
# Board diversity and company performance in South Africa during periodic market cycles

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## *i.* ***Abstract***

The continued failure of companies points to poor corporate governance (Katmon, Zuriyati, Norlia, Norwani, & Farooque, 2019). The seminal research of Cadbury (2000) highlighted the need for constant development of corporate governance practices to adapt to changing director behaviour and to identify and close gaps identified through firm failure. Previous research has focused on demographic board diversity and board independence and their effects on company performance (Taljaard, 2013). The present study investigates the impact of market conditions, motivated by the seminal work of Kerr & Bettis (1987), who noted that up to 80 percent of a company's performance is related to market conditions. The study employs quantitative methodology to analyse the effects of educational diversity and board independence on the performance of 48 JSE listed companies, during two cross-sectional periods selected to represent strong and weak market conditions.

The results suggest that it is unlikely that a company will perform well relative to its intrinsic value if a board contains a high number of other directorships held by its members, or low educational diversity measured by both total qualifications and qualification family. The results indicate a negative relationship between the number of other directorships held by executive directors and company performance, regardless of market conditions. A critical number of other positions held by independent directors may exist and could potentially be influenced by market conditions.

## *ii.* ***Keywords***

Boards, Governance, Independence, Diversity, Financial Performance

## *iii.* ***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: Introduction to Research Problem

## 1.1 Research Need

In recent years, a number of failures of large corporates have been attributed to inadequate corporate governance. Schneider and Scherer (2013) highlighted the systemic failure of governance processes. The seminal work of Cadbury (2000) showed how research in the field of corporate governance undertaken over decades resulted in the development and iteration of corporate governance systems and guidelines. Cadbury's (2000) report was focused on the United Kingdom, and it highlighted how each economy needs its own governance rules. South Africa has developed its version the King Code, which has been revised to its fourth revision (Institute of Directors South Africa, 2016; Raemaekers, Maroun, & Padia, 2016; Rambajan, 2011). The Sarbanes-Oxley Act in the United States of America, was developed and instituted legally as a result of corporate failure (Pan, Huang, & Gopal, 2018).

Despite the progress made in the field, companies continue to fail due to poor corporate governance. These failures highlight the need for further research into effective corporate governance measures. Abdullah (2004) allocated the responsibility of corporate governance to the company board of directors. The study defined the board as a team of individuals with the fiduciary responsibility of leading and directing a firm, with the primary objective of protecting the firm and shareholders' interests (Abdullah, 2004). Lamb and Roundy (2016) identified opportunities for further research into board composition due to the rapidly changing environment in which boards need to operate.

Significant research has been conducted into the factors that may result in corporate governance failure. Gender (Bear & Post, 2010) and age (Katmon et al., 2019) have been shown to be linked with organisational performance, while a definite link has not been shown for racial diversity. It has been proposed however, that the shortage of skills as a result of racial discrimination could explain the lack of correlation between racial diversity and organisational performance (Mans-kemp & Viviers, 2015). Benaroch and Chernobai (2017) highlighted a lack of board-level

understanding when looking at the developing Information Technology (IT) industry, showing a lack of intellectual capital.

In addition to demographic diversity, Kiel and Nicholson (2003) highlighted duality and the true independence of directors as factors impacting organisational performance. In the context of South Africa and the Johannesburg Stock Exchange, research has been conducted into intellectual capital and its correlation with company performance (Swartz, 2005). A gap was identified for research into the diversity of intellectual capital and how this correlates with the performance of a firm in South Africa (Taljaard, Ward, & Muller, 2015). A study by Taljaard et al. (2015) provided insight into this research gap by evaluating the level and diversity of board members' qualifications.

The seminal work of Kerr and Bettis (1987) noted that up to 80 percent of the total returns of a company could be attributed to market conditions. The study of Taljaard et al. (2015) was conducted during favourable market conditions from 2000 to 2013. Subsequent to publication, a number of the companies used in the study of Taljaard et al. (2015) experienced both governance and performance failures. These include Steinhoff, The JD Group, Aspen, PCC and Lonmin (Rossouw & Styan, 2019). This has provided an opportunity to extend the research to incorporate the impact of market conditions. The need to improve corporate governance is critical if South Africa is to attract foreign investment as an emerging market (Cleeve, Debrah, & Yiheyis, 2015).

The research presented in this report was carried out with the objective of evaluating the impact of intellectual diversity on firm performance during varying market conditions. During the investigations carried out to achieve this objective however, an additional knowledge gap was identified relating to the significance of board independence on firm performance during varying market conditions. This topic has thus been incorporated into the research presented in this report, building on the work of Kiel and Nicholson (2003).

## 1.2 Problem Evidence

Corporate failure due to poor governance is not a new phenomenon, as evidenced by the collapse of Enron in 2001 and all the way up to the recent reduction of Steinhoff (Kiel & Nicholson, 2003; Rossouw & Styan, 2019). Katmon et al. (2019) illustrated how these failures continue to destroy shareholder and stakeholder value. Bear and Post (2010) showed how inadequate board structure is a key catalyst for firm failures when analysing the subject in the United Kingdom. Katmon et al. (2019) highlighted how various aspects of board composition can affect board performance. Most of the relevant research, however, focuses on demographic variables such as age, race, and gender (Bear & Post, 2010; Katmon et al., 2019).

Lamb and Roundy (2016) highlighted the need for further research into board composition (including board independence and interlocks) due to continuous corporate governance failures, as well as the need to combine all lessons learned to date in order to build governance practices that are less likely to fail. The research continues to demonstrate the existence of club mentality between directors, leading to a concentration of skill and mindset which ultimately has an impact on diversity (Lamb & Roundy, 2016).

In addition to the commonly documented demographic diversity, an additional variable that has not been as thoroughly investigated is educational diversity. Papadimitri, Pasiouras, Tasiou and Ventouri (2020) demonstrated the need for educational diversity through their research, analysing 1618 firms from 39 countries. The research showed that increased educational diversity of board members can improve firm performance. Prior to this research, Taljaard et al. (2015) had also begun to investigate the effects of educational diversity on firm performance. Several companies indicated by the research as having effective governance practices and good performance, however, subsequently experienced corporate governance failure (Taljaard et al., 2015; Rossouw & Styan, 2019). This suggests that additional factors are likely to influence board performance.

The seminal work of Kerr and Bettis (1987) showed that up to 80 percent of company performance can be attributed to market conditions. Given the evidence of changing

market conditions in South Africa (Kaplanidou et al., 2013; Meric, Taga, Gishlick, & Meric, 2011), this highlights the necessity for research into the impact of market of conditions on corporate governance. Based on the research outlined above and the knowledge gaps identified, this research report aims to evaluate the impact on firm performance of board independence and educational diversity during varying market conditions.

## 1.3 Research Objectives

Cadbury (2000, p. 2) stated that corporate governance is "never static" and further elaborated on how governance codes need to be adaptive in order to continuously perform effectively. In the context of South Africa, the King Code of corporate governance has been iterated to ensure corporates are held accountable while keeping the process practical to ensure business is not hindered unnecessarily (Institute of Directors South Africa, 2016). The constant iteration shows the dynamic nature of corporate governance and the need for constant development. Mans-kemp and Viviers (2015) acknowledged the need for further research to investigate firm performance where multiple directorships exist. The research presented in this report aims to contribute to the body of knowledge on corporate governance, in order to assist with the iteration of corporate governance practices and legislation. Developing an extensive knowledge base of the variables contributing to improved corporate governance is key to attracting foreign investment from emerging economies such as South Africa (Cleeve et al., 2015). The study is focused specifically on variables that have not yet been extensively explored in the context of board diversity.

The research presented herein investigates whether intellectual diversity affects company performance during periodic market cycles. In addition, the influence of board independence on firm performance during the same periodic market cycles is evaluated. The study builds upon previous research of Taljaard et al. (2015) by expanding their dataset in breadth to include board independence, measured by the Singularity Index of Inoxico (2014). This index was used by Mans-kemp and Viviers (2015) to investigate board independence. The work of Taljaard et al. (2015) presented data for the period 2001 to 2012. The present study draws on data from

an extended time period, from 2003 up to the year 2019, and incorporates additional firms to expand the research.

The study utilises Tobin's Q as a measure of financial performance due to the proprietary Style Engine used by Taljaard et al. (2015) not being available. Tobin's Q is a measure of company performance that takes into account the market and book value of a firm as well as nett asset value (Barnhart, Marr, & Rosenstein, 1994). Tobin's Q was used by Dahya, Dimitrov and McConnell (2008) to measure financial performance across 22 countries. The study has been conducted using data from market periods of both positive and negative performance. The seminal work of Lindahl-Stevens (1980) provided a simple method for averaging a market period to establish bull and bear markets. The current research of Kole & Dijk (2016) looks at rule-based methods of selecting the point of change between a bull market and a bear market. These methods are applied in this work to determine the positive and adverse market conditions for data analysis.

The objective for the outcome of this study is to provide additional research to contribute to the continuous development of the field of corporate governance. As stated by Cadbury (2000), there is a requirement for constant development of corporate governance codes of practice. The research in the context of South Africa will aim to provide information to help develop the King Code in its future revisions after King IV (Institute of Directors South Africa, 2016). The results of this study are aimed at steering corporate governance practices in a positive direction to reduce failure and increase board performance. This will be achieved by applying the results to improve understanding of how independence and board interlocks, as well as educational diversity, affect firm performance during varying market conditions. In addition, the study investigates the influence of club mentality on true board independence.

The high-level aim of the research is to help identify any knowledge gaps and opportunities for improvement in corporate governance practices such as King IV. The research may be applied to aid in further protecting both stakeholder and shareholder value. Previous research has shown that with improved corporate governance, firms are more likely to be acquired by foreign investors (Laing, Weir, &

Laing, 2001). This research is supported by Cleeve et al. (2015), who showed how governance can increase foreign investment.

## 1.4 Research Relevance

While South Africa has benefited from a well-established stock exchange with a decided focus on corporate governance practice since 1993 (Institute of Directors South Africa, 2016), the country has also experienced the highest level of inequality in the world (Setswe, Witthuhn, Muyanga, & Nyasulu, 2016). This has resulted in unequal distribution of the country's wealth and thus a relatively small pool of directors involved in JSE listed companies. The suggestion of the existence of a club mentality, to the detriment of board diversity (Lamb & Roundy, 2016), leads to the question of whether South African independent directors are truly independent. The research presented in this report addresses the aspect of board interlocks in detail to help answer such questions. In addition, the impact of Apartheid has made the topic of diversity very relevant to research on business in South Africa. While previous studies have focused on demographic variables of diversity, the present research aims to expand this to educational diversity and its impact on firm performance.

The Johannesburg Stock exchange has experienced exceptional market performance since its inception, but has been unable to maintain its strong performance throughout the past decade (Kotze, 2019). This study evaluates the effects of market performance on corporate governance, which may aid in steering corporate governance practices under variable market conditions in the future.

## 1.5 Scope of Research

The scope of the research presented in this report is limited to public companies listed on the Johannesburg Stock Exchange. The study is focused on boards of directors and their links to other directorships that are listed on publicly available databases. The research is limited to two 1-year time periods, one in a bull market and one in a bear market, identified between 2003 and 2020. The investigations performed into educational diversity are limited to the formal qualifications provided in the publicly available databases.

# Chapter 2: Literature Review

## 2.1 The Importance of Corporate Governance.

The seminal work of Denis and McConnell (2002), cited more than 2400 times, identified that as long as shareholding and control of a firm are not carried out together, there will be potential for conflict of interest. Corporate governance was brought to the fore as a key focal point in the early 2000's with the failure of Enron (Kiel & Nicholson, 2003). Significant research has been completed in the field; however, companies continue to fail despite the progress made in improving corporate law and compliance (West, 2009). Shareholder value continues to be destroyed as a result of these failures (Katmon et al., 2019). Hsu and Wu (2014) demonstrated that many corporate failures were unforeseen due to board oversight. Cleeve et al. (2015) uncovered the importance of good corporate governance to attract foreign investment.

Hsu and Wu (2014) recognised that corporate governance codes are developed based on historical failures and do not have sufficient foresight to predict what is needed. The study concludes that board structure is connected with firm failures in the United Kingdom. Bear and Post (2010) noted that corporate governance is not only necessary to avoid corporate failure, but institutional investors will pay a 10 to 12 percent premium for well-governed companies. In order to make sense of corporate governance, key areas of focus were identified as having a significant influence in the field, and these are addressed in the following sections.

## 2.2 Board Diversity

### 2.2.1 Board Demographics

A key aspect of this research report is to further understand board diversity and its impact on shareholder and stakeholder value. To do this, it is vital to understand and define the diversity in board composition. Common aspects of board diversity including demographics, gender (Bear & Post, 2010) and age (Katmon et al., 2019) have been extensively studied. The studies have demonstrated links between these factors and company performance. Katmon et al. (2019) added tenure as a variable

that can have a positive effect on board performance. Building on this, Dalton, Daily, Ellstrand and Johnson (1998) observed that regular changes in board composition could be a symptom of distress. Post and Byron (2015) showed how boards with greater gender diversity were linked with greater independence. Despite the observed link between independence and performance, the influence of market performance has not been accounted for, which may have affected the outcome of firm performance.

### 2.2.2 Board Capital

Board capital is defined as "the director's ability to use their skills, reputation, experience, expertise and knowledge to perform both manager-monitoring activities and provide advice and counsel to management" (Jermias & Gani, 2014, p2). Fahy (2013) demonstrated the importance of board capital and its association with competitive advantage. These findings provide a strong basis to build an argument for improving board capital in order to increase financial performance. Board capital can be described in two fundamental constructs: human capital and social capital (Krause, Semadeni, & Withers, 2015). Jermias and Gani (2013) used the Resource Dependency Theory to show how board members can use social capital to utilise connections with external organisations to benefit the firm. Research shows that larger boards are more likely to have more significant skills and experience than smaller boards (Inoxico, 2014). This information is critical to the present study as by nature, social capital is in contradiction with board independence. Krause et al. (2015) provided evidence both for and against this argument by stating that board members value the social capital of the board chair, but also the independence of a successful board chair. This potential contradiction highlights the misdirection of independent directorship. Hsu and Wu (2014) motivated for an additional capital variable, reputational capital. In their study, it was observed that independent directors are more likely to act in a manner to protect their reputational capital than non-independent directors (Hsu & Wu, 2014). This finding provides support for the argument that boards should comprise of more independent directors. Further to this, there is additional motivation for research into the true definition of board independence.

Barney, Wright and Ketchen (2001) drilled down into the resource-based view of the firm by separating it into five sections: human capital, economics and finance, entrepreneurship, marketing, and international business. The paper explains how human capital can be a competitive advantage, and highlights a potential link between the resource-based view and corporate governance. This in turn shows that corporate governance can be a competitive advantage and provides motivation for further research into board capital as a source of competitive advantage. The findings of Barney et al. (2001) are relevant to the present study, given that a key objective is to add to the body of knowledge of corporate governance through exploring educational diversity, a form of human capital. This study is focussed on the human capital section and how it influences the financial component.

Research has shown that when increasing the diversity of a board, it remains imperative for positions to be filled by competent directors. Mans-kemp and Viviers (2015) cautioned against forced quotas where good governance already exists, and provided evidence to confirm how voluntary changes are more likely to be successful.

While social capital is a component of board capital, research has shown a positive correlation between human capital and the board's view of the chairman as a key resource, while social capital showed no correlation (Barney et al., 2001). Based on this, educational diversity may be categorized as human capital and board independence as social capital through the use of networks. This research may contradict the research of Lamb and Roundy (2016), who present an argument for club mentality through social connection.

Hillman and Dalziel (2014) provided arguments showing that board capital affects the function of the board both in monitoring as well as in the provision of resources, and the study provided support for board incentives being a moderating factor. This is consistent with one of the hypotheses of the present study, that board members with more social and human capital will require additional incentives, and a cost element is thus attached to board capital that needs to be overcome by the performance of the firm.

King IV defines board diversity as follows: “Diversity should be understood as the varied perspectives and approaches offered by members of different identity groups. For the purposes of King IV, it includes diversity in terms of fields of knowledge, skills and experience as well as age, culture, race and gender” (Institute of Directors South Africa, 2016, p11). The seminal work of Hambrick and Mason (1984), supported by the current research of Katmon et al. (2019) highlighted the need to focus on educational diversity rather than just demographic diversity. The present research motivates to modify the King IV definition for the purposes of the study to focus on the knowledge and skills variables of board diversity further elaborated in Chapter 2.8.

## 2.3 Board Size

Dahya et al. (2008) conducted a study across 799 firms in 22 countries and demonstrated that larger boards are linked with a reduced market value, but that this correlation is not always statistically significant. This finding is supported by previous research (Eisenberg, Sundgren & Wells, 1998; Mak & Kusnadi, 2005; Yermack, 1996). Zaheer (2013) showed how larger board sizes could hinder strategy and decision making, and that directors on large boards would rather not propose ideas unless they are very confident of the outcome. The Director Singularity Index® report, developed by the market research firm Inoxico, highlighted that larger boards are more likely to have greater skills diversity and industry knowledge (Inoxico, 2014). The report references the work of Latif, Kamardin, Taufil Mohd and Adam (2013), who highlighted the risk of board interlocks and conflict of interest with larger boards in Malaysia. This research is pertinent to the current study as it highlights a critical risk affecting board independence. While board size has been well researched with respect to firm performance, the aspects of the composition of boards have not been extensively studied, including the type and definition of board interlocks as well as other active directorships held. In a similar study using Tobin's Q as a measure of firm performance, Yermack (1996) found smaller boards to be more effective. This is in line with Dahya et al's (2008) research which suggested, that larger boards might be less effective. Mak and Kusnadi (2005) noted a positive correlation with board size up until a maximum of five board members, after which there was a negative relationship with increased board sizes. This was attributed to

weaker controls and inferior governance practices in larger boards. This observation is applicable to the present research as it may aid in the identification of maximum and minimum levels of education and previous positions held by board members. If an optimum level is found for these variables, as observed by Mak and Kusnadi (2005) for board size in Singapore, this may provide guidance for corporate governance practices both in Singapore and other regions.

Board size is relevant to this research as it is easier for greater diversity to exist in larger boards (Yermack, 1996). This, however, may not always be the case and may not strictly apply in other regions such as South Africa. A similar Masters research report (Rambajan, 2011) found through industry expert interviews that no perfect board size could be identified and a recommendation was made to focus on skill and expertise as well as the performance of individual directors. This conclusion provided guidance into identifying a focus for the present research report on educational diversity and board independence rather than board size.

## 2.4 Board Independence

Cadbury (2000) motivated through experience that director independence is a continuously developing topic, and that the measure of independence needs to be continually refined. Post and Byron (2015) motivated that the increased representation of women on boards correlates with increased board independence as well as increased firm performance. Hsu and Wu (2014) researched the effect of board composition on company failure and showed that companies are less likely to fail if they have a greater number of non-independent or "grey" non-executive directors (NEDs). Weir and Laing (2014) showed how companies are more likely to be acquired if they have more independent NEDs. Secondary variables such as duality have also been found to affect board performance (Zaheer, 2013). In addition to this, Kiel and Nicholson (2003) analysed the Australian Stock Exchange and showed how larger boards are more likely to have a separate chairman, but that Chief Executive Officer (CEO) duality lead to improved performance. In addition to this, the study showed that boards with a greater diversity of industry experience performed better. All of the above research on board independence shows that it is

a topic that has been well researched over time, yet the debate continues due to the need for constant refinement.

Handschumacher, Behrmann, Ceschinski and Sassen (2019) showed that board interlock research has found inconsistent results due to varying methods of measuring board interlocks. Further to this, Hsu and Wu (2014) highlighted the potential benefits and risks associated with board interlocks. The study found that interlocks can positively influence communication and the transfer of information to management. Conversely, board members with interlocks related to the firm were found to have less incentive to challenge senior management. In simple terms, this highlights the potential for conflict of interest.

The research of Rambajan (2001) found that industry experts all agreed on a measurement threshold of 50% for board independence. This is supported by substantial research by Kiel and Nicholson (2003), who suggested that board interlocks and the proportion of outside directors are additional measures of independence, and further expressed the links with improved company performance. This concept has been reinforced by Pan et al. (2018) who used interlocks as a measure of analysing failure in the IT industry. The study highlighted the increased conflict of interests with increased board size and number of interlocks (Pan et al., 2018). While many localised studies have been undertaken, Lamb and Roundy (2016) pointed out that there has not been a significant review of the literature in two decades, and highlighted two important findings. Firstly, a disadvantage of board interlocks is that they can be used to spread poor behaviour, which can be used to exploit loopholes in corporate governance practices. The second finding pertains to club behaviour, social groups and inner circle mentality, which can be likened to old boys' clubs in South Africa. While this does highlight social capital, it also challenges the true independence of directors. This research is supported by the long-standing work of Cadbury (2000), which cautioned that in addition to any quantitative findings, investors review the director's historical performance to judge their independence. The Sarbanes-Oxley Act (SOA) demands that the audit committee be comprised solely of independent directors (Clarke, 2007).

Independent directorship has been offered as a solution to the issue of corporate governance failures for several years (Clarke, 2007). Hambrick and Mason (1984) highlighted socioeconomic status as a factor of consideration, with directors often being members of clubs. This insight is important as board members can leverage social capital (Krause et al., 2015). However, this brings with it the risk of conflict of interest, as highlighted by Pan et al. (2018). The Director Singularity Index® (Inoxico, 2014) measures the number of interlocks between directors and proposes a risk rating for the firm. The rating is based on the number of other directorships held, and takes into account whether the position is independent, non-executive or executive. The research of Mans-kmemp and Viviers (2014) supports the metric provided by Inoxico, despite the slow adoption of this index in the investment market. While the early research of (Beckman, 1998) showed through interviews that directors had gained significant experience from sitting on other boards. This also opens the door to creating abnormally powerful independent directors who have superior board capital and influence, which requires their true independence needs to be questioned. (Fogel, Ma, & Morck, 2013).

Handschumacher et al. (2019, p2) provided a measure of board interlocks linked to the total number of seats held, and classify supervisory members with greater than three other positions as “busy”. For the purposes of this research, it must be noted that there is no link to market conditions in the findings of Handschumacher et al. (2019).

