on the firm's performance, Table 6.8 shows data gathered, where it is revealed that both the gender of the CEO and the proportion of female directors have no significant impact on overall company performance. This is explained by the p-value for gender and female proportion being greater than 0,05 and is thus not statistically significant. Given that the average board size is 10, this is an extremely small number in the context.

Table 6.10: Female proportion comparison

Author	Factor	Country	Percentage of Female Representation	Impact on Performance
Mahadeo et al., (2012)	Female proportion	Malaysia	3%	Positive
Arntz.R (2010)	Female proportion	Netherlands	26%	Positive
Kang et al., (2007)	Female proportion	Australia	10%	N/A
This study	Female proportion	South Africa	15%	Not statistically significant

A further analysis of the data in comparison to previous studies reveals that this percentage is higher than some countries such as 10% in Australian companies (Kang et al., 2007), and 3% in Malaysia (Mahadeo et al., 2012), while also being significantly lower than other countries in Europe (26% in Netherlands) as shown in Arntz.R (2010).

The finding of this paper was that the percentage of female board members does not have a significant influence on the ROA of JSE listed real estate investment companies. This is in contrast to previous research that shows a positive correlation of company performance to female representation. However it should be noted that this paper focussed only on one aspect, being real estate, and did

not analyse the entire listed sector as the other papers have done. Importantly, the result of this paper in no way diminishes the importance of having female representation on a board from a social inclusion perspective and overall board diversity, as the benefits of this are material although beyond the scope of this paper.

6.4: What impact does independence of the board members have on the performance of a real estate investment company?

6.4.1: Rationale for research question

As mentioned in the introduction, the requirement for independence among company boards is not just a South African issue but an international one. The idea that an independent director as part of a company board will improve the performance of a company has been widely researched. The majority of the research shows that a greater number of independent directors leads to the board being perceived as more trustworthy and responsible. This in turn could result in better company performance due to independent directors not being involved directly in the daily operations of the company and can thus provide an outsider's view with fresh new ideas. (Higgs, 2003).

Importantly, one needs to be aware that although previous research shows that independence has positive results from a corporate governance perspective, there have been mixed results in determining whether an increase in the number of independent directors will result in an increase in company performance. The final research question was formulated to determine how the proportion of independence affects the return on assets within the real estate investment sector this exercise is extremely fruitful especially given the unique legislative environment in which a REIT operates. It is for these reasons that the question of what impact the independence of the board members has on the performance of a real estate investment company was formulated.

6.4.2: Results

Table 6.11: Descriptive statistics – independence of the board

Variable	N	Minimum	Maximum	Mean	Standard deviation
Proportion of independent directors	30	0.1	0.83	0.48	0.17

Table 6.12: P-Values - Independence of the Board

Variables	Coefficient	P-value
Independence proportion	1.167074	**0.01901***

Table 6.11 shows that the ratio of independent directors has a statistically significant positive influence on the return on assets of JSE-listed real estate investment firms. This is shown by the p-value < 0,05.

Interestingly, the average proportion of independent to dependent directors is just below 50%, although King III stipulates that the number of independent non-executive directors should exceed the number of executive and non-executive directors (IOD, 2009). However, this doesn't seem to be the case within the real estate investment sector.

6.4.3: Conclusion

In comparing the results to similar studies conducted internationally, it is difficult to come to a concrete conclusion on whether or not independence is always a positive or always a negative factor in assessing company performance. As shown in Table 6.12, there are varying proportions of independent directors, as well as differing overall impacts on firm performance in different countries. From the research presented, the country with the lowest percentage of independent directors is Malaysia and the highest is Australia. Interestingly, both countries show a negative correlation to company performance, thus even though this study shows a positive correlation between company performance and independence of directors, when compared to other similar research, the result

is inconclusive and seems to be dependent on the country and the type of industry that the business operates within.