When looking at the corporate governance requirements in South Africa, the King IV corporate governance code specifies that CEO positions must obtain agreement from the board to hold other directorships, but other non-executive directorships taken on by executive members of the governing body are not specifically addressed by King IV (Institute of Directors South Africa, 2016). This highlights a potential gap in the corporate governance field. Lamb & Roundy (2016) also documented the need and opportunity for scholarly research to expand on this field of knowledge.

The King IV code describes independence as “Independence generally means the exercise of objective, unfettered judgement. When used as the measure by which to judge the appearance of independence, or to categorise a non-executive member of

the governing body or its committees as independent, it means the absence of interest, position, association or relationship which, when judged from a perspective of a reasonable and informed third party, is likely to influence unduly or cause bias in decision-making" (Institute of Directors South Africa, 2016, p13). The code further elaborates on connection of independence with the absence of conflict of interest and refers the technical aspect of independence to the Companies Act to clarify a legal definition of related parties. In addition to this definition, Clarke (2007) provided an additional aspect to this definition by stating that an independent director is someone who does not need to please management and who is able to challenge management both inside and outside the boardroom .

## 2.5 Performance Measurement

### 2.5.1 Board Performance

Hillman and Dalziel (2014) pointed out that to understand board performance it is essential to understand what the function of the board is and the criteria against which they should be measured. Kerr and Bettis (1987) highlighted the effect of compensation on board performance. Harteis, Bauer and Gruber (2008) cited board remuneration incentive structure as a key cause for the financial crisis. Their research further elaborated that boards serve two primary functions. The first is to monitor management on behalf of shareholders, which is primarily done through the implementation of corporate governance measures. The second function is to provide resources to the firm, which can either be done through providing skill and experiential advice to the firm or through contacts that will assist the company.

Katmon et al. (2019) used the agency and resource dependency theory to examine board diversity in emerging markets. While having greater diversity and a more extensive resource base can add value, Weir and Laing (2003) noted that this advantage must outweigh the agency cost, where agency cost is defined as the cost of protecting sharholder value and management of conflict of interest (Kiel & Nicholson, 2003). The study further elaborated on how agency cost occurs when ownership and management are separated, resulting in managers acting to serve their own personal interests.

Carpenter, Geletkancz and Sanders (2004) detailed the trade-offs between building external relationships and gaining resources, and managing dedicated time for the firm and potential conflicts of interest. An example of this is when a CEO is asked to join the board of another company, increasing the value of the CEO's firm (Hambrick, Geletkanycz, & Fredrickson, 1993).

Weir and Laing (2003) promoted measurement of board performance based on the percentage of corporate governance principles that are implemented by the firm (such as those of the Cadbury report, Sarbanes-Oxley Act, and King IV). The work of Weir and Laing (2003) also addressed whether corporate governance principles are a public relations exercise. While this is an extreme view, it is critical to this research report as it highlights the need to continually evaluate areas of corporate governance and identify if the principles are effective and under what conditions. An example of this is the change to the King IV report where board members are evaluated on the two-year cycle as opposed to an annual cycle as in King III. This is a trade-off between fast, agile decision making that can drive a short term performance mindset and stability and long term performance (PWC, 2017). This also leads to an open question of whether two years is possibly too short. For the purpose of the research, it is important to refer back to the primary functions of the board. According to Hillman and Dalziel (2014), these are to protect shareholders and to maximise shareholder value by providing and organising resources. These board functions are both influenced by educational diversity and board independence, which in turn can potentially be affected by alternate positions held by board members.

### 2.5.2 Company Performance

Dulewicz and Herbert (2004) highlighted the lack of an accurate company performance measure. Weir and Laing (2003) noted how the return on assets (ROA) is a better performance measure than total assets when evaluating the effects of board composition on board performance in the United Kingdom. Dulewicz and Herbert (2004) motivated for a cash flow method as it is more constant across industries. They used cash flow return on total assets (CFROTA) in their research, using the ratio of non-executive to executive board members as well as board size

as independent variables. The research used a definition of the South African King Code: “Good performance is an organisation achieving its strategic objectives, and positive outcomes in terms of its effects on the capitals it uses and effects on the triple context in which it operates” (Institute of Directors South Africa, 2016, p22). It is important to note for the research objective that out of the triple bottom line of economy, society and environmental performance, only the financial aspect is included. This is noted as a limitation of the research.

Dalton et al. (1998) highlighted the difference between the performance of the company from an accounting perspective and from a market performance perspective. The seminal work of Cadbury (2000) motivated that the market is the best moderator of company performance. This exposes the weakness of ROA and CFROTA and highlights the need to use a market-related performance measure.

Tobin's Q has proved to be a well-established measure of company performance, and has been used for over two decades (Barnhart et al., 1994). The strength of Tobin's Q lies in its use of market capitalisation of common stock as well as balance sheet performance. The motivation to use Tobin's Q as a performance measure is further supported by Dahya and McConnell's (2006) study covering 799 firms in 22 countries, the most extensive study of this kind carried out to date. Tobin's Q was used by Kiel and Nicholson (2003) to study how board composition affects board performance in Australia, as well as by Pan et al. (2018) in their evaluation of board independence in the IT industry.

## 2.6 Relevance to South Africa

Previous research into board diversity has had a strong focus on race and gender (Nyirenda, 2010). The topic of board diversity is significant in the case of South Africa due to the contextual history of the country. South Africa's apartheid-era manufactured an unequal society from a race perspective, providing a strong basis for research on the racial diversity of boards. South Africa has constantly developed corporate government compliance through the King Commission, established in 1993 (Ntim, Opong, Danbolt, & Thomas, 2012). The Commission developed the King Code, now on the fourth iteration, King IV. The code has attempted to simplify corporate governance into 17 principles as opposed to the 75 of King III (Institute of Directors South Africa, 2016). A key principle which aligns with the topic of this particular study is principle 7, which states that "the governing body should comprise of the appropriate balance of knowledge, skills, experience, diversity and independence for it to discharge its governance role responsibilities objectively and effectively" (Institute of Directors South Africa, 2016, p. 50). Research into the board composition variables that affect corporate performance has been carried out in South Africa (Botha, 2017; Nyirenda, 2010; Taljaard et al., 2015). Despite this steadfast focus on corporate governance, multiple corporate failures have occurred in recent years (Rossouw & Styan, 2019). In a developing country such as South Africa, more emphasis should be placed on corporate governance to avoid these failures and to attract foreign investment (Cleeve et al., 2015).

## 2.7 King Commission

The King commission was Established in 1993 during the transformation of South Africa into a new democracy, The Institute of Directors in South Africa motivated for retired Supreme Court Judge Mervyn King to chair the Commission to establish acceptable corporate governance practices in South Africa. The Commission has to date released four revisions of the practice (Institute of Directors South Africa, 2016).

This history of the King reports is essential to unpack the changes necessary in a rapidly changing, developing country. The key drivers of the social change were identified as social inclusion, a new generation, millennials, and influencing change

through a focus on climate change and technology. In the latest revision of the King report, the influence of social media has been noted as a new key driver of the need for change in corporate governance (PWC, 2017).

West (2009) noted how the first two issues of the king reports focus on stakeholder value, but how this concept has not effectively been adopted into practical board governance. King III set out to rectify this by establishing a set of 75 principles that JSE listed boards were required to comply with, or if non-compliant, explain why they did not apply the principles. Raemaekers et al. (2016) suggested two key weakness of King III, highlighting that companies favoured explaining why they had not complied over actually applying the King III principles. In addition, they noted that having as many as 75 principles caused dilution of the focus of the board and their respective committees. In 2016 the King Commission released the fourth iteration of the report which had addressed these two challenges. King IV adopted an "apply and explain" philosophy while also summarising the 75 principles into just 17 key principles (PWC, 2017).

There is a common view that the limitation of the King Code is that it is not legislated by the legal system (Institute of Directors South Africa, 2016; PWC, 2017). The resulting challenge is that boards who have not adequately aligned with the code do not face severe repercussions for corporate failure.

As noted by Cadbury (2000), there is a need for constant development of corporate governance practices to account for changing business environments as well as to close any gaps identified. Despite the acknowledgement (West, 2009) of the improvement of the corporate governance code, the firm PWC (2017) suggested that there is little fundamental change from the King III to the King IV report. This is again highlighted by the failure of companies such as Steinhoff (Rossouw & Styan, 2019). James (2002) provided insight from his experience in corporate failure, identifying companies that appear to be star performers but get caught up with a loss of governance during a growth cycle. This is often noted in companies who have grown through acquisition and as a result have needed to merge cultures (Koi-Akrofi, 2016). In defence of the King IV report, the timing of the implementation needs to be kept in mind as Steinhoff had not fully implemented at the time of failure. The provides room

to question whether the King IV code might have assisted in preventing the loss of stakeholder value, had it been implemented. The present study aims to drill down into corporate governance and add to the body of knowledge to assist in answering such questions.

A thorough understanding of the definition of corporate governance and its intention is essential for an evaluation of its role in company performance. The King IV report defines corporate governance as:
"The exercise of ethical and effective leadership by the governing body towards the achievement of the following governance outcomes:

- Ethical culture
- Good performance
- Effective control
- Legitimacy."

(Institute of Directors South Africa, 2016, pg1)

For the purpose of this research report, it is key to understand how the current and preceding King reports influence board composition and whether these four outcomes are influenced by educational diversity and board independence.

To further investigate board composition, it is necessary to monitor the development of the cooperate governance code. King III and King IV both allocate the responsibility of the board composition to the board of directors. King IV provides additional variables that must be incorporated in defining board composition, including knowledge, skill, experience, diversity and independence. It is assumed that diversity in this context refers to race. The code further elaborates how the board should comprise of a non-executive director majority, most of which should be independent (Institute of Directors, South Africa, 2016). It is essential to note that despite the diversity implying race, this research report is focussed on diversity in education, which speaks to knowledge and skill rather than race.

King IV further acknowledges the benefit of multiple directorships (Institute of Directors South Africa, 2016), while PWC (2017) specified the need for non-executive and independent directors. The PWC (2017) report also cautioned against multiple directorships for executive directors specifically, and suggested a focus on-time availability of the executive. King IV acknowledges that including stakeholders can result in trade-offs in decision making and specifies that each occurrence must be declared where a conflict occurs. PWC (2017) highlighted the change in King IV to a requirement for directors to provide the board with full details of other positions held as opposed to King III where the onus was placed on the director to determine their capacity and conflicts. Understanding the current corporate governance practices provides a core pillar of this research, as a key objective is to add to the body of knowledge to determine if the current methods are adequate and where there is room for improvement.

## 2.8 Intellectual Diversity

In recent research Schubert & Tavassoli (2020) showed how educational diversity can improve innovation in top management. This raises the question of whether this approach could be used for developing and innovating corporate governance practices on boards.

Papadimitri et al. (2020) analysed 1618 firms from 39 countries to show the benefits of retaining and hiring highly educated board members. Further to this, they highlighted Standard and Poor's interest in diversification for allocating credit ratings to firms. For this research, it can be assumed that credit ratings have a direct link with a firm's risk. Given that the board's key task is to mitigate risk through a monitoring process, there is a benefit in having higher educational diversity of a board. The research of Papadimitri et al. (2020) used a seven-point scale similar to the South Africa NQF 10 level qualification used by (Taljaard et al., 2015).

The seminal research of Hambrick & Mason (1984) focussed particularly on the importance of educational diversity rather than general diversity. In the context of South Africa, this is relevant due to the educational exclusion created during the Apartheid era. Despite efforts to remedy this, diversity in top management positions

decreased by 1.1% from 2016 to 2018 (Commission for Employment Equity, 2016, 2018). The research focussed on intellectual diversity. Katmon et al. (2019) showed the correlation between intellectual capital and company performance, using total spend on qualification as a measure of intellectual capital. This information highlights a gap in research into intellectual diversity in terms of formal education. Taljaard et al. (2015) provided data describing board composition in terms of the formal qualification level of board members. However, they did not conclude on how this impacts company performance.

## 2.9 Market Conditions - Bull and Bear markets

The research of Kerr & Bettis (1987) found that up to 80 percent of the total returns of a company could be attributed to market conditions. Their research covered executive remuneration during the bear market of 1977 and the bull market of 1980. Hanna (2018) publicised a renewed interest in market cycles due to increased media attention of bull and bear markets. The trusted work of Lindahl-Stevens (1980) provided a foundation for identifying bull and bear markets, defining a bull market as a positive average return. This research provides motivation to include market conditions as a variable in the present study, and a definition and a metric for market conditions are therefore required.

The latest research conducted into board composition during the 2008 global financial crisis found that board diversity positively affects firm performance during a weak market condition (Arnaboldi, Casu, Kalotychou, & Sarkisyan, 2020). By combining the established research with recent findings, an argument may be built that financial market conditions have an effect on the results of corporate governance studies. In order to further understand this, it is necessary to establish a method of identifying market conditions.

Chen (2009) provided a basis on which to predict bull and bear markets. The research highlighted the relative ease of predicting bear markets and the challenges of predicting bull markets, but notes that the inflation rate has the most significant impact on predicting a market cycle (Chen, 2009). Wu & Lee (2015) confirmed these findings, looking specifically at predicting bull markets. Kole & van Dijk (2016)

showed that rule-based methods were preferable when sampling the S&P 500 and further investigated switch points between bull and bear markets being in a binary state. Drawing from this research and the use of an Advance-Decline line as a base for identifying bull and bear markets (Zakon & Pennypacker, 1968), two financial periods can be determined that show similarity to financial years in recent South African market history. The year 2010 was identified as a bull market, and the year 2015 was identified as a bear market. It is important to note that the bull and bear markets chosen for the present study extend over a marginally greater period than the specific years selected. For the purposes of this research and data alignment, the individual years of 2010 and 2015 were chosen to avoid the transitions or periods of change between market conditions. Zakon and Pennypacker (1968) highlighted periods of change as insignificant for analysis.

In the context of South Africa in the period from 2000 to 2019, it is essential to note the extraordinary event of the 2010 FIFA World Cup and its effect on the economy. Kaplanidou et al. (2013) documented how significant events such as the 2010 World Cup can create an economic stimulus that can distort market conditions. Meric, Taga, Gishlick, & Meric (2011) highlighted the relatively strong performance of South Africa in 2009 while the United States was experiencing a bear market in the wake of the global financial crisis of 2008. This demonstrates how the 2010 FIFA world cup assisted in protecting South Africa from the global financial crisis. Despite the abnormal effect of the FIFA world cup, the 2010 period provides a firm grounding for research in a period of growth.

## 2.10 Literature Review Summary

Despite corporate governance being a well-established field of study, companies continue to fail. Two decades after Cadbury's (2000) research, there remains a need to continuously develop corporate governance practices.

In an attempt to address this, Lamb and Roundy (2016) pointed out that the majority of research is focused on specific aspects in different regions, without a meta-analytical review for almost two decades. The findings continue to highlight the need for country- and region-specific research, given that some aspects of corporate

governance are unique to individual countries. South Africa, for example, shows no correlation between racial diversity and firm performance, which can likely be attributed to the impact of South Africa's history and Apartheid practices. While South Africa's King Code has been iterated over four editions, corporate failure continues to occur (Rossouw & Styan, 2019). This provides evidence that there is a need for additional research in this field.

Kerr & Bettis (1987) showed that up to 80 percent of company performance can be attributed to market performance, yet many of the studies in corporate governance do not include market conditions as a variable (Rambajan, 2011; Swartz, 2005; Taljaard et al., 2015). These findings expose the need to further understand the impact of market conditions on corporate governance.

Both past and current research enforce the need for educational diversity on boards (Hambrick & Mason, 1984; Schubert & Tavassoli, 2020). Recent studies have shown the importance of the level of education of board members (Papadimitri et al., 2020), but a gap in the knowledge on the diversity of fields of study of board members has been identified. In addition, if any correlation exists between the diversity of fields of study of board members and company performance, understanding how this relationship is affected by differing market conditions is an important consideration.

Board independence is an area of major focus in corporate governance. This is due to the trade-off between director links bringing positive resources and experience to the firm, and the need for true independence to protect shareholder and stakeholder value (Katmon et al. 2019). Taljaard et al. (2015) found a correlation between board independence and firm performance. Some of the successful companies in the study, however, still failed due to poor corporate governance practices (Rossouw & Styan, 2019). There is thus a need for research in South Africa into how the relationship between board independence and firm performance is affected by financial market conditions.

Ultimately, the majority of research has been focussed on ensuring that board members are monitoring management effectively by implementing appropriate structures as well as bringing beneficial resources to the firm, while reducing the risk

to shareholders. The research presented in the current report aims to add to the body of knowledge in order to aid in the development of corporate governance structures that enable boards and shareholders to make informed decisions to improve performance and reduce corporate failure.

# Chapter 3: Research Question

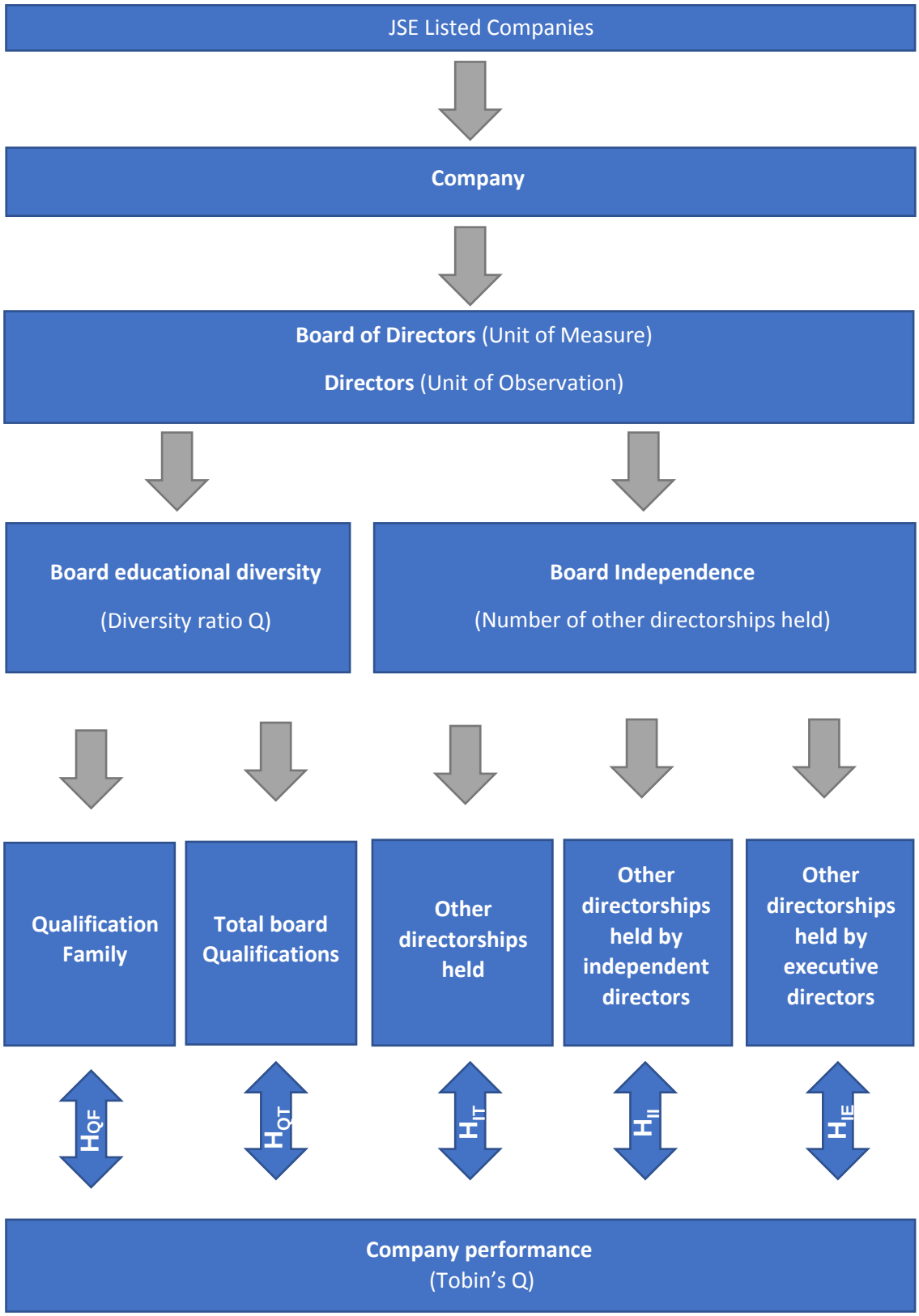
## 3.1 Research Question

The research covered in Chapter 2: highlights the variables that have a relationship with corporate governance, and their influence on corporate performance. The research of Taljaard et al. (2015) investigated the influence of variables relating to demographic diversity as well as educational diversity. Kerr and Bettis (1987) motivated that up 80 percent of company performance is true to market conditions. The research aimed to investigate if the relationship varied during changing market conditions. In addition to educational diversity, board independence was deconstructed with the aim of evaluating it in terms of other directorships held. The research aimed to determine if this could assist with the body of knowledge to avoid corporate governance failure (Rossouw & Styan, 2019; Schneider & Scherer, 2013). Based on the evidence of the highlighted knowledge gap, the following research question was proposed:

How do intellectual diversity and board independence affect company performance during periodic market cycles?

Figure 1 shows graphically how this research question can be deconstructed in order to test the hypotheses defined in the following section.

**Figure 1**: Graphical conceptual research model of hypotheses




(Source: Author's Own)

## 3.2 Hypotheses: Qualification diversity

### 3.2.1 Qualification diversity by qualification family

**$H_{QF\text{-}Bull\ 1}$:** The greater the intellectual diversity (by qualification family) of the board of directors, the greater the performance of the company during a bull market.

**$H_{QF\text{-}Bull\ 0}$:** There is no association between intellectual diversity (by qualification family) of the board and company performance during a bull market.

**$H_{QF\text{-}Bear\ 1}$:** The greater the intellectual diversity (by qualification family) of the board of directors, the greater the performance of the company during a bear market.

**$H_{QF\text{-}\ Bear\ 0}$:** There is no association between intellectual diversity (by qualification family) of the board and company performance during a bear market.

### 3.2.2 Qualification diversity by the total number of board qualifications

**$H_{QT\text{-}Bull\ 1}$:** The greater the intellectual diversity (by total qualifications) of the board of directors, the greater the performance of the company during a bull market.

**$H_{QT\text{-}Bull\ 0}$:** There is no association between intellectual diversity (by total qualifications) of the board and company performance during a bull market.

**$H_{QT\text{-}Bear\ 1}$:** The greater the intellectual diversity (by total qualifications) of the board of directors, the greater the performance of the company during a bear market.

**$H_{QT\text{-}\ Bear\ 0}$:** There is no association between intellectual diversity (by total qualifications) of the board and company performance during a bear market.

## 3.3 Hypotheses: Board Independence

### 3.3.1 Other directorships held

**$H_{IT\text{-}Bull\ 1}$:** The greater the level of board independence (by total other directorships), the greater the performance of the company during a bull market.

**$H_{IT\text{-}Bull\ 0}$:** There is no association between board independence (by total other directorships) and company performance during a bull market

**$H_{IT\text{-}Bear\ 1}$:** The greater the level of board independence (by total other directorships), the greater the performance of the company during a bear market.

**$H_{IT\text{-}Bear\ 0}$:** There is no association between board independence (by total other directorships) and company performance during a bear market.

### 3.3.2 Other directorships held by independent directors

**$H_{II\text{-}Bull\ 1}$:** The greater the level of board independence (by other directorships held by independent directors), the greater the performance of the company during a bull market.

**$H_{II\text{-}Bull\ 0}$:** There is no association between board independence (by other directorships held by independent directors) and company performance during a bull market.

**$H_{II\text{-}Bear\ 1}$:** The greater the level of board independence (by other directorships held by independent directors), the greater the performance of the company during a bear market.

**$H_{II\text{-}Bear\ 0}$:** There is no association between board independence (by other directorships held by independent directors) and company performance during a bear market.

### 3.3.3 Other directorships held by executive directors

**$H_{IE\text{-}Bull\ 1}$:** The greater the level of board independence (by other directorships held by executive directors), the greater the performance of the company during a bull market.

**$HI_{IE\text{-}Bull\ 0}$:** There is no association between board independence (by other directorships held by executive directors) and company performance during a bull market.

**$H_{IE\text{-}Bear\ 1}$:** The greater the level of board independence (by other directorships held by executive directors), the greater the performance of the company during a bear market.

**$HI_{IE\text{-}Bear\ 0}$:** There is no association between board independence (by other directorships held by executive directors) and company performance during a bear market.

# Chapter 4: Research Methodology

## 4.1 Research Design

The study presented in this report is quantitative in nature, and a pragmatic philosophy was employed in addressing the objectives of the research (Sauders & Lewis, 2018, p. 111). This philosophy was used by Hanna (2018) to provide clarity in differentiating market conditions. In addition, Schneider and Scherer (2013) used this approach to show organisational legitimacy and how it is a key aspect of corporate performance. The present study aims to add to the body of research to demonstrate how educational diversity can add value to a company's performance. It is postulated that enhanced board diversity would have a positive impact on the interactions between board members and thus on the company's performance.

This study utilises deductive reasoning based on an established field of research. Sauders and Lewis (2018) outlined a five-step process that is applied in this investigation to provide structure to the methodological approach. An earlier study conducted as part of a Masters research project (Taljaard et al., 2015) successfully applied this approach to highlight the link between demographic board diversity and company performance. Botha (2017) implemented a deductive approach in his research into risk aversion in the insurance industry. Despite the differences in subject matter, Botha's (2017) research utilised a similar philosophy and approach to that which is employed in this study. The research question has been defined based on the identified gap in the field of knowledge on the subject.

A mono-quantitative approach is employed due to the established body of data that exists on the topic and that can be applied to the present study. Multiple studies have been conducted on related subjects using similar methods (Bear & Post, 2010; Katmon et al., 2019; Zaheer, 2013). The findings of this study will be used to build upon foundational research in the field. Due to the quantitative nature of the research, the study is descripto-explanatory (Sauders & Lewis, 2018).

The study utilises archival research (Sauders & Lewis, 2018), drawing on secondary data that has been collected from multiple locations including the Osiris database (Osiris, 2020), Companies and Intellectual Properties Commission (CIPC) via the

Iress Databse (Iress, 2020), the Timbukone database (Timbukone, 2020), as well as manually compiled data from company reports for the research period in question. While there are many databases that contain JSE listed data, database errors are not uncommon. Public company data is considered to be accurate due to compliance requirements, and can easily be verified using company reports. Quantitative analytical methods are used to represent the data in a meaningful form, and these methods have proven effective through their application in similar Masters research reports (Botha, 2017; Nyirenda, 2010; Swartz, 2005),

The selection of the time period for which to collect data was primarily based on extending the database used in the research of Taljaard et al. (2015). A starting point of the year 2000 was used by Taljaard et al. (2015) due to the limited availability of electronic data prior to this. Their research period concluded in the 2012 financial year. In the present study, the research period has been extended up to the end of the 2015 fiscal year. The study employs cross-sectional sampling across Johannesburg Stock Exchange (JSE) listed companies over two periods in time representing a bull market and a bear market. The research of Kole and van Dijk (2016) was used to identify points in time where the market pivoted from bull to bear and vice versa. As discussed in Chapter **Error! Reference source not found.**, the available data from 2001 to 2019 were reviewed, and the years 2010 and 2015 were selected to represent a bull and a bear market respectively.

Following the collection of the relevant data, the compiled database was "cleaned", and missing entries and omitted data were collected from company reports. The cleaned dataset was tested for outliers before a Spearman's Rank Order Correlation was used for data analysis. The statistical analysis component of the research design is discussed further in Chapter 4.5.

## 4.2 Population and Sampling

The population from which samples were selected for the present study includes all JSE listed companies. This sampling approach is consistent with similar quantitative studies (Kiel & Nicholson, 2003; Nyirenda, 2010; Taljaard, Ward, & Muller, 2015). A probability sampling technique was utilised, by which a sample of the population

deemed to represent the majority of the value of the JSE was selected. The companies were selected by market capitalisation in descending order. It is important to note that the JSE top 40 ranked companies by market capitalisation account for more than 80% of the value in the JSE (Kotze, 2019). It is assumed in using this technique that the dataset is homogeneous.

Secondary data for the study were extracted from the Osiris Database (Osiris, 2020), the Companies and Intellectual Properties Commission accessed via the Iress database (Iress, 2020), the Timbukone database (Timbukone, 2020), as well as manually collected data from company reports for the research period. Microsoft Excel and IBM SPSS were used as an organisational and measurement tool for the analysis of the data and to show descriptive statistics.

In the research design stage, the aim was to achieve a target sample size calculated according the following formula:

$$n = \frac{Z^2\sigma^2}{e^2}$$

n =sample size
z = confidence level
σ = standard deviation
e = acceptable error

(Wegner, 2016, pg 190)

However, due to the time-intensive manual work required to source and collate the data required, the final dataset was set at 48 companies. The previous research of Taljaard (2013) used a sample of 40 JSE listed companies. The present research was able to expand on this data in both depth and breadth by incorporating an additional 25 companies and extending the time period under investigation to the fiscal year ending 2015. Fourteen companies were removed from the database used by Taljaard (2013) due to de-listing and missing data. In addition, a further three companies from the additional 24 were subsequently excluded due to missing data. The final sample used was 48 JSE listed companies. A sample of this size was determined to be suitable due to the materiality of the selected companies,

representing more than 80% of the value of the JSE (Kotze, 2019). A list of the companies selected for the study is provided in Appendix A. While the sample did not meet the calculated sample size due to time limitations in compiling and organising the data, it is noted that there was a 20% increase in the sample from the work of Taljaard (2013), and the sample of 48 JSE listed companies is considered a sufficient improvement for the study.

Additional data were collated for the 48 selected companies, including the number of other directorships held by the board members of the selected companies. The data were also inspected to identify if the other directorships held were held by independent directors and executive directors.

## 4.3 Unit of Analysis

The board of directors of JSE listed companies for the fiscal years ending in 2010 and 2015 were evaluated in the present study. This period is an extension of the Unit of Analysis period of Taljaard et al. (2015). The data for the unit of analysis were compiled by combining the data of the unit of observation, the individual directors of the board.

## 4.4 Data Collection

The data used in this study are limited to publicly traded companies. This is primarily due to the difficulty in accessing data for private companies. The data were collected from publicly available databases including the Osiris database (Osiris, 2020), the Companies and Intellectual Properties Commission accessed via the Iress database (Iress, 2020), and the Timbukone database. Gaps in the data were verified and filled in directly from the relevant annual reports.

## 4.5 Data Analysis

Due to the descriptive nature of the study, a statistical correlation technique was employed, using descriptive statistics to depict the dataset. In addition, a Spearman's Rank-Order Correlation was used to evaluate the relationship between the two continuous datasets (Wegner, 2016). This type of analysis was used by Hsu and Wu,

(2014) within their research into the influence of grey directors on company performance and in Abdullah's (2004) research into the effect of CEO duality on board performance. Spearman's Rank-Order Correlation is suitable for the nature of the data set, which is not guaranteed to be linear or parametric (Sheskin, 2011).
Spearman's Rank-Order Correlation requires the following three assumptions (Spearman, 1904):

**Assumption 1:** A continuous or ordinal set of data
**Assumption 2:** A paired set of variables
**Assumption 3:** A monotonic relationship

The statistical analysis component of the research design follows the five-step process outlined below (Laerd Statistics, 2018). This process is consistent with the research of Taljaard (2013), and was carried out in the present study for 2010 and repeated for 2015 to highlight any notable differences in the data between a bull and bear market.

**Step 1:** Check Assumption 1 and 2
**Step 2:** Generate a scatterplot of the data
**Step 3:** Visually inspect data to test assumption 3
In cases where a monotonic relationship could not be found, the data were presented in a visual format and discussed.
**Step 4:** Perform a bivariate Spearman's Rank-Order Correlation
**Step 5:** Analyse results

The strength of the relationship was assessed using a scale of strength from perfect to zero based on the research of Akoglu (2018).

**Independent variable 1: Educational diversity**

In order to quantify educational diversity, the Blau Index was utilized to calculate a "diversity ratio". Educational diversity is defined in Table 1 below. This measure of diversity has been applied in similar studies (Bear & Post, 2010; Campbell & Mínguez-Vera, 2008; Katmon et al., 2019). The diversity ratio is calculated according to the following formula:

$$Diversity\ Ratio\ (Q) = 1 - \sum(\rho_K{}^2)$$

ρ = proportion of the total group
$k^{th}$ = categories of group composition

The categories are defined by the number of fields of study listed in the database. Educational diversity has been split into two sub-categories: qualification diversity by qualification family, and qualification diversity by the total number of board qualifications. These categories are the same categories used by Taljaard (2013). A total of 308 education codes were identified in the database and these were subsequently categorised into 21 qualification families (Taljaard, 2013). A list of qualification families used is provided in Appendix B, and a list of all qualifications in the sample is provided in Appendix C.

**Independent variable 2: Board independence – number of other directorships**

Board independence is defined in Table 1 below. The Inoxico Singularity Index® (Inoxico, 2014) has been used as a guideline for this study, and is motivated by Mans-kemp and Viviers (2014) to highlight board diversity. The Inoxico Singularity Index is a proprietary algorithm which is based on board interlocks (other directorships held). Despite this metric not having been widely used in other studies, the components of the Inoxico Singularity Index (including board interlocks) have been well researched (Kiel & Nicholson, 2003). The research highlights the benefits and risks of directors who hold other positions and notes the need to seperate executive directors from non-executive directors with regards to other directorships

(Kiel & Nicholson, 2003). In this study, three subcategories of board independence have been identified for analysis. The subcategories are:

- Other directorships held
- Other directorships held by independent directors
- Other directorships held by executive directors.

**Dependent variable: Company Performance**

Company performance is defined in Table 1. Tobin's Q (Barnhart et al., 1994) is used as a measure of company performance, as corroborated by similar studies (Kiel & Nicholson, 2003). This tool allows for the consolidation of four aspects of company performance into a single continuous variable. The work of Taljaard et al. (2015) employed a proprietary Style Engine to quantify company performance, but the Style Engine was not available for application in this study. Tobin's Q however, provided a stable basis for Dahya and McConnell's (2006) study on corporate governance and company performance covering 799 firms in 22 countries, the largest study of its kind carried out to date. In a recent study on board independence in the IT industry by Pan et al. (2018), Tobin's Q was selected as the best available measure of firm performance. Tobin's Q is calculated according to the following formula:

$$Tobin's\ Q\ = \frac{\begin{array}{c} market\ value\ of\ common\ stock \\ +book\ value\ of\ prefered\ stock \\ +long\ term\ debt \end{array}}{book\ value\ of\ total\ asset}$$

**Table 1:** Variable definitions and measurement units

| | Definition | Measurement unit |
|---|---|---|
| Board Educational Diversity | "Diversity should be understood as the varied perspectives and approaches offered by members of different identity groups. For the purposes of King IV, it includes diversity in terms of fields of knowledge and skills" (Institute of 5w6jDirectors South Africa, 2016, p11)* | • Qualification family: Diversity ratio (Blau index) (Q)<br>• Total Board qualifications: Diversity ratio (Q) |
| Board Independence | "Independence generally means the exercise of objective, unfettered judgement. When used as the measure by which to judge the appearance of independence, or to categorise a non-executive member of the governing body or its committees as independent, it means the absence of interest, position, association or relationship which, when judged from a perspective of a reasonable and informed third party, is likely to influence unduly or cause bias in decision-making" (Institute of Directors South Africa, 2016, p13). | • Number of total other directorships held by the board<br>• Number of other directorships held by independent directors of the board<br>• Number of other directorships held by executive directors of the board |
| Company Performance | "Good performance is an organisation achieving its strategic objectives, and positive outcomes in terms of its effects on the capitals it uses and effects and on the triple context in which it operates" (Institute of Directors South Africa, 2016, p22). The triple is noted as economy, society and environmental performance | • Tobin's Q |

**For the purposes of this study, this definition has been adapted to include only knowledge and skills, and exclude age, race and gender.*

## 4.6 Quality Controls

Accuracy of data is the key risk area for this study. To minimize this risk, the data were verified by comparison with the company annual reports, particularly where data were missing or questioned. Missing data were added to the dataset through this verification process where required. In cases where missing or questionable data could not easily be verified, the entire entry was excluded from the study to effectively remove any degree of uncertainty in the conclusions drawn from the data (Wegner,

2016). It is however, acknowledged that there is room for error in the database and despite every effort to mitigate this, it remains a limitation in the study.

## 4.7 Limitations

The limitations of the study have been seperated into seven key categories, outlined below.

### 4.7.1 Formal vs. informal education

This study focusses solely on formal education due to the fact that the chosen measurement of educational diversity (the Blau Index) uses formal education. Marsick (2003) argued that managers predominantly learn from the challenges they have faced. However, he also acknowledged that a manager's formal education shapes their thinking process.

### 4.7.2 Data collection

While there are many databases that curate JSE data, no single database holds all the data required for this research. The data was thus required to be sourced from multiple databases, and also to incorporate manually captured data from company reports to fill any data gaps. The manually captured data is susceptible to human error. In addition, there is a risk of errors in the databases. While checks were carried out to ensure quality assurance, discrepancies between information from databases and from company reports remain a possible risk.

### 4.7.3 Statistical errors

A confidence interval of 95 percent has been used in this study in line with similar research in the field (Abdullah, 2004). For this study, this is understood to be acceptable. The sample size is an additional limiting factor. The sample time frame only covers the limited period selected, limiting the study's applicability for the periods outside 2010 and 2015, as a result of changes in diversity and performance over time. The process of visually inspecting the data to determine if it is monotonic is also a limitation of the research.

### 4.7.4 Public companies

The study is limited to public companies. Private companies are excluded due to the limitations in accessing quality data. While this may limit the applicability of the knowledge gained from the study, it also provides an opportunity for further research. Additionally, JSE companies are required to provide accurate information, and this study assumes that the companies have reported information and data correctly.

### 4.7.5 Access to proprietary software

Taljaard et al. (2015) provided insight into board independence in South Africa. Their dependent variable, however, is based on proprietary software. The present study uses Tobin's Q (Dahya et al., 2008) to quantify company performance, as it is an accessible and well researched tool, but it should be noted that the outcome may differ from the work of Taljaard et al. (2015) as a result of this variation. However, by using a publicly available performance measure, it provides opportunities for the research to be verified and built upon to create a meaningful comparison.

### 4.7.6 Reporting periods

The bull and bear market periods used in this study included data up until the end of the reporting periods ending within the specified years. The difference in reporting months during the years was not considered.

### 4.7.7 Market conditions

The years 2010 and 2015 selected for the relative market conditions are cross sections of the total span of each of the bull and bear markets respectively, and thus do not cover the full period of market performance. The volumes of data analysed in the study for each of the 2010 and 2015 bull and bear market cycles are however, considered adequate to be representative of the entire market cycle span.

# Chapter 5: Results

## 5.1 Qualification Diversity

### 5.1.1 Qualification diversity by qualification family

Table 2and Table 3 provide descriptive statistics for educational diversity (by qualification family) and Tobin's Q (used as a measure of company performance) for 2010 and 2015, respectively. The statistics indicate that the mean Tobin's Q in 2015 is 0.332 points below the 2010 mean. The difference between the minimum and maximum values for Tobin's Q is narrower in 2015 than in 2010, which shows that the market indicated a value closer to the intrinsic value of the companies. This can be seen by the reduction in variance and standard deviation from 2010 to 2015. The mean value of educational diversity is slightly higher in 2010 than in 2015, while the range of educational diversity by qualification is narrower in 2015 than in 2010.

**Table 2:** Descriptive statistics for educational diversity (qualification family) and company performance in 2010.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Educational Diversity (Qualification Family) 2010 (Q) | 48 | .180 | .830 | .672 | .115 | .013 |
| Company Performance 2010 (Tobin's Q) | 48 | .056 | 5.017 | 1.499 | 1.069 | 1.142 |
| Valid N (listwise) | 48 | | | | | |

**Table 3:** Descriptive statistics for educational diversity (qualification family) and company performance in 2015.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Educational Diversity (Qualification Family) 2015 (Q) | 48 | .444 | .793 | .681 | .086 | .007 |
| Company Performance 2015 (Tobin's Q) | 48 | .090 | 4.008 | 1.167 | .953 | .907 |
| Valid N (listwise) | 48 | | | | | |

Figure 2 and Figure 3 show the relationship between company performance and educational diversity by qualification family, for 2010 and 2015 respectively. Best-fit lines have been fitted to the data in the figures. Figure 2 shows a high concentration

of companies in the lower right-hand quadrant of the scatter plot, indicating a low Tobin's Q and high degree of educational diversity. The upper right quadrant of Figure 2 displays companies with a high Tobin's Q and also a relatively high educational diversity by qualification family. The lower left quadrant shows companies with a Tobin's Q indicating performance below their intrinsic value and comprising of a relatively low educational diversity by qualification family. An important observation is the absence of any companies in the upper left quadrant in Figure 2 as this shows that there were no companies that had a high Tobin's Q with a low educational diversity by qualification family.

Using visual analysis, Figure 3 indicates a similar trend in the data for 2015 as Figure 2 shows for 2010. One exception to the trend is a company that was observed to have an educational diversity factor of less than 0.5 while still achieving a Tobin's Q of 2.4. While this company is considered to be an outlier, it has still been considered in the results as no valid explanation could be found to remove this data point.

While Figure 2 shows a flat trendline for the data in 2010 and Figure 3 shows a gently positive-sloping line for 2015, neither dataset can be considered to show a significant relationship between company performance and educational diversity by qualification family.