Table 6.13: Comparison independence of the board

Author	Factor	Country	Mean Percent of Independent Directors	Impact on Performance
Mahadeo et al., (2012)	Board independence	Malaysia	28%	Negative correlation
Arntz.R (2010)	Board independence	The Netherlands	62%	Positive correlation
Kang et al., (2007)	Board independence	Australia	64%	Negative correlation
This study	Board independence	South Africa	48%	Positive correlation

6.5: Final Conclusion

In conclusion, from all the data that was analysed it was found that of the total of four independent variables - the size of the board, the gender of the CEO, the age of the CEO and the level of independence - only two variables had a statistically significant impact on the company performance. These two variables were the size of the board and the level of independence.

In summary, the real estate boards of all South African JSE-listed companies were surveyed and from the results above, it is shown that the South African RETIs are still very conformist. Based on the data presented, the profile of the average South African REIT comprises of 10 directors and is likely to be headed by a male “chairperson” with not more than one female director serving on its board. A typical director on the board of directors is expected to be between 45 and 50 years of age, male, and only just a slightly higher probability of being an executive or non-executive director as opposed to being independent. As mentioned, King III code proposes that independent non-executive directors outnumber executive directors. The results presented do not fall in line with this.

There is no model to best describe what the best combination of variables is in order to maximise the performance of a company, as every company operates to meet its own strategic intents, which in turn differ widely from company to company. The intention of this paper was to survey the real estate investment landscape and provide management with some valuable insights that can be used in the running of their business. This was achieved by showing that the only two factors from the variables that were studied that affect the company performance are the size of the board and the proportion of independent non-executive directors (INEDs).

The relevance of the findings of this paper is that senior management of real estate investment companies can now pay closer attention to their board sizes as well as the number of independent directors in their boards in order to increase the ROA for shareholders, bearing in mind that the list of variables studies is not an exhaustive list and neither has the impact of non-tangible benefits such as creating a diverse board been considered.

Chapter 7: Conclusion

7.1: Introduction

Drawing from the conclusion and findings of this study, the implications for management as well as the limitations of the study and suggestions for future research shall be discussed.

Following on from the findings and analysis of results in Chapters 5 and 6 above, the key findings in relation to the research questions are presented in two separate formats. The first method will entail presenting the results from a South African real estate viewpoint, and the second will be a comparison to other similar international studies.

Table 7.1: Principle findings

Research question	Principle finding	Statistically significant
What impact does the size of a board have on the performance of a real estate investment company?	The size of the board has a negative correlation to the return on assets	Yes
What impact does age of the CEO have on the performance of a real estate investment company?	A positive correlation was shown between the age of the CEO and ROA but was further shown to be statistically insignificant.	No
What impact does the gender of proportion have on the performance of a real estate investment company?	Gender for both the CEO and proportion of Directors on the board showed a negative correlation, although this was proven to be statistically insignificant.	No
What impact does independence of the board members have on the performance of a real estate investment company?	Independence was shown to have a positive correlation to the return on assets of a real estate JSE listed firm	Yes

While Table 7.1, summarises the findings based on data from South African JSE-listed real estate investment firms, it is important to be cognisant of the fact that the results cannot be applied to other industries, nor can they be applied to other countries. This is supported in Table 7.2 where it is shown that the same independent variables have varying effects on company performance.

Table 7.2: Overview of Findings

Research question	Principle finding	Country	Sector
What impact does the size of a board have the performance of a real estate investment company?	The size of the board has a negative correlation to the return on assets	South Africa (This study)	Real estate
	Negative correlation	India (Chatterjee, 2011)	All listed firms
	Positive correlation	Netherlands (Arntz, 2010)	All listed firms
	Positive correlation	Malaysia (Mahadeo et al., 2012)	All listed firms
What impact does age of the CEO have on the performance of a real estate investment company?	A positive correlation was shown between the age of the CEO and ROA but was further shown to be statistically insignificant.	South Africa (This study)	Real estate
	Positive correlation	Netherlands (Arntz, 2010)	All listed firms
	N/A	Australia (Kang et al., 2007)	All listed firms
	Negative correlation	Malaysia (Mahadeo et al., 2012)	All listed firms