**Figure 2:** Scatter plot to show educational diversity (qualification family) against company performance in 2010.

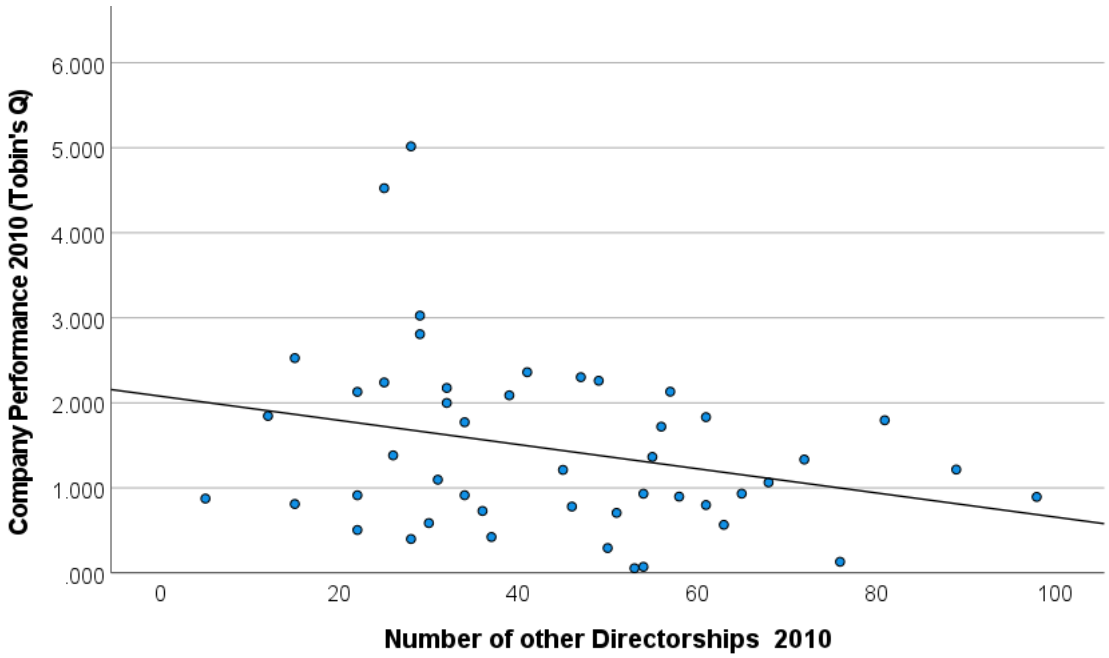



**Figure 3:** Scatter plot to show educational diversity (qualification family) against company performance in 2015.

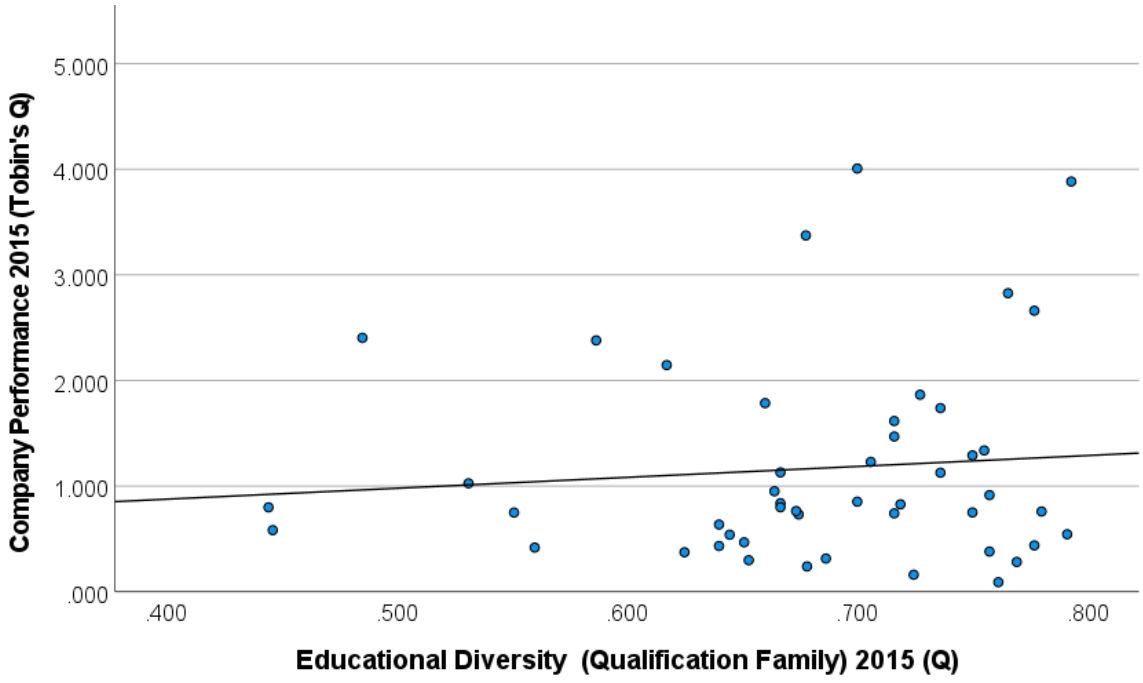


Table 4 and Table 5 below show the results of the Spearman's Rank-Order Correlation conducted for 2010 and 2015. The datasets for both of these years was determined to be monotonic by visual inspection. The results displayed in Table 4 show there is no significant relationship between company performance and educational diversity by qualification family in 2010 ($r = -0.194$, $\rho = 0.187$). Similarly, the results for the 2015 test displayed in Table 5 also indicate no significant relationship between company performance and educational diversity by qualification family ($r = -0.072$, $\rho = 0.628$).

**Table 4:** Spearman's Correlation for educational diversity (qualification family) against company performance in the bull market of 2010.

| | | | Educational Diversity (Qualification Family) 2010 (Q) | Company Performance 2010 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Educational Diversity (Qualification Family) 2010 (Q) | Correlation Coefficient | 1.000 | -.194 |
| | | Sig. (2-tailed) | . | .187 |
| | | N | 48 | 48 |
| | Company Performance 2010 (Tobin's Q) | Correlation Coefficient | -.194 | 1.000 |
| | | Sig. (2-tailed) | .187 | . |
| | | N | 48 | 48 |

**Table 5:** Spearman's Correlation for educational diversity (qualification family) against company performance in 2015.

| | | | Educational Diversity (Qualification Family) 2015 (Q) | Company Performance 2015 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Educational Diversity (Qualification Family) 2015 (Q) | Correlation Coefficient | 1.000 | .072 |
| | | Sig. (2-tailed) | . | .628 |
| | | N | 48 | 48 |
| | Company Performance 2015 (Tobin's Q) | Correlation Coefficient | .072 | 1.000 |
| | | Sig. (2-tailed) | .628 | . |
| | | N | 48 | 48 |

### 5.1.2 Qualification diversity by the total number of board qualifications

Table 6 and Table 7 display the descriptive statistics for educational diversity based on total qualifications of the board of directors and for company performance for 2010 and 2015, respectively. The data sets have been assessed visually to confirm a monotonic relationship. A data point was removed from the data as a significant outlier, and is discussed further in chapter 6.1.2. The mean Tobin's Q declined from 1.514 in 2010 to 1.183 in 2015. The mean educational diversity by total qualifications is lower for 2015 (0.908) than for 2010 (0.916). The range of values for educational diversity by total qualifications is also lower in 2015 than in 2010.

**Table 6:** Descriptive statistics for educational diversity (total qualifications) and company performance in 2010.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Educational Diversity (Qualification) 2010 (Q) | 47 | .815 | .960 | .916 | .038 | .001 |
| Company Performance 2010 (Tobin's Q) | 47 | .056 | 5.017 | 1.514 | 1.075 | 1.155 |
| Valid N (listwise) | 47 | | | | | |

**Table 7:** Descriptive statistics for educational diversity (total qualifications) and company performance in 2015.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Educational Diversity (Qualification) 2015(Q) | 47 | .840 | .952 | .908 | .032 | .001 |
| Company Performance 2015 (Tobin's Q) | 47 | .090 | 4.008 | 1.183 | .956 | .913 |
| Valid N (listwise) | 47 | | | | | |

The scatter plots in Figure 4 and Figure 5 below depict the relationship between company performance and educational diversity by total qualification for 2010 and 2015, respectively. Visual analysis of Figure 4 highlights that companies with high Tobin's Q values generally plot on the right-hand side of the graph, with high educational diversity (greater than ~0.875), while no companies with a high Tobin's Q are found on the left with low educational diversity (<0.875). A similar pattern is observed in Figure 5, highlighting that high Tobin's Q companies again have educational diversity greater than ~0.875 in 2015. Note the different scales used on the x axis (educational diversity) of Figure 4 and Figure 5. The plots in Figure 4 and Figure 5 suggest that if a company has a high Tobin's Q and is performing well, the company may have a high degree of educational diversity by qualification. However, a high level of educational diversity does not necessarily mean the company will have a high Tobin's Q.

Best fit lines were added to the scatter plots for reference, but these were not used in the statistical calculations. From visual inspection, the monotonic relationship identified in 2010 (Figure 4) indicates a positive correlation between company performance and educational diversity by total qualifications, while the monotonic relationship for 2015 (Figure 5) indicates a negative trend. Through visual comparison of Figure 4 and Figure 5, 14 companies had a Tobin's Q value above 2.0 in 2010, while in 2015 only eight companies achieved a Tobin's Q value greater than 2.0

**Figure 4:** Scatter plot to show educational diversity (total qualifications) against company performance in 2010.

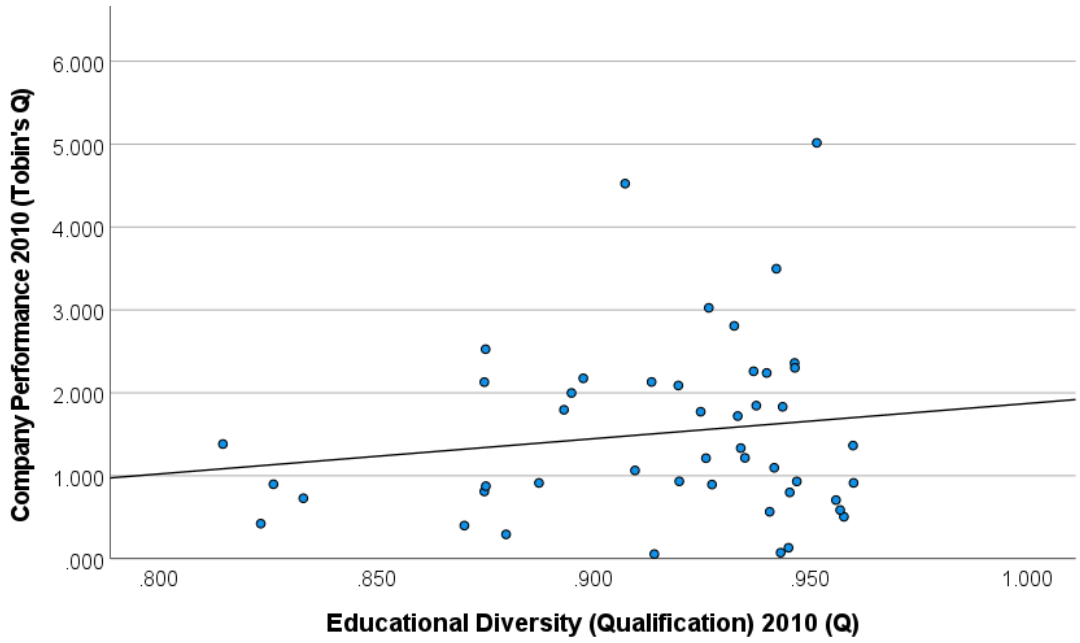
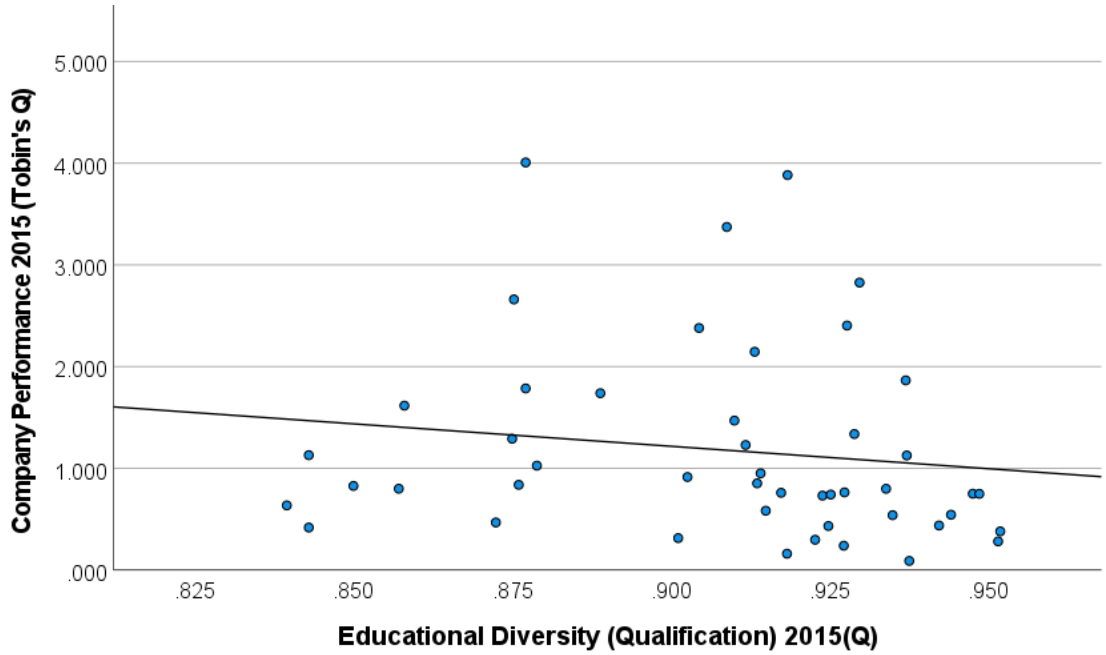



**Figure 5:** Scatter plot to show educational diversity (total qualifications) against company performance in 2015.



The results of the Spearman's Rank-Order Correlation for 2010 displayed in Table 8 below suggest that there is no significant relationship between educational diversity by the total number of qualifications and company performance ($r = 0.046$, $\rho = 0.758$).

The results of the Spearman's Rank-Order Correlation for 2015 displayed in Table 9 show that an increase in educational diversity (based on total qualifications) has a statistically significant weak negative correlation with company performance ($r = 0.301$, $\rho = 0.758$).

**Table 8:** Spearman's Correlation for educational diversity (total qualifications) against company performance in 2010.

| | | | Educational Diversity (Qualification) 2010 (Q) | Company Performance 2010 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Educational Diversity (Qualification) 2010 (Q) | Correlation Coefficient | 1.000 | .046 |
| | | Sig. (2-tailed) | . | .758 |
| | | N | 47 | 47 |
| | Company Performance 2010 (Tobin's Q) | Correlation Coefficient | .046 | 1.000 |
| | | Sig. (2-tailed) | .758 | . |
| | | N | 47 | 47 |

**Table 9:** Spearman's Correlation for educational diversity (total qualifications) against company performance in 2015.

| | | | Educational Diversity (Qualification) 2015 (Q) | Company Performance 2015 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Educational Diversity (Qualification) 2015(Q) | Correlation Coefficient | 1.000 | -.301* |
| | | Sig. (2-tailed) | . | .040 |
| | | N | 47 | 47 |
| | Company Performance 2015 (Tobin's Q) | Correlation Coefficient | -.301* | 1.000 |
| | | Sig. (2-tailed) | .040 | . |
| | | N | 47 | 47 |

*. Correlation is significant at the 0.05 level (2-tailed).

## 5.2 Board Independence

### 5.2.1 Other directorships held

Table 10 and Table 11 below display the descriptive statistics for the dataset used in the statistical analysis to investigate the relationship between the number of other directorships held by the board of directors and how this is related to the performance of the firm. Two outliers, PPC Limited and Trencor Limited, were removed from the dataset to achieve a monotonic relationship in accordance with the statistical methodology (Laerd Statistics, 2018). It was noted in the case of PPC Limited that while the number of other directorships increased from 2010 to 2015, the Tobin's Q value decreased from 3.49 to 0.73 in the same period. The same inverse relationship was observed for Trencor Limited. It can be seen from the descriptive statistics below that the mean number of other directorships remained almost constant at ~45 between 2010 and 2015, while the Tobin's Q value decreased from 1.469 in 2010 to 1.185 in 2015.

**Table 10:** Descriptive statistics for the number of other directorships held and company performance in 2010.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Number of other Directorships 2010 | 46 | 12 | 98 | 44.630 | 20.142 | 405.705 |
| Company Performance 2010 (Tobin's Q) | 46 | .056 | 5.017 | 1.469 | 1.046 | 1.094 |
| Valid N (listwise) | 46 | | | | | |

**Table 11:** Descriptive statistics for the number of other directorships held and company performance in 2015.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Number of other Directorships 2015 | 46 | 9 | 148 | 44.652 | 29.917 | 895.032 |
| Company Performance 2015 (Tobin's Q) | 46 | .090 | 4.008 | 1.185 | .969 | .940 |
| Valid N (listwise) | 46 | | | | | |

Figure 6 and Figure 7 below display scatter plots for the data used to evaluate the relationship between the number of other directorships held by a board and the company performance measured in a Tobin's Q ratio for the 2010 and 2015 periods. From visual inspection of the figures, a negative monotonic relationship is observed for both 2010 and 2015, indicated by the negative-sloping trendlines. It is also apparent from both Figure 6 and Figure 7 that there is an absence of data points in the upper right-hand quadrant, indicating that no companies in the dataset have a high Tobin's Q and also a high number of other directorships. The difference in the scale used for the number of other directorships in Figure 6 and Figure 7 has been accounted for in this observation.

**Figure 6:** Scatter plot to show the number of other directorships held against company performance in 2010.

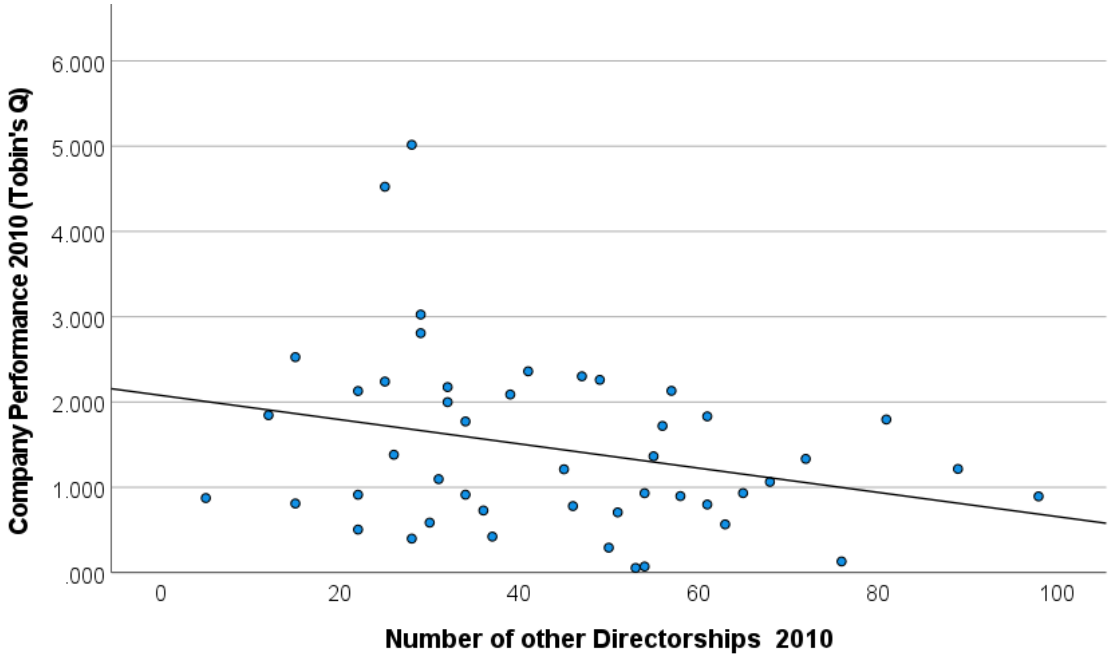


**Figure 7:** Scatter plot to show the number of other directorships held against company performance in 2015.

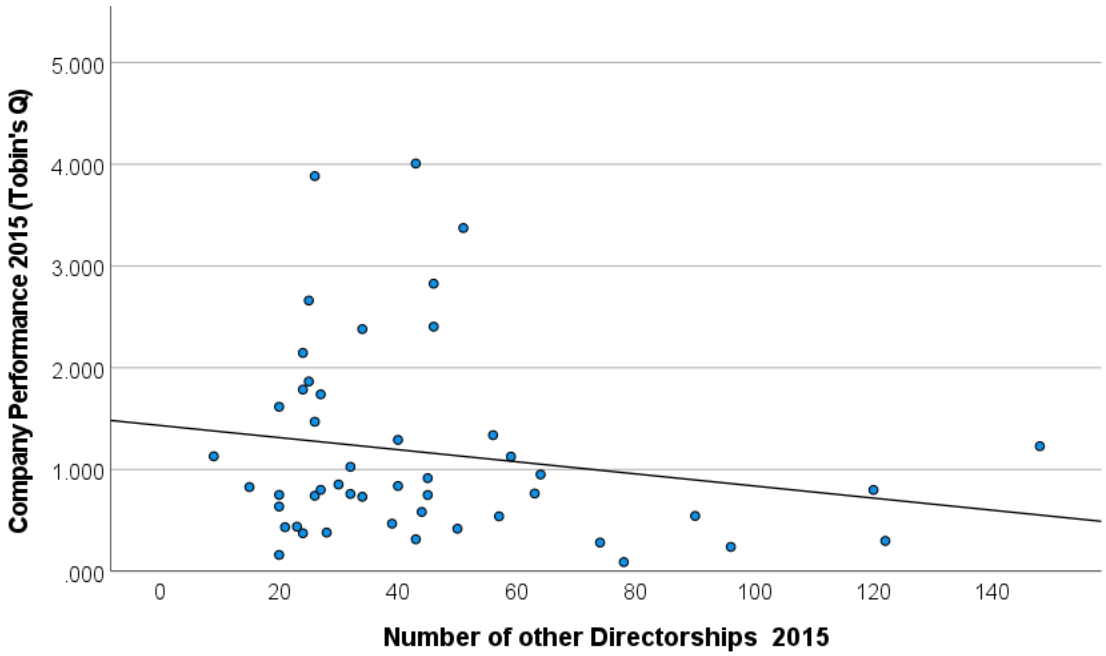



Table 12 shows the results of the Spearman's Rank-Order Correlation for 2010. The total number of other directorships of the board shows a statistically significant weak negative correlation with company performance in 2010 ($r = 0.290$, $\rho = 0.05$). Table 13 shows the results of the Spearman's Rank-Order Correlation between the number of other directorships of the board and company performance for 2015. The results indicate that there is no significant relationship between the total number of other directorships of the board and company performance in 2015 ($r = -0.141$, $\rho = 0.351$).

**Table 12:** Spearman's Correlation for the number of other directorships held against company performance in 2010.

| | | | Number of other Directorships 2010 | Company Performance 2010 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Number of other Directorships 2010 | Correlation Coefficient | 1.000 | -.290 |
| | | Sig. (2-tailed) | . | .050 |
| | | N | 46 | 46 |
| | Company Performance 2010 (Tobin's Q) | Correlation Coefficient | -.290 | 1.000 |
| | | Sig. (2-tailed) | .050 | . |
| | | N | 46 | 46 |

**Table 13:** Spearman's Correlation for the number of other directorships held and company performance in 2015.

| | | | Number of other Directorships 2015 | Company Performance 2015 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Number of other Directorships 2015 | Correlation Coefficient | 1.000 | -.141 |
| | | Sig. (2-tailed) | . | .351 |
| | | N | 46 | 46 |
| | Company Performance 2015 (Tobin's Q) | Correlation Coefficient | -.141 | 1.000 |
| | | Sig. (2-tailed) | .351 | . |
| | | N | 46 | 46 |

### 5.2.2 Other directorships held by Independent directors

Table 14 and Table 15 summarize the descriptive statistics for the number of other directorships held by independent directors and for company performance for 2010 and 2015, respectively. For the 2010 dataset (Table 14), three outliers (Sasol Limited, MTN Group Limited, and the Bidvest Group Limited) were identified and removed from the data set to achieve an acceptable monotonic relationship. MTN and Sasol were identified as outliers by visual inspection, in addition, Bidvest Limited was found to have a high number of Independent directors holding other directorships. However, due to the nature of acquisition of multiple businesses, along

with improved Tobin's Q, it was determined to be an outlier. For the year 2015 (Table 15), no monotonic relationship was observed even after the exclusion of the three outliers. Table 14 and Table 15 show that the mean of other positions held by independent directors was similar in 2010 and 2015 (25.11 and 26.47, respectively). The mean Tobin's Q ratio however, reduced from 1.508 in 2010 to 1.173 in 2015.

**Table 14:** Descriptive statistics for the number of other directorships held by independent directors and company performance in 2010.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Number of Other Directorships of Independent Directors 2010 | 45 | 4 | 52 | 25.11 | 11.697 | 136.828 |
| Company Performance 2010 (Tobin's Q) | 45 | .056 | 5.017 | 1.508 | 1.101 | 1.211 |
| Valid N (listwise) | 45 | | | | | |

**Table 15:** Descriptive statistics for the number of other directorships held by independent directors and company performance in 2015.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Number of Other Directorships of Independent Directors 2015 | 45 | 1 | 70 | 26.47 | 15.223 | 231.755 |
| Company Performance 2015 (Tobin's Q) | 45 | .090 | 4.008 | 1.173 | .984 | .968 |
| Valid N (listwise) | 45 | | | | | |

Figure 8 and Figure 9 show scatter plots of the number of other directorships held by independent directors against company performance for 2010 and 2015, respectively. Due to the lack of a monotonic relationship in the 2015 results, an alternate approach was used to visually display the data. A LOESS (Locally Estimated Scatterplot Smoothing) was applied to determine trends in the data, and this line is displayed in addition to the linear trendline on both Figure 8 and Figure 9. It is notable that there no data points in the upper right quadrant in 2010 (Figure 8), indicating that no companies in the dataset had a high number of other directorships of independent directors and also a high Tobin's Q. Only two data points in 2015 (Figure 9) plot in the upper right quadrant.

**Figure 8**. Scatter plot to show the number of other directorships held by independent directors against company performance in 2010.

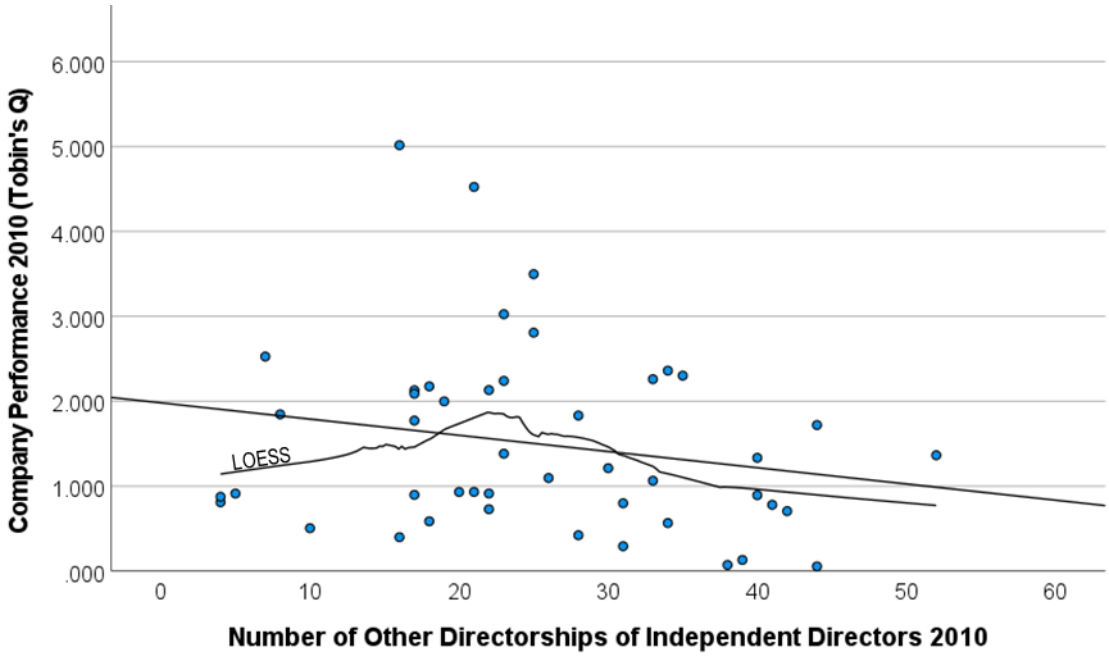



**Figure 9:** Scatter plot to show the number of other directorships held by independent directors against company performance in 2015.

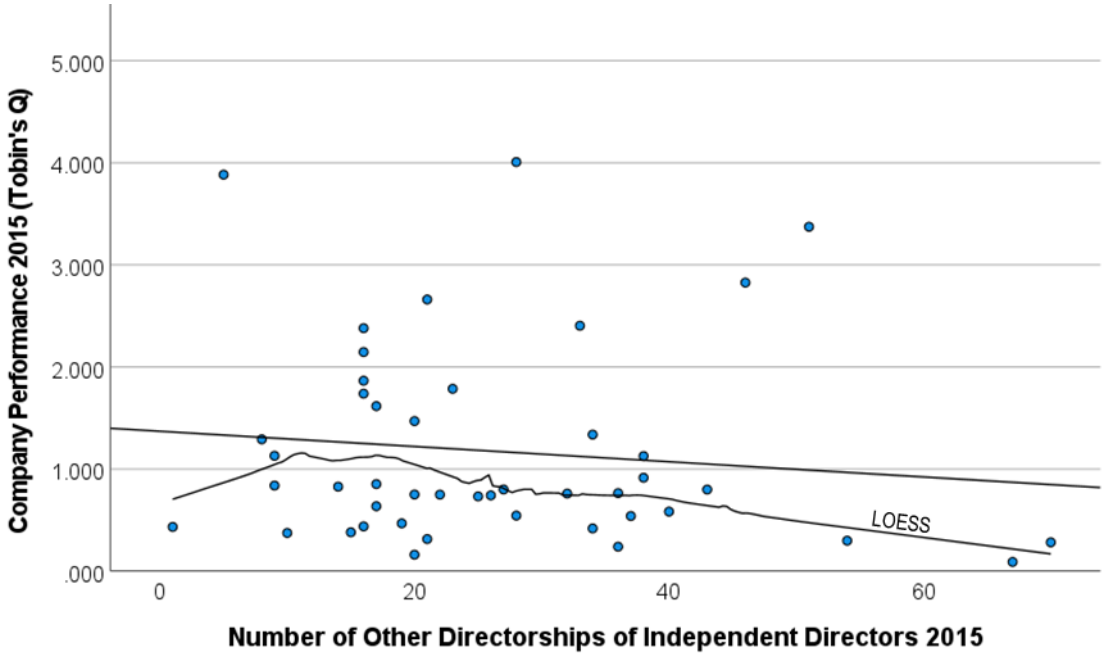


Table 16 shows the results of the Spearman's Correlation between the number of other directorships held by independent directors and company performance for 2010. The results show that there is no significant relationship between the total number of independent directors with other directorships of the board and company performance ($r = -0.190$, $\rho = 0.210$).

As discussed above (Chapter 0), a monotonic relationship was not observed for 2015 between the number of other directorships held by independent directors and company performance, and thus no Spearman's Rank-Order Correlation test was carried out for 2015. In order to further understand the data, a LOESS best-fit curve was used to display any trends in the data. While no significant statistical result was presented, the LOESS line indicates a positive relationship between the number of independent directors with other directorships and company performance until a maximum number of other directorships, after which the relationship becomes negative. The LOESS lines indicate that in 2010, the maximum number of independent directorships before a decline in company performance was about 25, while in 2015 the maximum number was around 18.

**Table 16:** Spearman's Correlation for the number of other directorships held by independent directors against company performance in 2010.

| | | | Number of Other Directorships of Independent Directors 2010 | Company Performance 2010 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Number of Other Directorships of Independent Directors 2010 | Correlation Coefficient | 1.000 | -.190 |
| | | Sig. (2-tailed) | . | .210 |
| | | N | 45 | 45 |
| | Company Performance 2010 (Tobin's Q) | Correlation Coefficient | -.190 | 1.000 |
| | | Sig. (2-tailed) | .210 | . |
| | | N | 45 | 45 |

### 5.2.3 Other directorships held by executive directors

Table 17 and Table 18 below display the descriptive statistics for the data used to evaluate the relationship between the number of other directorships held by executive directors and company performance for 2010 and 2015, respectively. Five companies were identified as outliers from the original dataset and removed to achieve a monotonic relationship. The companies removed were KAP Industrial Holdings Limited, Aveng Limited, PPC Limited, Naspers and Truworths International Limited. From the 43 data entries used in the sample displayed in Table 17 and Table 18, it can be seen that the mean number of other directorships held by executive directors is similar for 2010 (5.09) and 2015 (5.00). The mean Tobin's Q value from the dataset decreased from 1.411 in 2010 to 1.072 in 2015.

**Table 17:** Descriptive statistics for the number of other directorships held by executive directors and company performance in 2010.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Number of Other Directorships of Executive Directors 2010 | 43 | 0 | 44 | 5.09 | 7.492 | 56.134 |
| Company Performance 2010 (Tobin's Q) | 43 | .056 | 5.017 | 1.411 | .944 | .892 |
| Valid N (listwise) | 43 | | | | | |

**Table 18:** Descriptive statistics for the number of other directorships held by executive directors and company performance in 2015.

| | N | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|
| Number of Other Directorships of Executive Directors 2015 | 43 | 0 | 57 | 5.00 | 9.376 | 87.905 |
| Company Performance 2015 (Tobin's Q) | 43 | .090 | 3.374 | 1.072 | .781 | .610 |
| Valid N (listwise) | 43 | | | | | |

Figure 10 and Figure 11 show scatter plots of the number of other directorships held by executive directors against company performance for 2010 and 2015, respectively. From visual inspection, both graphs show a similar trend which highlights the absence of data points in the upper right-hand quadrant, representing companies with a high number of executive directors with other directorships and strong company performance. The trendlines indicated for reference are both gently sloping in a negative direction.

**Figure 10:** Scatter plot to show the number of other directorships held by executive directors and company performance for 2010.

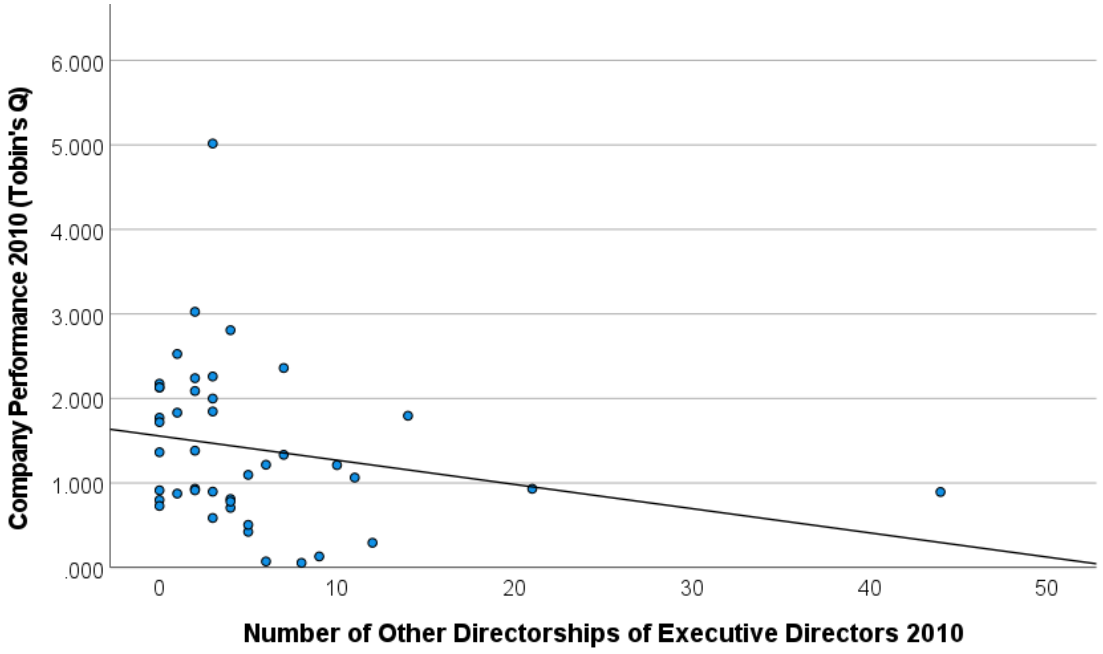


**Figure 11:** Scatter plot to show the number of other directorships held by executive directors and company performance for 2010.

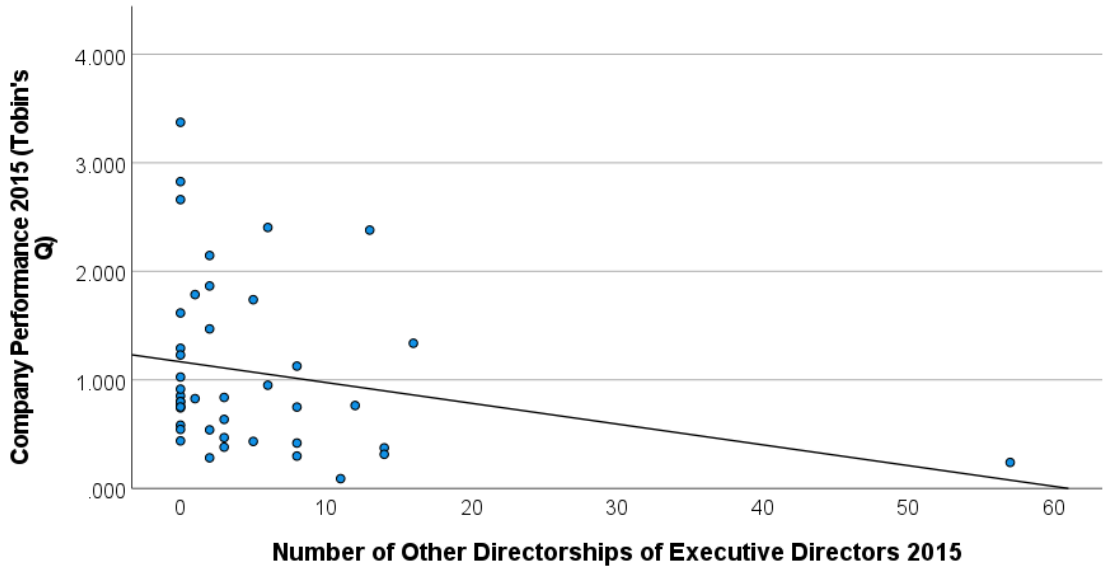



Table 19 and Table 20 below display the results of the Spearman's Rank Order Correlation between the number of other directorships held by independent directors and company performance for 2010 and 2015, respectively. For the year 2010 (Table 19), the results indicate that there is a weak negative correlation between the number of other directorships held by executive directors and the performance of the company ($r = -0.340$, $\rho = 0.026$). A weak negative correlation with company performance is also observed in 2015 (Table 20) for the number of other directorships held by executive directors ($r = -0.313$, $\rho = 0.041$).

**Table 19:** Spearman's Correlation for the number of other directorships held by executive directors against company performance in 2010.

| | | | Number of Other Directorships of Executive Directors 2010 | Company Performance 2010 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Number of Other Directorships of Executive Directors 2010 | Correlation Coefficient | 1.000 | -.340* |
| | | Sig. (2-tailed) | . | .026 |
| | | N | 43 | 43 |
| | Company Performance 2010 (Tobin's Q) | Correlation Coefficient | -.340* | 1.000 |
| | | Sig. (2-tailed) | .026 | . |
| | | N | 43 | 43 |

*. Correlation is significant at the 0.05 level (2-tailed).

**Table 20:** Spearman's Correlation for the number of other directorships held by executive directors and company performance in 2015.

| | | | Number of Other Directorships of Executive Directors 2015 | Company Performance 2015 (Tobin's Q) |
|---|---|---|---|---|
| Spearman's rho | Number of Other Directorships of Executive Directors 2015 | Correlation Coefficient | 1.000 | -.313* |
| | | Sig. (2-tailed) | . | .041 |
| | | N | 43 | 43 |
| | Company Performance 2015 (Tobin's Q) | Correlation Coefficient | -.313* | 1.000 |
| | | Sig. (2-tailed) | .041 | . |
| | | N | 43 | 43 |

*. Correlation is significant at the 0.05 level (2-tailed).

# Chapter 6: Discussion of Results

## 6.1 Qualification Diversity

### 6.1.1 Qualification diversity by qualification family

The results from the Spearman's Rank-Order Correlation conducted in Section 5.1.1 show that there is no significant relationship between educational diversity by qualification family and company performance for both the 2010 and 2015 periods. The alternate hypotheses identified in Section 3.2.1 for 2010 and 2015 are: the greater the intellectual diversity of the board of directors (by qualification family), the greater the performance of the company during a bull market ($H_{QF\text{-}Bull\ 1}$), and the greater the intellectual diversity of the board of directors (by qualification family), the greater the performance of the company during a bear market ($H_{QF\text{-}Bear\ 1}$). The alternate hypotheses for 2010 and 2015 are therefore rejected and the null hypotheses of there being no association are accepted for both years ($H_{QF\text{-}Bull\ 0}$ and $H_{QF\text{-}\ Bear\ 0}$).

The findings are not consistent with previous research. Kiel and Nicholson (2003) showed that boards with a greater diversity of industry experience are likely to perform better. A possible explanation for the mismatch between the results of the present study and of Kiel and Nicholson (2003) is that despite having a diverse educational background in terms of qualification family, the board may not have diverse industry experience. On the other hand, Latif et al. (2013) showed that larger boards are more likely to have a greater diversity of education, and Dahya et al., (2008) suggested that larger boards are linked with a reduced market value (although this is not always statistically significant). The combination of these two findings implies that larger boards, which are assumed to have a greater diversity of education, have reduced market values. The results of the present study do not align with this research, showing no relationship between educational diversity by qualification family and company performance, rather than a negative relationship implied by the findings of Dahya et al., (2008) and Latif et al., 2013. An additional reason for the mismatch between the results of the present study and previous investigations could be related to market cycles. Previous studies may have considered datasets over multiple years without isolating economic cycles, and thus

presented more long-term results that do not consider the effects of individual market cycles. In addition, the effects of market cycles may overshadow the effects of any other variables being tested, supported by the observation of (Kerr & Bettis, 1987) that up to 80 percent of a company's performance is related to market conditions.

The results indicate that the mean company performance for the sample is lower for the 2015 period than for the 2010 period. The mean Tobin's Q value for 2010 is 1.499, in contrast to the lower Tobin's Q value of 1.167 for 2015. This difference in company performance is in line with the expectations for the market conditions of the years selected, with higher mean company performance in the bull market of 2010 and lower performance in the bear market of 2015.

While the results of the Spearman's Correlation indicate no statistically significant relationship for the bull market or the bear market with respect to educational diversity by qualification family, visual analysis of the data displayed in Figure 2 and Figure 3 highlights an absence of companies in the upper left quadrant representing companies with a low diversity ratio by qualification family and high company performance. The implication of this observation is that companies with low educational diversity are unlikely to show strong performance according to the Tobin's Q measure of performance. Since no significant relationship between company performance and educational diversity by qualification family is indicated by the statistical analysis of the data, this finding is inconsistent with the work of Kiel and Nicholson (2003) in which a positive relationship was documented (boards with greater diversity of industry experience were shown to be likely to perfrom better). However, the fact that almost no companies in the present study show strong performance with low educational diversity (no data points in the top left quadrants of Figure 2 and Figure 3) implies a relationship comparable to that of Kiel and Nicholson (2003).

### 6.1.2 Qualification diversity by the total number of board qualifications

The Spearman's Rank-Order Correlation performed in Chapter 5.1.2 found no significant relationship between educational diversity by the total number of qualifications and company performance for 2010. The alternate hypothesis of "the

greater the intellectual diversity of the board of directors (by total qualifications), the greater the performance of the company during a bull market" ($H_{QT\text{-}Bull\ 1}$) is rejected and the null hypothesis of there being no association ($H_{QT\text{-}Bull\ 0}$) is accepted. The results of the Spearman's' Correlation for the year 2015 however, indicate that educational diversity based on total qualifications has a statistically significant weak negative correlation with company performance. The alternate hypothesis for the year 2015 of "the greater the intellectual diversity of the board of directors (by total qualifications), the greater the performance of the company during a bear market" ($H_{QT\text{-}Bull\ 1}$) is rejected. The null hypothesis of there being no association is not rejected due to the finding of a significant negative relationship between the two variables.

Similar to the findings in Chapter 6.1.2, the results for the year 2010 are not consistent with the previous body of research which implies a positive relationship between the diversity of industry experience of boards and the performance of the companies (Katmon et al., 2019; Kiel & Nicholson, 2003; Taljaard et al., 2015). This again highlights the need to question the measure of educational diversity and the effects of formal and informal education, outlined in the limitations of this research (Chapter 4.7.1). Board members with fewer formal qualifications but many years of experience in diverse and challenging environments may be just as competent and valuable to a board as members with multiple high-level formal qualifications such as universiity and post-graduate degrees.

The antithesis of the previous research mentioned above is that increased educational diversity has a negative relationship with company performance, and this is in line with the results for 2015 in the present study. The argument is again supported by the research of Dahya et al. (2008), who suggested that larger boards are linked with a reduced market value, and with the research of Latif et al. (2013), who showed that larger boards are more likely to have a greater diversity of education. This shows that the results of educational diversity could be influenced by board size. The logical assumption from these 2 studies is that larger boards with higher educational diversity have lower market values, and this is observed in the results of the present study for the year 2015.

Given the influence of board size on educational diversity implied by the research of Latif et al. (2013), it is useful to address other studies relating to board size and company performance. Zaheer (2013) noted that board size could reduce the ability to implement strategy, and Latif et al. (2013) demonstrated that larger boards are more likely to have more board interlocks (discussed further in Chapter 6.2). The implication of these studies is that larger boards and thus boards with higher levels of educational diversity may not perform as strongly due to a lower ability to implement strategy and due to the influence of board interlocks. On the other hand, Krause et al. (2015) suggested that larger boards are more likely to have higher levels of social capital, a source of informal education. Informal education is noted as a research limitation for this study (Chapter 4.7.1).