Research question	Principle finding	Country	Sector
What impact does the gender of proportion have on the performance of a real estate investment company?	Gender for both the CEO and proportion of Directors on the board showed a negative correlation, although this was proven to be statistically insignificant.	South Africa (This study)	Real estate
	Positive Correlation	The Netherlands (Arntz, 2010)	All listed firms
	N/A	Australia (Kang et al., 2007)	All listed firms
	Positive Correlation	Malaysia (Mahadeo et al., 2012)	All listed firms
What impact does independence of the board members have on the performance of a real estate investment company?	Independence was shown to have a positive correlation to the return on assets of a real estate JSE listed firm	South Africa (This study)	Real estate
	Positive correlation	The Netherlands (Arntz, 2010)	All listed firms
	Negative correlation	Australia (Kang et al., 2007)	All listed firms
	Negative correlation	Malaysia (Mahadeo et al., 2012)	All listed firms

7.3: Implications for management

The study has yielded some interesting findings that management within the real estate investment sector in South Africa can use.

From the results presented, it was shown that neither CEO age, nor proportion of females on boards affects the companies' return on assets. As mentioned above, this does not mean that these factors are not important to the overall wellbeing of the organisation and it definitely does not mean that they should be ignored by management. The results merely highlight that from the data collected, these items do not significantly impact on the return on assets but can indeed impact on other areas of the business such as the perception of being gender inclusive that need to be considered.

The only two contributing factors of statistical significance were the proportion of independent directors present on the board and the size of the board. The former is not only a signal of good governance within a company but now it is shown that it also positively affects the performance of a real estate investment company.

The latter variable is size and from the data presented it is shown that as the size of a board increases, the ROA decreases past a certain point. This point from previous research is referred to the optimal board size and was found to be between eight and 10 members (Lipton et al., 1992). The negative correlation between board size and ROA is logical in that the more board members there are, the longer it takes to make decisions and this will ultimately slow down the company's ability to execute on strategy and everyday tasks (Lipton & Lorsch, 1992).

7.4: Limitations of the research

This study focussed only on JSE-listed real estate investment firms and thus the results may not be applicable to non-listed entities or sectors outside of real estate in South Africa. Furthermore, due to the nature of the study, the entire universe was included in the analysis, resulting in a maximum possible sample

size of 30 companies, and including other companies was not possible for the given research objective.

A further limitation of the study is that due to the timing of the data collection, and the fact that companies have varying financial year-ends, the most up to date financial data (being 2016 financial year) was not available for all companies.

Lastly, this research paper has used the yardstick for measuring the performance of a company as the return on assets. This was derived from the basis of previous similar research studies using this variable that would assist in making this research comparable to other studies. It is the view of the researcher that company performance is not only a factor of return on assets and there are numerous other measures including non-monetary ways of measuring performance. Further research into how board composition affects these can be undertaken in the future as well.

7.5: Suggestions for future research

This research yielded some interesting findings that were a first for the South African real estate investment sector. It is clear from the analysis that the findings cannot be generalised to other sectors of the economy nor can they be applied to other countries. Further research that would yield interesting findings would be to analyse differing sectors of the economy and compare whether any of the control variables correlate more strongly/weakly than other sectors.

A further item for research would be to expand the study to compare the board compositions of emerging and developed economies over time in order to ascertain whether there are structural differences in the way companies in emerging economies run their businesses compared to those in developed economies.

7.6 Conclusion

According to Wolf & Egelhoff (2001), the critical sources for success of an organisation are strategy, structure and the culture that is present within that organisation. The purpose of this research was to determine the impact that structure, more specifically the board structure, has on the overall performance of a company as measured by the return on assets.

The findings of this paper reinforce the point that not all factors examined in this research paper necessarily increase the performance of the company. While it is important to be aware of this fact, the writer in no way suggests that the management of an organisation therefore totally ignore the non-significant findings.

Every company is unique and thus the governance structures are different for the simple reason that each firm faces its own management problems, and hence finds its own solutions (Hermalin & Weisbach, 2003). This research paper has found that the age of the CEO and the proportion of females serving on a board of directors has no impact on the return on assets, but this in no way precludes that these factors could significantly impact on other aspects of company such as social inclusivity and fairness that are also critical aspects that will determine whether a company succeeds or fails.

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APPENDIX 1: ETHICS CLEARANCE LETTER

APPENDIX 2:
TURNITIN REPORT – FIRST FIVE PAGES ONLY