From the mean Tobin's Q values for 2010 and 2015 (Table 6 and Table 7), a clear decrease can be seen, dropping from 1.514 in 2010 to 1.183 in 2015. In 2010, 14 companies had a Tobin's Q value greater than 2.0, while in 2015 only 8 companies performed above a Tobin's Q of 2.0. This observation again highlights the difference in market conditions for the selected periods.

While no statistical correlation was found between educational diversity by the total number of qualifications for the year 2010, it is clear from visual comparison of Figure 4 and Figure 5 that a positive relationship between the 2 variables is shown for 2010 for a bull market, and a significant weak negative relationship exists in 2015 for a bear market. Further to observations made in Figure 4 and Figure 5, the absence of data points in the upper left quadrant suggests that it is not likely that a company will perform well while having a low educational diversity ratio measured by the total number of board qualifications. This observation agrees well with the findings in Chapter 6.1.1 for educational diversity by qualification family compared with company performance.

With regard to the outlier excluded from the dataset, it should be noted that while in 2015, Hosken Consolidated Investments limited (the excluded company) displayed the lowest company performance in the dataset, it was found that the chairman was suspended in 2014 (HCI, 2014), which had an effect on the 2015 performance. It should also be noted for the purposes of the research that Hosken Consolidated

Investments had the lowest educational diversity by total qualifications. This is considered an important observation as it aligns with the main body of research which highlights a positive link between educational diversity and company performance.

## 6.2 Board Independence

### 6.2.1 Other directorships held

In considering the independence of a board measured by the number of other directorships held by its members, it is important to note that the greater the number of other directorships held, the lower the level of independence of the board. This means that the hypothesis stated in Section 3.3, “the greater the level of board independence (by total other directorships), the greater the performance of the company” can also be written as “the fewer other directorships held by the board, the greater the performance of the company”. The results of the Spearman’s Rank-Order Correlation conducted for a bull market in 2010 (Chapter 5.2.1, Table 12) indicate that there is a significant weak negative relationship between the total number of other directorships held by the board and company performance measured by Tobin’s Q. The alternate hypothesis, “the greater the level of board independence (by total other directorships), the greater the performance of the company during a bull market” ($H_{IT\text{-}Bull\ 1}$) is therefore accepted and the null hypothesis of there being no association ($H_{IT\text{-}Bull\ 0}$) is rejected. The results of the Spearman’s Rank-order Correlation conducted for the bear market of 2015 (Chapter 5.2.1, Table 13) show that there is no significant relationship between the total number of other directorships held by the board and company performance. The alternate hypothesis, “the greater the level of board independence (by total other directorships), the greater the performance of the company during a bear market” ($H_{IT\text{-}Bear\ 1}$) is rejected and the null hypothesis of there being no association ($H_{IT\text{-}Bull\ 0}$), is accepted.

The finding of a negative relationship between the total number of other directorships held by the board and company performance for a bull market is consistent with the research of Latif et al. (2013), in which the negative effect of board interlocks on company performance was shown. The result is however inconsistent with the research of Hillman and Dalziel (2014), who highlighted that a greater number of

other directorships improves board capital, which in turn improves company performance. The research of Barney et al. (2001) provides support for the motion of increased board capital through the use of the resource based view of the firm. Both sides of the argument are supported by the research of Hsu and Wu (2014), which demonstrated the benefits of other directorships and how they are able to increase access to resources, but also acknowledged the risk of conflict of interest and its ability to hinder decision making. The negative argument is supported by Hillman and Dalziel (2014), who found that board capital affects the function of the board negatively both in terms of monitoring capacity as well as in the provision of resources.

The Spearman's Rank-order Correlation indicated no statistically significant relationship between the total number of other directorships held by the board and company performance for the bear market in 2015. However, the graphic representation of the results for the 2015 bear market in Figure 7 (Chapter 5.2.1) suggests a similar negative relationship to that of the 2010 bull market, indicated by the gentle negative-sloping linear trendline. It is important to note that there are no data points in the upper right quadrants of both Figure 6 and Figure 7. Based on these findings, it is unlikely that a company with a large number of other directorships (and thus a low level of board independence) will significantly outperform the market, regardless of market conditions. This finding illustrates the value of the Inoxico Singularity Index ® (measurement of other outside directorships based on the type of board position held and proposes a risk rating for the firm; Inoxico, 2014), and supports the research of Mans-kemp & Viviers, (2015) in which the potential effects of other directorships are outlined.

The decision to remove PPC as an outlier in the statistical analysis for this component of board independence was made based on the significantly strong performance of PPC during the bull market of 2010, as a result of a boom in the construction industry for the 2010 World Cup. This is supported by the research of Kaplanidou et al. (2013), in which the importance of highlighting the effects of extraordinary events was demonstrated. The company PPC enjoyed favourable industry conditions in 2010, and this is shown by a Tobin's Q value of 3.49. While this lead to the company being identified as an outlier and thus being excluded from

the statistical analysis, it is important to note that PPC's board held a high number of other directorships during the bull market of 2010. In the 2015 bear market however, the PPC Tobin's Q value decreased significantly. This difference in the performance of a company during variable market conditions forms the crux of this research.

The decrease in the mean Tobin's Q from 2010 to 2015 (Table 10 and Table 11) suggest that the data set used for the analysis reflects the market conditions of the bull and bear market periods selected. The findings confirm the reliability of the adopted method for selecting market conditions, established by Zakon and Pennypacker (1968). The mean value for the total number of other positions held by the board members is similar for the 2010 and 2015 periods, implying that no major changes in behaviour or focus in this area of corporate governance are likely to have occurred between these years. This is in line with the King III code of corporate governance, which governed both these periods.

### 6.2.2 Other directorships held by Independent directors

The results presented in Chapter 0 provide insight into the relationship between the number of other directorships held by independent directors and company performance. It is important to note again in this section that the greater the number of other directorships held by independent directors, the lower the level of board independence. A Spearman's Rank-Order Correlation was conducted for the bull market of 2010 (Table 16), and the results show that there is no significant relationship between the total number of other directorships held by independent board members and company performance measured by Tobin's Q for a bull market. The findings therefore lead to the rejection of the alternate hypothesis of "the greater the level of board independence (by other directorships held by independent directors), the greater the performance of the company during a bull market" ($H_{II\text{-}Bull\ 1}$). The null hypothesis of there being no association ($H_{II\text{-}Bull\ 0}$), is accepted.

While a monotonic relationship was found for the 2010 data (Figure 8), this was not the case for the bear market of 2015 (Figure 9). A transformation was conducted in an attempt to achieve a monotonic relationship in the data. However, the transformation distorted the data to such an extent that it was not considered to be capable of adding any value to the present study. A Spearman's Rank-Order

Correlation could not be conducted for the bear market of 2015. Due to a lack of any identified relationship, the alternate hypothesis, “the greater the level of board independence (by other directorships held by independent directors), the greater the performance of the company during a bear market” ($H_{II\text{- Bear }0}$) is rejected. As a monotonic relationship was not observed in the data for the year 2015, the null hypothesis of there being no association ($H_{II\text{- Bear }0}$) is considered to be inconclusive.

The visual evidence gathered by the LOESS curves in Figure 8 and Figure 9 indicates that the relationship between the number of other directorships held by independent directors and company performance may be positive until a critical number of other directorships, after which the relationship becomes negative. Similar results were found for research into board size, where a maximum size of five board members was suggested before a negative effect on board performance was observed (Mak & Kusnadi, 2005). The observed shapes of the LOESS curves in Figure 8 and Figure 9 indicate a higher critical point of about 25 other directorships in a bull market, in comparison to a critical number of ~18 in a bear market. These findings indicate that the critical number of independent directors with other directorships may have a relationship with market conditions. Hsu & Wu (2014) found that board members with an increased number of interlocks are less likely to challenge senior management on their decision making, which could have a negative impact on company performance. This is a possible explanation for the presence of a critical number for other directorships held by independent directors observed in the results of the present study. However, further detailed research would be required to conclusively prove this finding.

The findings presented in Chapter 5.2.2 on the relationship between the number of other directorships held by independent directors and company performance are consistent with multiple previous studies on board independence. The observation of a potentially positive relationship up until a critical number of other directorships, after which the relationship becomes negative, is also apparent in the literature, with studies finding both positive and negative relationships between board independence and company performance. Hillman & Dalziel (2014) showed that increased board capital influences the two key functions of a board: monitoring and providing resources. The finding of a positive relationship until a potentially critical

point is supported by the research of Kiel and Nicholson (2003), who noted the positive relationship between company performance and both board interlocks and the number of independent directorships. The argument for a critical point and a negative relationship is further motivated by the research of Pan et al. (2018), who showed the negative side of increased conflict of interest through board interlocks, and the resultant decrease in company performance.

Barney et al. (2001) showed that there was no correlation between social capital and company performance, where social capital was gained by an increased number of other directorships. Lamb and Roundy (2016) on the other hand, highlighted how club mentality can keep independent directors within a small group, resulting in these directors holding a large number of independent positions. Fogel et al. (2013) explained how knowledge and experience may be kept in these small groups and lead to the creation of powerful independent directors. In some cases however, these groups and interlocks may spread poor corporate governance behaviour (Lamb & Roundy, 2016). While industry experts agree that boards require majority independent compositions, there is no consensus on how many other directorships a board should have. The findings presented in the present study suggest that there may be a critical number of other directorships on a board, and that this critical point may vary according to market conditions.

### 6.2.3 Other directorships held by executive directors

The results from Chapter 5.2.3 provide insight into the relationship between the number of other directorships held by executive directors and company performance for the bull and bear markets of 2010 and 2015, respectively. As with the two previous sections related to board independence, in this section, the greater the number of other directorships held by executive directors, the lower the level of board independence. The results for 2010 displayed in Table 19 show a significant, weak, negative relationship between the number of other directorships held by executive directors and company performance for a bull market. Therefore, the alternate hypothesis, “the greater the level of board independence (by other directorships held by executive directors), the greater the performance of the company during a bull market” ($H_{IE\text{-}Bull\ 1}$) is accepted. The null hypothesis of there being no association ($H_{IE\text{-}}$

$_{Bull\ 0}$), is rejected. Similarly, Table 20 shows a significant, weak, negative relationship between the number of other directorships held by executive directors and company performance for a bear market. The alternate hypothesis, “the greater the level of board independence (by other directorships held by executive directors), the greater the performance of the company during a bear market” ($H_{IE\text{-}Bear\ 1}$), is therefore accepted. The null hypothesis of there being no association ($H_{IE\text{-}\ Bear\ 0}$) is rejected. Table 17 and Table 18 show a marginal decrease in the mean number of other directorships held by executive directors between 2010 and 2015. This suggests that, despite the negative relationship between company performance and other directorships held by executive directors, there has not been any significant change between the 2010 and 2015 periods.

The findings outlined above suggest that, regardless of market conditions, a negative correlation exists between the number of other directorships held by executive directors and the performance of the company. This observation is in line with the work of Mans-kemp and Viviers (2015), in which it is motivated that executive directors should have full focus on the firm, and multiple directorships may dilute the attention of the director. As noted in Chapter 2.4, the Inoxico Singularity Index ® (Inoxico, 2014) takes into account the types of directorship, and assigns a heavier negative weighting to executive directors who hold other directorships.

Should a club mentality exist between board members, as outlined by Lamb and Roundy (2016), even if executive directors are required to declare their business interests as required by the King Code (Institute of Directors South Africa, 2016), this would not be a challenge due to the social capital and club mentality. This potential risk provides motivation for legislation of the King IV Code. Currently the King Code is overridden by the Companies Act and does not provide appropriate consequences for compliance failure (Institute of Directors South Africa, 2016; PWC, 2017).

The body of research on the subject of other directorships suggests that a possible motivation for executive directors to hold other directorships is to gain financially and to build social capital (Kerr and Bettis, 1987). In the present study, it is acknowledged that while there is a significant negative relationship between the number of executives that hold other directors and company performance for both a bull and

bear market, the relationship is weak. While the effect of independent director interlocks on board performance has been well-researched in previous studies (Barnhart et al., 1994; Dahya et al., 2008; Kiel & Nicholson, 2003; Pan et al., 2018), research into the effects of executives in particular holding outside directorships has not been as conclusive. This can mainly be attributed to inconsistent results in studies attempting to quantify outside directorships and company performance, due to the variation in measurement methods used (Handschumacher et al., 2019). An objective of the present study is therefore aimed at investigating the relationship between the level of board independence and company performance, while keeping the units of measurement consistent (Tobin's Q to measure company performance, and the number of other directorships as a measure of board independence). The measurement tools used in this study have been used in previous investigations on similar topics (Barnhart et al., 1994; Dahya et al., 2008; Kiel & Nicholson, 2003; Pan et al., 2018), allowing for effective comparison of results.

# Chapter 7: Conclusion and Recommendations

## 7.1 Summary of Results

A summary of all hypotheses tested in this study and the outcome of the statistical analysis for each hypothesis is provided in Table 21.

**Table 21:** Summary of all tested hypotheses and the outcome based on statistical analysis.

| | | |
|---|---|---|
| **Qualification diversity by qualification family** | | |
| $H_{QF\text{-}Bull\ 1}$ | The greater the intellectual diversity (by qualification family) of the board of directors, the greater the performance of the company during a bull market. | Rejected |
| $H_{QF\text{-}Bull\ 0}$ | There is no association between intellectual diversity (by qualification family) of the board and company performance during a bull market. | Accepted |
| $H_{QF\text{-}Bear\ 1}$ | The greater the intellectual diversity (by qualification family) of the board of directors, the greater the performance of the company during a bear market. | Rejected |
| $H_{QF\text{-}\ Bear\ 0}$ | There is no association between intellectual diversity (by qualification family) of the board and company performance during a bear market. | Accepted |
| **Qualification diversity by the total number of board qualifications** | | |
| $H_{QT\text{-}Bull\ 1}$ | The greater the intellectual diversity (by total qualifications) of the board of directors, the greater the performance of the company during a bull market. | Rejected |
| $H_{QT\text{-}Bull\ 0}$ | There is no association between intellectual diversity (by total qualifications) of the board and company performance during a bull market. | Accepted |

| | | |
|---|---|---|
| $H_{QT\text{-}Bear\ 1}$ | The greater the intellectual diversity (by total qualifications) of the board of directors, the greater the performance of the company during a bear market. | Rejected |
| $H_{QT\text{-}\ Bear\ 0}$ | There is no association between intellectual diversity (by total qualifications) of the board and company performance during a bear market. | Not rejected (An association exists opposing $H_{QT\text{-}Bear\ 1}$) |
| **Other directorships held** | | |
| $H_{IT\text{-}Bull\ 1}$ | The greater the level of board independence (by total other directorships), the greater the performance of the company during a bull market. | Accepted |
| $H_{IT\text{-}Bull\ 0}$ | There is no association between board independence (by total other directorships) and company performance during a bull market | Rejected |
| $H_{IT\text{-}\ Bear\ 1}$ | The greater the level of board independence (by total other directorships), the greater the performance of the company during a bear market. | Rejected |
| $H_{II\text{-}\ Bear\ 0}$ | There is no association between board independence (by total other directorships) and company performance during a bear market. | Accepted |
| **Other directorships held by Independent directors** | | |
| $H_{II\text{-}Bull\ 1}$ | The greater the level of board independence (by other directorships held by independent directors), the greater the performance of the company during a bull market. | Rejected |
| $H_{II\text{-}Bull\ 0}$ | There is no association between board independence (by other directorships held by independent directors) and company performance during a bull market. | Accepted |
| $H_{II\text{-}\ Bear\ 1}$ | The greater the level of board independence (by other directorships held by independent directors), the | Inconclusive |

| | | |
|---|---|---|
| | greater the performance of the company during a bear market. | |
| $H_{II\text{- Bear }0}$ | There is no association between board independence (by other directorships held by independent directors) and company performance during a bear market. | Inconclusive |
| **Other directorships held by executive directors** | | |
| $H_{IE\text{-Bull }1}$ | The greater the level of board independence (by other directorships held by executive directors), the greater the performance of the company during a bull market. | Accepted |
| $HI_{IE\text{-Bull }0}$ | There is no association between board independence (by other directorships held by executive directors) and company performance during a bull market. | Rejected |
| $H_{IE\text{-Bear }1}$ | The greater the level of board independence (by other directorships held by executive directors), the greater the performance of the company during a bear market. | Accepted |
| $HI_{IE\text{- Bear }0}$ | There is no association between board independence (by other directorships held by executive directors) and company performance during a bear market. | Rejected |

## 7.2 Principle Conclusions

The objective of this study is motivated by the foundational work of Cadbury (2000), who highlighted the need for constant development of corporate governance practices. The results of the present study, coupled with statistics indicating the continuous occurrence of corporate governance failure (Rossouw & Styan, 2019; Schneider & Scherer, 2013) provide sufficient evidence to suggest that more attention needs to be paid to corporate governance. Prior research indicates that during periods of strong performance (bull market cycles), little attention is paid to corporate governance. Significantly higher levels of corporate governance scrutiny occur when a company is not performing (Dahya et al., 2008; Kole & Van Dijk, 2016). Market conditions have been shown (Kerr & Bettis, 1987) to have an influence of up

to 80% on company performance. The research presented in this study is therefore focused on the impacts of board composition on company performance during periods of both strong and weak market cycles. The observation documented by Arnaboldi et al. (2020) that board diversity positively affects firm performance during a weak market condition focused on this aspect of board composition and corporate governance. Based on the results for all ten statistical tests carried out in this study, the 2010 and 2015 periods selected for the study were representative of the bull and bear market cycles targeted. This is seen in the notable decrease in mean Tobin's Q values between the periods selected for a bull and bear markets.

### 7.2.1 Educational diversity

The seminal work of Hambrick and Mason (1984) highlighted the importance of measuring board diversity in terms of more than just demographics. In conjunction with the current research of Papadimitri et al. (2020), who show the advantage of recruiting and retaining educated board members, educational diversity on the boards of companies has been well researched. Despite the apparent awareness of the need for educational diversity on boards, the data presented in this study indicate that no major change in educational diversity, measured both by total board qualifications and by qualification family, occurred between the periods 2010 and 2015. In addition, however, the data showed no statistically significant relationship between company performance and educational diversity, either by qualification family or by total qualifications. An important conclusion is that if a company has a high level of educational diversity, this does not necessarily mean that the company will perform well in the market in relation to its intrinsic value. The study is also able to conclude though, that it is unlikely that a company with low educational diversity (regardless of by qualification family or qualification number) will noticeably outperform its intrinsic value in the market. Both conclusions hold irrespective of market conditions.

While not statistically significant, the data suggest a generally weak negative relationship between the total number of qualifications on a board and company performance during a bear market (based on a linear trendline through the data). This is not in line with the other research on the topic (Dahya et al., 2008; Taljaard,

2013); however, a possible explanation could be the influence of board size. Larger boards have been shown by Latif et al. (2013) to be likely to have more diversity, while Zaheer (2013) documented a negative relationship between board size and company performance. The logical combination of these two studies leads to the possibility that larger boards may lead to poor performance, despite the higher level of educational diversity. This possibility is listed as a research limitation, discussed in Chapter 7.3.

This study found no significant difference between educational diversity of a board (measured by total qualifications and by qualification family) during bull and bear market cycles. There is thus no conclusive evidence to highlight any difference in the educational diversity aspect of corporate governance in different market conditions. The study concludes that, regardless of market conditions, a company is not likely to outperform the market if it has a low educational diversity ratio, regardless of the measurement used for diversity. It is worth noting that the study did not directly test the effects of an absence of educational diversity on board performance, and therefore does not preclude that a firm may underperform relative to the market if there is low educational diversity. Board composition should focus on educational diversity while being cognisant of board size.

### 7.2.2 Independence

Board independence is a well-established field of research (Cadbury, 2000), and the topic has remained current due to the continued failure of corporate governance (Schneider & Scherer, 2013). An aim of the present study was to delve into various components of board independence, due to the suggestion that a club mentality may exist between board members (Lamb & Roundy, 2016), making them not truly independent. Three key components of board independence have been investigated in terms of their effects on company performance: total other directorships held by boards, other directorships held by independent directors, and other directorships held by executive directors. In addition, the effect of market conditions was tested by using data from selected bull and bear markets, based on the observation that market conditions have a significant effect on company performance (Kerr & Bettis, 1987). The research aimed to investigate whether a company's board composition may

appear strong or go unnoticed in a strong financial market, but face exposure in a challenging market. It is understood that executive directors are not independent, due to their employment status with the firm. However, there is strong motivation to investigate the effects of other directorships held by executive directors of a board and company performance (Kiel & Nicholson, 2003).

The results in Chapter 6.2.1, show that there was no significant change in the mean number of other directorships held on boards from the bull market of 2010 to the bear market of 2015. This finding suggests that there may not be a significant focus on this aspect of corporate governance and is highlighted as a key finding of this study. If change is not being implemented to improve board composition, it could be motivated as a reason for continued corporate governance failure despite the extensive research on the subject. The results also indicate that boards with more than 50 other directorships are unlikely to perform above their intrinsic value in the market. The findings support Lamb and Roundy's (2016), finding that more research is required to constantly develop and improve corporate governance practices.

No significant relationship has been found in the results between the number of other directorships held by independent directors and company performance for a bull market, while the results of the statistical analysis for the 2015 bear market are inconclusive due to the lack of a monotonic relationship. No important conclusions have been drawn from these findings. However, the application of a LOESS curve to the data indicates a positive relationship until a critical number of other directorships held by independent directors, after which the relationship becomes negative. This finding is true for both a bull and bear market. The critical number for a bull market appears from the results to be around 25 other directorships, while in a bear market, the critical number is lower, at about 18. This finding is consistent with two arguments for other directorships held by independent directors. A positive relationship between other directorships and company performance was documented by Kiel and Nicholson (2003) and attributed to increased board capital and the resource-based view of the firm. This argument holds true to the data of the present study, until a critical point. A similar critical point was found in studies of board size, where a critical board size of five members was found (Mak & Kusnadi, 2005). After the critical point has been reached, there is a negative relationship between other directorships held

by independent directors and company performance. This is in line with the research of Hsu and Wu (2014), who highlighted that board members with a high number of other directorships are less likely to challenge senior management, and also have an increased risk of conflict of interest. The finding of a 28% reduction in the critical number of directorships between the bull and bear markets provides some insight into a knowledge gap identified in the research objectives for this study (Chapter 1.3). The result provides support for the research of Pan et al. (2018), who showed that when market conditions are favourable, less attention is paid to board composition, while when market cycles change negatively, board members are put under additional pressure and need more focussed attention. The maximum number of other directorships that a board can have before a negative impact on company performance occurs is therefore reduced during weak market cycles, when directors are under pressure to perform.

As noted above, it is not conventional to include executive directors in the debate on board independence. However, Kiel and Nicholson (2003) outlined the impact that other directorships held by executive directors can have on company performance. The present study includes this metric due to the inclusion of executive directors in the research on club mentality carried out by Lamb and Roundy (2016). The data in the present study indicate a significant negative relationship between the number of outside directorships held by executive board members on company performance in both a bull and bear market. From the results presented in Chapter 6.2.3, it may be concluded that regardless of market conditions, if a board has a high number of other directorships held by executive directors, there is a possibility that the company will have a lower level of performance in the market relative to its intrinsic value. This finding confirms a potential gap in the implementation of King IV (Institute of Directors South Africa, 2016). If King IV specified that executive directors are required to obtain permission to hold other directorships, this would not be a limitation in cases where a club mentality exists, since permission would be obtained easily (Lamb & Roundy, 2016). This provides support for the premise of the King Code needing legal stature, as opposed to being a JSE compliance requirement. This is supported by the research of Kiel and Nicholson (2003), highlighting other directorships held by executives as a risk of conflict of interest and capacity constraints.

### 7.2.3 Summary

While this study does not directly investigate the aspect of club mentality, studied extensively by Lamb and Roundy (2016), an aim of the study was to add to the body of knowledge on the question of whether independent directors really are independent. The research provides support to the theory of a critical number of other directorships that an independent director should hold, and that this critical number may change with market conditions. This finding can provide guidance to boards when recruiting independent directors, in order to ensure that the directors are able to cope in tough market conditions. In addition, the study aimed to add to the body of knowledge on board composition and corporate governance. The results support the identification of a potential risk in the King IV Code (Institute of Directors South Africa, 2016), noting that if a club mentality exists (Lamb & Roundy, 2016), it would be easy for directors' other obligations to be overlooked. While the results of the present study demonstrate several significant relationships between board composition (in terms of diversity and independence) and company performance, it is important to note that all findings are based on quantitative analysis. The limitations of using only quantitative data were outlined by Cadbury (2000), and it was suggested that the directors' track records and historical performance should be taken into account. The present study acknowledges that the topic of corporate governance remains open and further research is required to constantly develop the field of corporate governance. This supports the seminal findings of Cadbury (2000) as well as the recent finding of Lamb and Roundy (2016). In conclusion, while significant relationships are identified by the results of the research, they are indicated to be weak relationships. A potential insight could be that corporate governance is a safety net, and its relevance is tested more rigorously during corporate failure. This may be true for companies that appeared at one time to be stars of the financial market but fail catastrophically, such as Steinhoff (Rossouw & Styan, 2019) without the safety net of corporate governance structures.

## 7.3 Limitations of the Research

While efforts have been made to work around as many barriers to the research as practically possible and implement a stable methodology, several limitations to the application of the results remain. The research is mainly focussed on formal

education by qualification and does not account for informal and experience-based education. The study uses data only for public companies and notes the exclusion of private companies due to difficulties in data access as a limitation. In addition, the data used in the study for public companies was not sourced from a single database and therefore had to be collated. This collation process, along with some degree of manual data capturing where data points were missing, is highlighted as a limitation of the study, given the potential room for human error. The size of the dataset was limited to 48 entries; however, this was expanded from 40 companies in the research of Taljaard (2013). The sample size used in the research is understood to be adequate for the particular focus of the study, based on the work of Kotze (2019), which explains that the top 40 companies listed on the JSE account for more than 80 percent of the market value.

A key limitation to this research is the longitudinal time period used, drawing on data from only the 2010 and 2015 periods for bull and bear markets, respectively. While these are cross-sectional selections, they do not cover the entire bull and bear market periods in which the specific years of 2010 and 2015 fall. In addition, within the periods selected, each company sample had different reporting periods, which were not accounted for in the data analysis of this study. Any lead and lag in time between board composition changes and their effects on company performance were also not accounted for in the study. While the research expanded on the work of Taljaard et al. (2015), access to the proprietary software used by Taljaard et al. (2015) was not available for direct comparison of results. However, the use of Tobin's Q as a measure of company performance does provide some benefit for any potential future research on related topics, since the study may be tested and expanded through the use of publicly available data and resources. A key limitation of the research, similar to the work of Taljaard et al. (2015) is the focus on financial performance at the expense of social and environmental performance. The data processing in this study followed a robust process and methodology. This however, is limited to a 95% confidence interval, in line with similar research (Abdullah, 2004), as well as only visual inspection for an assessment of monotonic relationships.

## 7.4 Suggestions for Future Research

As previously discussed by Cadbury (2000) and Lamb and Roundy (2016), there is a need for constant research and development of corporate governance practices. There is opportunity to expand on the present research both in breadth and depth. A potential area of future research would be to expand the study longitudinally to incorporate complete market cycles, to investigate if the same conclusions as those found in this study are reached. In terms of the observation in this study of a critical number of other directorships that can be held by independent directors before adverse effects on the company occur, the critical number in this study was drawn from visual analysis of a LOESS curve fitted through the data. A more detailed study investigating this observation would be valuable, using a more robust statistical-based method for identifying the critical inflection point. In addition, further research into the effect of market conditions on the critical number of other directorships would be valuable. There is also scope for causal research to determine whether a high number of other directorships held by executive directors may cause poor performance. This research would be extremely valuable, although challenging to conduct. The insight of corporate governance as a potential safety net that is only exposed during corporate failure could provide an opportunity for a study using similar methodology, but with a focus on failed companies. Finally, expanding the research outside of South Africa and incorporating other markets would broaden the applicability of this type of investigation.

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## APPENDIX A: List of JSE companies used

| No. | Company | Origin of company selected |
|---|---|---|
| 1 | BHP Group Limited | Used by Taljaard (2013) |
| 2 | Anglo American PLC | Used by Taljaard (2013) |
| 3 | MTN Group Limited | Used by Taljaard (2013) |
| 4 | Sasol Limited | Used by Taljaard (2013) |
| 5 | Aspen Pharmacare Holdings Limited | Used by Taljaard (2013) |
| 6 | Steinhoff Investment Holdings Limited | Used by Taljaard (2013) |
| 7 | Investec Limited | Used by Taljaard (2013) |
| 8 | Woolworths Holdings Limited | Used by Taljaard (2013) |
| 9 | Firstrand Limited | Used by Taljaard (2013) |
| 10 | Anglo American Platinum Limited | Used by Taljaard (2013) |
| 11 | Barloworld Limited | Used by Taljaard (2013) |
| 12 | Impala Platinum Holdings Limited | Used by Taljaard (2013) |
| 13 | The Bidvest Group Limited | Used by Taljaard (2013) |
| 14 | Netcare Limited | Used by Taljaard (2013) |
| 15 | PPC Limited | Used by Taljaard (2013) |
| 16 | Telkom SA SOC Limited | Used by Taljaard (2013) |
| 17 | Nampak Limited | Used by Taljaard (2013) |
| 18 | Naspers Limited | Used by Taljaard (2013) |
| 19 | Remgro Limited | Used by Taljaard (2013) |
| 20 | Harmony Gold Mining Company Limited | Used by Taljaard (2013) |
| 21 | Massmart Holdings Limited | Used by Taljaard (2013) |
| 22 | Anglogold Ashanti Limited | Used by Taljaard (2013) |
| 23 | Sappi Limited | Used by Taljaard (2013) |
| 24 | Pick N Pay Stores Limited | Used by Taljaard (2013) |
| 25 | Tiger Brands Limited | Used by Taljaard (2013) |
| 26 | Truworths International Limited | Used by Taljaard (2013) |
| 27 | Trencor Limited | Added by present research |
| 28 | Vodacom Group Limited | Added by present research |
| 29 | Hosken Consolidated Investments Limited | Added by present research |
| 30 | Tsogo Sun Gaming Limited | Added by present research |
| 31 | Kumba Iron ORE Limited | Added by present research |
| 32 | Invicta Holdings Limited | Added by present research |
| 33 | The Foschini Group Limited | Added by present research |
| 34 | Life Healthcare Group Holdings Limited | Added by present research |
| 35 | Shoprite Holdings Limited | Added by present research |
| 36 | Oceana Group Limited | Added by present research |

| No. | Company | Origin of company selected |
|---|---|---|
| 37 | Exxaro Resources Limited | Added by present research |
| 38 | Sun International Limited | Added by present research |
| 39 | Tongaat Hulett Limited | Added by present research |
| 40 | KAP Industrial Holdings Limited | Added by present research |
| 41 | Grindrod Limited | Added by present research |
| 42 | Super Group Limited | Added by present research |
| 43 | Brimstone Investment Corporation Limited | Added by present research |
| 44 | The Spar Group Limited | Added by present research |
| 45 | Aveng Limited | Added by present research |
| 46 | Metair Investments Limited | Added by present research |
| 47 | Lewis Group Limited | Added by present research |
| 48 | Adcorp Holdings Limited | Added by present research |

## APPENDIX B: List of qualification families

| Qualification Family |
|---|
| Economic and Management Sciences |
| Education |
| Engineering, Built Environment and Information Technology |
| Health Sciences |
| Humanities |
| Law |
| Natural and Agricultural Sciences |
| none |
| Professional: Accounting |
| Professional: Engineering |
| Professional: Financial |
| Professional: Governance |
| Professional: Humanities |
| Professional: Management |
| Professional: Medical |
| Professional: Mining |
| Professional: Natural and Agricultural Sciences |
| Professional: Vocational |
| Public Service Recognition |
| Theology |
| Veterinary Science |

(Taljaard, 2013)

## APPENDIX C: List of qualifications

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 1 | none | none | na | none | none | 4 |
| 2 | BCom | none | Bachelor of Commerce | Degree | Economic and Management Sciences | 7 |
| 3 | LLB | none | Bachelor of Laws | Degree | Law | 7 |
| 4 | CA | (SA) | Chartered Accountant | Chartered | Professional: Accounting | 7 |
| 5 | MBL | none | Master of Business Leadership degree | Masters | Economic and Management Sciences | 9 |
| 6 | MA | none | Magister Artium | Masters | Humanities | 9 |
| 7 | FCA | none | Fellowship of the College of Anaesthetists | Fellow | Professional: Medical | 7 |
| 8 | BSocSci | none | Industrial Sociology and Labour Studies | Degree | Humanities | 7 |
| 9 | CMS | none | Certificate in Management Studies | Certificate | Economic and Management Sciences | 5 |
| 10 | BA | none | Baccalaureus Artium | Degree | Humanities | 7 |
| 11 | LLD | Honoris Causa | Doctor of Laws | Doctorate Honoris Causa | Law | 10 |
| 13 | BA | Education | Baccalaureus Artium | Degree | Humanities | 7 |
| 14 | BBusSc | none | Bachelor of Business Science | Degree | Economic and Management Sciences | 7 |
| 15 | MBA | none | Master of Business Administration | Masters | Economic and Management Sciences | 9 |
| 16 | BCom | Economics | Bachelor of Commerce | Degree | Economic and Management Sciences | 7 |
| 17 | CTA | none | Certificate in the Theory of Accounting | Certificate | Economic and Management Sciences | 5 |
| 18 | SASS | Silver | Order of the Star of South Africa | Grand Officer | Public Service Recognition | 1 |
| 19 | IAMP | none | International Association of Mathematical Physics | Member | Professional: Natural and Agricultural Sciences | 7 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 20 | BSc | Engineering | Bachelor of Science in Engineering | Degree | Engineering, Built Environment and Information Technology | 7 |
| 21 | MSc | none | Master of Science | Masters | Natural and Agricultural Sciences | 9 |
| 22 | BSc | Economics | Bachelor of Science in Economics | Degree | Economic and Management Sciences | 7 |
| 23 | FCIS | none | Fellow of the Chartered Institute of Secretaries and Administrators | Fellow | Professional: Management | 7 |
| 24 | FCIPD | none | Fellow of the Chartered Institute of Personnel and Development | Fellow | Professional: Management | 7 |
| 25 | MSI | none | Member of the Securities Institute | Member | Professional: Financial | 7 |
| 26 | CPA | none | Certified Public Accountant | Certificate | Professional: Accounting | 7 |
| 27 | BSc | none | Bachelor of Science | Degree | Natural and Agricultural Sciences | 7 |
| 28 | BA | Honours | Baccalaureus Artium | Degree Honours | Humanities | 8 |
| 29 | MSc | Sociology | Master of Science | Masters | Humanities | 9 |
| 30 | MSc | Metallalergy | Master of Science | Masters | Natural and Agricultural Sciences | 9 |
| 31 | BAcc | none | Bachelor of Accountancy | Degree | Economic and Management Sciences | 7 |
| 32 | AO | none | Officer of the Order of Australia | Officer | Public Service Recognition | 1 |
| 33 | FCPA | none | Fellow of CPA Australia | Fellow | Professional: Accounting | 7 |
| 34 | SF FIN | none | Senior Fellow of the Financial Services Institute of Australasia | Fellow | Professional: Financial | 7 |
| 35 | MSc | Finance | Master of Science | Masters | Economic and Management Sciences | 9 |
| 36 | ACA | none | ICAEW Chartered Accountant | Chartered | Professional: Accounting | 7 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 37 | BSc | Honours | Bachelor of Science | Degree Honours | Natural and Agricultural Sciences | 8 |
| 38 | PhD | none | Doctor of Philosophy | Doctorate | Natural and Agricultural Sciences | 10 |
| 39 | FCMA | none | Fellow of the Chartered Institute of Management Accountants | Fellow | Professional: Accounting | 7 |
| 40 | AMP | none | Advanced Management Program | Management Development | Economic and Management Sciences | 8 |
| 41 | FIA | none | Fellow of the Institute of Actuaries | Fellow | Professional: Financial | 7 |
| 42 | HDip | Metalliferous Mining | Higher Diploma of Metalliferous Mining | Higher Diploma | Engineering, Built Environment and Information Technology | 7 |
| 43 | FIH | none | Fellow of the Institute of Hospitality | Fellow | Professional: Natural and Agricultural Sciences | 7 |
| 44 | MA | Economics | Magister Artium | Masters | Economic and Management Sciences | 9 |
| 45 | BA | Economics Honours | Baccalaureus Artium | Degree Honours | Economic and Management Sciences | 8 |
| 46 | BCom | Accounting Honours | Bachelor of Commerce | Degree Honours | Economic and Management Sciences | 8 |
| 47 | HDip | Law | Higher Diploma of Law | Higher Diploma | Law | 7 |
| 48 | Dip | Juris | Diploma in Law | Diploma | Law | 6 |
| 49 | Ed.D | International Education and Development | Doctor of Education | Doctorate | Education | 10 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 50 | MDP | none | Management Development Programme | Management Development | Economic and Management Sciences | 8 |
| 51 | SEP | none | Senior Executive Programme | Management Development | Economic and Management Sciences | 8 |
| 52 | LLM | none | Master of Laws | Masters | Law | 9 |
| 53 | B Juris | none | Baccalaureus Juris | Degree | Law | 7 |
| 54 | DTech | Honoris Causa | Doctor of Technology | Doctorate Honoris Causa | Engineering, Built Environment and Information Technology | 10 |
| 55 | EDP | none | Executive Development Programme | Management Development | Economic and Management Sciences | 8 |
| 56 | BSc | Economics Honours | Bachelor of Science | Degree Honours | Economic and Management Sciences | 8 |
| 57 | FIBSA | none | Fellow of the Institute of Bankers in SA | Fellow | Professional: Financial | 7 |
| 58 | Dip Acc | none | Diploma in Accounting | Diploma | Economic and Management Sciences | 6 |
| 59 | ASA | none | Associate of Society of Actuaries | Associate | Professional: Financial | 7 |
| 60 | FILPA | none | Fellow of the institute of Life and Pension Advisors | Fellow | Professional: Financial | 7 |
| 61 | HDip | Tax | Higher Diploma of Tax | Higher Diploma | Economic and Management Sciences | 7 |
| 62 | BCom | Honours | Bachelor of Commerce | Degree Honours | Economic and Management Sciences | 8 |
| 63 | PhD | Honoris Causa | Doctor of Philosophy | Doctorate | Natural and Agricultural Sciences | 10 |
| 64 | PMD | none | Programme for Management Development | Management Development | Economic and Management Sciences | 8 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 65 | ACIS | none | Associate of the Chartered Secretaries Southern Africa | Associate | Professional: Governance | 7 |
| 66 | ISMP | none | International Senior Managers Program | Management Development | Economic and Management Sciences | 8 |
| 67 | MSc | Engineering | Master of Science | Masters | Engineering, Built Environment and Information Technology | 9 |
| 68 | ACMA | none | Associate of the Chartered Institute of Management Accountants | Associate | Professional: Accounting | 7 |
| 70 | BSc | Engineering Honours | Bachelor of Science | Degree Honours | Engineering, Built Environment and Information Technology | 8 |
| 71 | Dip | Business Management | Diploma in Business Management | Diploma | Economic and Management Sciences | 6 |
| 72 | PGDipBusMan | none | Postgraduate Diploma in Business and Administration | Postgrduate Diploma | Economic and Management Sciences | 8 |
| 73 | BEng | none | Bachelor of Engineering | Degree | Engineering, Built Environment and Information Technology | 7 |
| 74 | BAcc | Honours | Bachelor of Accountancy Honours | Degree Honours | Economic and Management Sciences | 8 |
| 75 | PhD | Economics | Doctor of Philosophy | Doctorate | Economic and Management Sciences | 10 |
| 76 | DCom | none | Doctor of Commerce | Doctorate | Economic and Management Sciences | 10 |
| 77 | Dip | Banking | Diploma in Banking | Diploma | Economic and Management Sciences | 6 |
| 78 | BCom | Marketing | Bachelor of Commerce | Degree | Economic and Management Sciences | 7 |
| 79 | BProc | none | Baccalaureus Procurationis | Degree | Law | 7 |
| 80 | BEcon | none | Bachelor of Economics | Degree | Economic and Management Sciences | 7 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 81 | BEcon | Honours | Bachelor of Economics Honours | Degree Honours | Economic and Management Sciences | 8 |
| 82 | MIMMM | CEng | Chartered Engineer | Chartered | Professional: Engineering | 7 |
| 83 | CBIM | none | Companion, British Institute of Management | Companion | Professional: Management | 7 |
| 84 | PGDipAcc | none | Postgraduate Diploma in Accounting | Postgraduate Diploma | Economic and Management Sciences | 8 |
| 85 | BSc | Geology Honours | Bachelor of Science | Degree Honours | Natural and Agricultural Sciences | 8 |
| 86 | Pr.Sci.Nat | none | Professional Natural Scientist | Professional | Professional: Natural and Agricultural Sciences | 7 |
| 87 | BSc | Medical | Bachelor of Science | Degree | Health Sciences | 7 |
| 88 | DA | SA | Diploma in Anaesthetics of the College of Anaesthetists of South Africa | Diploma | Health Sciences | 6 |
| 89 | MBChB | none | Bachelor of Medicine and Surgery | Degree | Health Sciences | 7 |
| 90 | DCom | Honoris Causa | Doctor of Commerce | Doctorate Honoris Causa | Economic and Management Sciences | 10 |
| 91 | FCT | none | Fellow of the Association of Corporate Treasurers | Fellow | Professional: Financial | 7 |
| 92 | FAICD | none | Fellow of the Australian Institute of Company Directors | Fellow | Professional: Management | 7 |
| 93 | FAIM | none | Fellow of the Australian Institute of Management | Fellow | Professional: Management | 7 |
| 94 | FIE | none | Fellow of The Institution of Engineers | Fellow | Professional: Engineering | 7 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 95 | FIMM | none | Fellow of the Institution of Mining and Metallurgy | Fellow | Professional: Mining | 7 |
| 96 | MICE | none | Member of the Institution of Civil Engineers | Member | Professional: Engineering | 7 |
| 97 | Dip | Accounting | Diploma in Accounting | Diploma | Economic and Management Sciences | 6 |
| 98 | Dip | Financial Studies | Diploma in Financial Studies | Diploma | Economic and Management Sciences | 6 |
| 99 | AIBD | none | Associate of Institute of Bankers | Associate | Professional: Financial | 7 |
| 100 | PhD | Chemistry | Doctor of Philosophy | Doctorate | Natural and Agricultural Sciences | 10 |
| 101 | MSc | Honours | Master of Science Honours | Masters Honours | Natural and Agricultural Sciences | 9 |
| 102 | BTh | none | Bachelor of Theology | Degree | Theology | 7 |
| 103 | HDip | Engineering | Higher Diploma of Engineering | Higher Diploma | Engineering, Built Environment and Information Technology | 7 |
| 104 | HDip | Business Data Processing | Higher Diploma in Business Data Processing | Higher Diploma | Economic and Management Sciences | 7 |
| 105 | DCH(SA) | none | Diploma in Child Health of the College of Paediatricians of South Africa | Diploma | Health Sciences | 6 |
| 106 | BA | Economics | Baccalaureus Artium | Degree | Economic and Management Sciences | 7 |
| 107 | MSc | Economics | Master of Science | Masters | Economic and Management Sciences | 9 |
| 108 | FCII | none | Fellow of the Chartered Insurance Institute | Fellow | Professional: Financial | 7 |
| 109 | PhD | Geophysics | Doctor of Philosophy | Doctorate | Natural and Agricultural Sciences | 10 |
| 110 | BSc | Mathematics | Bachelor of Science | Degree | Natural and Agricultural Sciences | 7 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 111 | BA | Political Science | Baccalaureus Artium | Degree | Humanities | 7 |
| 112 | BCompt | Honours | Baccalaureus Computationis | Degree Honours | Economic and Management Sciences | 8 |
| 113 | BA | Law | Baccalaureus Artium | Degree | Law | 7 |
| 114 | BEd | none | Bachelor of Education | Degree | Education | 7 |
| 115 | DSc | Honours | Doctor of Science Honours | Doctorate Honours | Natural and Agricultural Sciences | 10 |
| 116 | MAP | none | Management Advancement Programme | Management Development | Economic and Management Sciences | 8 |
| 117 | CPIR | none | Certified Practitioner of Investor Relations | Certificate | Economic and Management Sciences | 5 |
| 118 | MCom | SA & International Tax | Master of Commerce | Masters | Economic and Management Sciences | 9 |
| 119 | MTP | none | Master Tax Practitioner | Masters | Professional: Financial | 7 |
| 120 | CEng | none | Chartered Engineer | Chartered | Professional: Engineering | 7 |
| 121 | DEng | Honours | Doctorate in Engineering Honours | Doctorate Honours | Engineering, Built Environment and Information Technology | 10 |
| 122 | FREng | none | Fellow of the Royal Academy of Engineering | Fellow | Professional: Engineering | 7 |
| 123 | DLitt et Phil | none | Doctor of Literature and Philosophy | Doctorate | Humanities | 10 |
| 124 | DEcon | Honoris Causa | Doctorate in Economics Honoris Causa | Doctorate Honoris Causa | Economic and Management Sciences | 10 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 125 | MSc | Mining | Master of Science | Masters | Engineering, Built Environment and Information Technology | 9 |
| 126 | DipPR | none | Diploma in Public Relations | Diploma | Humanities | 6 |
| 127 | MCom | none | Master of Commerce | Masters | Economic and Management Sciences | 9 |
| 128 | MA | Honours | Magister Artium Honours | Masters Honours | Humanities | 9 |
| 129 | MSocSci | none | Masters in Social Science | Masters | Humanities | 9 |
| 130 | HDPM | none | Higher Diploma in Personnel Management | Higher Diploma | Economic and Management Sciences | 7 |
| 132 | FFA | none | Fellow of the Faculty of Actuaries | Fellow | Professional: Financial | 7 |
| 133 | D Econ Sc | none | Senior Doctorate in Economics | Doctorate | Economic and Management Sciences | 10 |
| 134 | Dip Pharm | none | Diploma in Pharmacy | Diploma | Health Sciences | 6 |
| 135 | BSc | Accounting | Bachelor of Science | Degree | Economic and Management Sciences | 7 |
| 136 | EMBA | none | Executive MBA | Masters | Economic and Management Sciences | 9 |
| 137 | AEP | none | Accredited Estate Planner | Accredited | Professional: Financial | 7 |
| 138 | Dip Adv Fin Man | none | Diploma in Advanced Financial Management | Diploma | Economic and Management Sciences | 6 |
| 139 | FCCA | none | Fellow Chartered and Certified Accountant | Fellow | Professional: Accounting | 7 |
| 140 | MPA | none | Master of Professional Accountancy | Masters | Economic and Management Sciences | 9 |
| 141 | BA | Mathematics | Baccalaureus Artium | Degree | Natural and Agricultural Sciences | 7 |
| 142 | MSc | Physics | Master of Science | Masters | Natural and Agricultural Sciences | 9 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 143 | PhD | Environmental Helath Sciences | Doctor of Philosophy | Doctorate | Natural and Agricultural Sciences | 10 |
| 144 | MTTP | none | Masters in Technology and Policy | Masters | Engineering, Built Environment and Information Technology | 9 |
| 145 | Dip | Civil Engineering (France) | Diploma in Civil Engineering (France) | Diploma | Engineering, Built Environment and Information Technology | 6 |
| 146 | Dip | Mathematics | Diploma in Mathematics | Diploma | Natural and Agricultural Sciences | 6 |
| 147 | PhD | Mechanical and Aerospace Engineering | Doctor of Philosophy | Doctorate | Engineering, Built Environment and Information Technology | 10 |
| 148 | Cert Min Man | none | Certificate in Mine Management | Certificate | Engineering, Built Environment and Information Technology | 5 |
| 149 | CDipAF | none | Certified Diploma in Accounting and Finance | Diploma | Economic and Management Sciences | 6 |
| 150 | BSocSci | Honours | Industrial Sociology and Labour Studies Honours | Degree Honours | Humanities | 8 |
| 151 | MPhil | none | Master of Philosophy | Masters | Humanities | 9 |
| 153 | Dip | Occupational Health | Diploma in Occupational Health | Diploma | Health Sciences | 6 |
| 154 | BCom | Law | Bachelor of Commerce | Degree | Economic and Management Sciences | 7 |
| 155 | EMP | none | Executive Management Programme | Management Development | Economic and Management Sciences | 8 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 156 | FRSE | none | Fellow of the Royal Society of Edinburgh | Fellow | Professional: Natural and Agricultural Sciences | 7 |
| 157 | FICE | none | Fellow of the Institution of Civil Engineers | Fellow | Professional: Engineering | 7 |
| 158 | FEI | none | Fellow of the Energy Institute | Fellow | Professional: Engineering | 7 |
| 159 | MPhil | Engineering | Master of Philosophy | Masters | Engineering, Built Environment and Information Technology | 9 |
| 160 | DEng | none | Doctorate in Engineering | Doctorate | Engineering, Built Environment and Information Technology | 10 |
| 161 | Dip | Tertiary Education | Diploma in Tertiary Education | Diploma | Education | 6 |
| 162 | MEd | none | Masters in Educational Psychology | Masters | Education | 9 |
| 163 | BVSc | none | Bachelor of Veterinary Science | Degree | Veterinary Science | 7 |
| 164 | BCompt | none | Baccalaureus Computationis | Degree | Economic and Management Sciences | 7 |
| 165 | FRSA | none | Fellow of the Royal Society of Arts | Fellow | Professional: Humanities | 7 |
| 166 | DSc | Honoris Causa | Doctor of Science Honoris Causa | Doctorate Honoris Causa | Natural and Agricultural Sciences | 10 |
| 167 | FASSA | none | Fellow of the Academy of the Social Sciences in Australia | Fellow | Professional: Humanities | 7 |
| 168 | BCom | Accounting | Bachelor of Commerce | Degree | Economic and Management Sciences | 7 |
| 169 | CIMA | none | Chartered Institute of Management Accountants | Chartered | Professional: Accounting | 7 |
| 170 | MURP | none | Master of Urban and Regional Planning | Masters | Engineering, Built Environment and Information Technology | 9 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 171 | PED | none | Program for Executive Development | Management Development | Economic and Management Sciences | 8 |
| 172 | HDip | Education | Higher Diploma in Education | Higher Diploma | Education | 7 |
| 173 | CA | (Z) | Chartered Accountant | Chartered | Professional: Accounting | 7 |
| 174 | MAAA | none | Member of the American Academy of Actuaries | Member | Professional: Financial | 7 |
| 175 | BBus | none | Bachelor of Business | Degree | Economic and Management Sciences | 7 |
| 176 | Hon DT | none | Honorary Doctorate of Technology | Doctorate Honoris Causa | Engineering, Built Environment and Information Technology | 10 |
| 177 | MPharmMed | none | Master of Medical Pharmacology | Masters | Health Sciences | 9 |
| 178 | BEng | Honours | Bachelor of Engineering Honours | Degree Honours | Engineering, Built Environment and Information Technology | 8 |
| 179 | BA | Law Honours | Baccalaureus Artium Honours | Degree Honours | Law | 8 |
| 180 | CFA | none | Chartered Financial Analyst | Chartered | Professional: Financial | 7 |
| 181 | ACII | none | Associate of the Chartered Insurance Institute | Associate | Professional: Financial | 7 |
| 182 | FCIB | none | Fellow of The Chartered Institute Of Bankers | Fellow | Professional: Financial | 7 |
| 183 | FSRM | none | Fellow in Strategic Risk Management | Fellow | Professional: Governance | 7 |
| 184 | BEd | Honours | Bachelor of Education Honours | Degree Honours | Education | 8 |
| 185 | CPE | none | Common Professional Examination | Degree | Law | 7 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 186 | MMed | none | Master of Medicine | Masters | Health Sciences | 9 |
| 187 | MCT | none | Member of the Association of Corporate Treasurers | Member | Professional: Financial | 7 |
| 188 | MA | Law Honours | Magister Artium Honours | Masters Honours | Law | 9 |
| 189 | PhD | IT | Doctor of Philosophy | Doctorate | Engineering, Built Environment and Information Technology | 10 |
| 190 | BSc | Computer Science | Bachelor of Science | Degree | Engineering, Built Environment and Information Technology | 7 |
| 191 | MSc | Computer Science | Master of Science | Masters | Engineering, Built Environment and Information Technology | 9 |
| 192 | BSc | Physics | Bachelor of Science | Degree | Natural and Agricultural Sciences | 7 |
| 193 | ACIB | none | Associate of the Chartered Institute of Bankers | Associate | Professional: Financial | 7 |
| 194 | ACSM | none | Associate of the Camborne School of Mines | Associate | Professional: Mining | 7 |
| 195 | DIC | none | Diploma of the Imperial College | Degree | Natural and Agricultural Sciences | 7 |
| 196 | BSc | Agri | Bachelor of Science | Degree | Natural and Agricultural Sciences | 7 |
| 197 | Dip | Wealth Management | Diploma in Wealth Management | Diploma | Economic and Management Sciences | 6 |
| 198 | Dip | Property Planning and Development Management | Diploma in Property Planning and Development Management | Diploma | Engineering, Built Environment and Information Technology | 6 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 199 | IPBM | none | International Programme for Board Members | Management Development | Economic and Management Sciences | 8 |
| 200 | PhD | Law Honoris Causa | Doctor of Philosophy Honoris Causa | Doctorate Honoris Causa | Law | 10 |
| 201 | DBL | Honoris Causa | Doctor of Business Leadership Honoris Causa | Doctorate Honoris Causa | Economic and Management Sciences | 10 |
| 202 | DBA | Honoris Causa | Doctor of Business Administration Honoris Causa | Doctorate Honoris Causa | Economic and Management Sciences | 10 |
| 203 | Cert | Tax Law | Certificate in Tax Law | Certificate | Law | 5 |
| 204 | HDip | Accounting | Higher Diploma in Accounting | Higher Diploma | Economic and Management Sciences | 7 |
| 205 | MAS | none | Master of Advanced Study | Masters | Economic and Management Sciences | 9 |
| 206 | CFP | none | Certified Financial Planner | Certificate | Professional: Financial | 7 |
| 207 | Dip | Company Direction | Diploma in Company Direction | Diploma | Economic and Management Sciences | 6 |
| 208 | MM | none | Masters of Management | Masters | Economic and Management Sciences | 9 |
| 209 | PDM | none | Postgraduate Diploma in Management | Diploma | Economic and Management Sciences | 6 |
| 210 | FIChemE | none | Fellow of the Institution of Chemical Engineers | Fellow | Professional: Engineering | 7 |
| 211 | CAIB | none | Certified Associate of the Institute of Bankers | Associate | Professional: Financial | 7 |
| 212 | DSc | none | Doctor of Science | Doctorate | Natural and Agricultural Sciences | 10 |
| 213 | DBA | none | Doctor of Business Administration | Doctorate | Economic and Management Sciences | 10 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 214 | Cert | Professional Selling Services | Certificate of Professional Selling Services | Certificate | Economic and Management Sciences | 5 |
| 215 | PAHM | none | Professional Academy Health Management | Certificate | Health Sciences | 5 |
| 216 | ACCA | none | Association of Chartered Certified Accountants | Chartered | Professional: Accounting | 7 |
| 217 | Dip | Industrial Relations | Diploma in Industrial Relations | Diploma | Economic and Management Sciences | 6 |
| 218 | Dip | Personnel Management | Diploma in Personnel Management | Diploma | Economic and Management Sciences | 6 |
| 219 | BA | Admin | Baccalaureus Artium Honours | Degree Honours | Economic and Management Sciences | 8 |
| 220 | LDP | none | Leadership Development Program | Degree | Economic and Management Sciences | 7 |
| 221 | MA | Accounting | Magister Artium | Masters | Economic and Management Sciences | 9 |
| 222 | Dip | Electrical Engineering | Diploma in Electrical Engineering | Diploma | Engineering, Built Environment and Information Technology | 6 |
| 223 | MEng | none | Masters in Engineering | Masters | Engineering, Built Environment and Information Technology | 9 |
| 224 | BPhil | none | Bachelor of Philosophy | Degree | Humanities | 7 |
| 225 | Dip | Packaging | Diploma in Packaging | Diploma | Engineering, Built Environment and Information Technology | 6 |
| 226 | GEDP | none | Governor's Executive Development Program | Management Development | Economic and Management Sciences | 8 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 227 | JMDP | none | Joint Management Development Programme | Management Development | Economic and Management Sciences | 8 |
| 228 | MSc | Mathematics | Master of Science | Masters | Natural and Agricultural Sciences | 9 |
| 229 | FZICA | none | Fellow Zambia Institute of Chartered Accountant | Fellow | Professional: Accounting | 7 |
| 230 | MA | Geology | Magister Artium | Masters | Natural and Agricultural Sciences | 9 |
| 231 | MA | Management | Magister Artium | Masters | Economic and Management Sciences | 9 |
| 232 | THD | none | Doctor of Theology | Doctorate | Theology | 10 |
| 233 | BSc | Geology | Bachelor of Science | Degree | Natural and Agricultural Sciences | 7 |
| 234 | FSAIMM | none | Fellow of the SA Institute of Mining and Metallurgy | Fellow | Professional: Mining | 7 |
| 235 | Dip | Strategic Management | Diploma in Strategic Management | Diploma | Economic and Management Sciences | 6 |
| 236 | Dip | Education | Diploma in Education | Diploma | Education | 6 |
| 237 | MSc | Medicinal Chemistry | Master of Science | Masters | Natural and Agricultural Sciences | 9 |
| 238 | PhD | Microbiology | Doctor of Philosophy | Doctorate | Natural and Agricultural Sciences | 10 |
| 239 | MA | Town and Regional Planning | Magister Artium | Masters | Engineering, Built Environment and Information Technology | 9 |
| 240 | Cert | Education | Certificate in Education | Certificate | Education | 5 |
| 241 | BArch | none | Bachelor of Architecture | Degree | Engineering, Built Environment and Information Technology | 7 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 242 | BTech | none | Search Results<br>Bachelor of Technology | Degree | Engineering, Built Environment and Information Technology | 7 |
| 243 | HDip | Honours | Higher Diploma Honours | Higher Diploma Honours | Economic and Management Sciences | 7 |
| 244 | FIOP | none | Fellow of the Institute of Plumbing | Fellow | Professional: Engineering | 7 |
| 245 | FIOD | none | Fellow Institute of Directors | Fellow | Professional: Management | 7 |
| 246 | FGS | none | Fellow of the Geological Society | Fellow | Professional: Natural and Agricultural Sciences | 7 |
| 247 | Dip | Project Management | Diploma in Project Management | Diploma | Engineering, Built Environment and Information Technology | 6 |
| 248 | BCom | Investment Management Honours | Bachelor of Commerce | Degree Honours | Economic and Management Sciences | 8 |
| 249 | PhD | Social Science | Doctor of Philosophy | Doctorate | Humanities | 10 |
| 250 | ELP | none | Executive Leadership Program | Management Development | Economic and Management Sciences | 8 |
| 251 | PDP | none | Property Development Programme | Certificate | Economic and Management Sciences | 5 |
| 252 | HDip | Personnel Management | Higher Diploma in Personnel Management | Higher Diploma | Economic and Management Sciences | 7 |
| 253 | BCom | Tax Honours | Bachelor of Commerce | Degree Honours | Economic and Management Sciences | 8 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 254 | Dip | Theology | Diploma in Theology | Diploma | Theology | 6 |
| 255 | MSc | Agriculture | Master of Science | Masters | Natural and Agricultural Sciences | 9 |
| 256 | Dip | Marketing Management | Diploma in Marketing Management | Diploma | Economic and Management Sciences | 6 |
| 257 | BCom | Economics Honours | Bachelor of Commerce | Degree Honours | Economic and Management Sciences | 8 |
| 258 | Dip | Primary Emergency Care | Diploma in Primary Emergency Care | Diploma | Health Sciences | 6 |
| 259 | GCC | none | Government Certificate of Competency | Certificate | Engineering, Built Environment and Information Technology | 5 |
| 260 | FCOG | none | Fellow of the College of Obstetricians and Gynaecologists | Fellow | Professional: Medical | 7 |
| 261 | PG Dip | Company Law | Post Graduate Diploma in Law | Post Graduate Diploma | Law | 8 |
| 262 | FIEI | none | Fellow of the Institution of Engineers of Ireland | Fellow | Professional: Engineering | 7 |
| 263 | CIS | none | Certified Insurance Supervisor | Certificate | Professional: Financial | 7 |
| 264 | DEcon | none | Doctorate in Economics | Doctorate | Economic and Management Sciences | 10 |
| 265 | FIAA | none | Fellow of the Institute of Actuaries of Australia | Fellow | Professional: Financial | 7 |
| 266 | FPMI | none | Fellow of the Pensions Management Institute | Fellow | Professional: Financial | 7 |
| 267 | DTM&H | none | Diploma in Tropical Medicine and Health | Diploma | Health Sciences | 6 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 268 | DPM | none | Doctor of Podiatric Medicine | Doctorate | Health Sciences | 10 |
| 269 | PG Dip | Health Systems Management | Postgraduate Diploma in Health Systems Management | Post Graduate Diploma | Health Sciences | 8 |
| 270 | MIPH | none | Master of International Public Health | Masters | Health Sciences | 9 |
| 271 | DSc | Engineering | Doctor of Science | Doctorate | Engineering, Built Environment and Information Technology | 10 |
| 272 | FRINA | none | Fellow, Royal Institution of Naval Architects | Fellow | Professional: Engineering | 7 |
| 273 | MSW | none | Master of Social Work | Masters | Humanities | 9 |
| 274 | D Juris | none | Doctor Juris | Doctorate | Law | 10 |
| 275 | MA | Law | Magister Artium | Masters | Law | 9 |
| 276 | BA | Political Science Honours | Baccalaureus Artium | Degree Honours | Humanities | 8 |
| 277 | BA | Psychology Honours | Baccalaureus Artium | Degree Honours | Humanities | 8 |
| 278 | BA | Sociology Honours | Baccalaureus Artium | Degree Honours | Humanities | 8 |
| 279 | PrEng | none | Professional Engineer | Professional | Professional: Engineering | 7 |
| 280 | FSSA | none | Fellow of the Scottish Society of Arts | Fellow | Professional: Humanities | 7 |
| 281 | MCom | Business Economics | Master of Commerce | Masters | Economic and Management Sciences | 9 |
| 282 | AC | none | Companion of the Order of Australia | Companion | Public Service Recognition | 1 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 283 | FAusIMM | none | Fellow of the Australasian Institute of Mining and Metallurgy | Fellow | Professional: Engineering | 7 |
| 284 | OPM | none | Owner President Management | Management Development | Economic and Management Sciences | 8 |
| 285 | CA | none | Chartered Accountant | Chartered | Professional: Accounting | 7 |
| 286 | MSc | Geology | Master of Science | Masters | Natural and Agricultural Sciences | 9 |
| 287 | AICPA | none | American Institute of Certified Public Accountants | Chartered | Professional: Accounting | 7 |
| 288 | BBusSc | Honours | Bachelor of Business Science Honours | Degree Honours | Economic and Management Sciences | 8 |
| 289 | LLB | Honours | Bachelor of Laws Honours | Degree Honours | Law | 8 |
| 290 | Cert | Business Studies | Certificate in Business Studies | Certificate | Economic and Management Sciences | 5 |
| 291 | Dip | Estate Agency | Diploma in Estate Agency | Diploma | Economic and Management Sciences | 6 |
| 292 | FIAC | none | Fellow of the International Academy of Cytology | Fellow | Professional: Medical | 7 |
| 293 | Dip | Journalism and Communications | Diploma in Journalism and Communications | Diploma | Humanities | 6 |
| 294 | Cert | International Banking | Certificate in International Banking | Certificate | Economic and Management Sciences | 5 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 295 | FASA | none | Fellow of the American Society of Appraisers | Fellow | Professional: Financial | 7 |
| 296 | BPL | none | Bachelor of Personnel Leadership | Degree | Economic and Management Sciences | 7 |
| 297 | DPLR | none | Development Programme in Labour Relations | Certificate | Humanities | 5 |
| 298 | B Iur | none | Occupational Risk Law | Degree | Law | 7 |
| 299 | CPIM | none | Certified in Production and Inventory Management | Certificate | Economic and Management Sciences | 5 |
| 300 | PG Dip | Human Resources Management | Postgraduate Diploma in Human Resources Management | Post Graduate Diploma | Economic and Management Sciences | 8 |
| 301 | DTech | none | Doctor of Technology | Doctorate | Engineering, Built Environment and Information Technology | 10 |
| 302 | DCompt | none | Doctorate Computations | Doctorate | Economic and Management Sciences | 10 |
| 303 | BBus | Honours | Bachelor of Business Honours | Degree Honours | Economic and Management Sciences | 8 |
| 304 | EMLog | none | European Master Logistician | Degree | Economic and Management Sciences | 7 |
| 305 | FIEE | none | Fellow of the Institute of Electrical Engineers | Fellow | Professional: Engineering | 7 |
| 306 | M.I.Mech.E. | none | Member of the Institution of Mechanical Engineers | Member | Professional: Engineering | 7 |
| 307 | ACGI | none | Associateship of the City & Guilds of London Institute | Associate | Professional: Vocational | 7 |

| ID | Qualification Code | Qualification Sub | Qualification Text | Qualification Level | Qualification Family | NQF Level |
|---|---|---|---|---|---|---|
| 308 | Cert | Mine Manager Competency | Certificate of Mine Manager Competency | Certificate | Engineering, Built Environment and Information Technology | 5 |

(Taljaard, 2013)