

**2016 Southern African Accounting
Association (SAAA)
National Teaching and Learning and
Regional Conference Proceedings**

ISBN number: 978-0-620-74761-5



**AUD 08: The Relationship between Board Size and
Company Performance**

Kyla van der Westhuizen

University of Cape Town

Gizelle Willows

University of Cape Town

Gizelle.willows@uct.ac.za

A South African Study

Abstract

This paper evaluates the relationship between the size of the board of directors (“the board”) and company performance. Presented in this study are the findings that the size of the board has no significant relationship/effect on the financial performance of the JSE Top 40 companies in South Africa. With Tobin’s Q used as the variable that measures the performance of the companies in 2014, and the independent variables – additional to board size – being company size, return on assets, and non-executive directors, the relationship was analysed using an Ordinary Least Squared Regression. The lack of a relationship is suggested to be due to the high quality of corporate governance in South Africa as well as the inefficiencies of information transfers in emerging markets.

Introduction

Corporate governance has been known to have a large impact on the financial performance of a company. Financial performance (“performance”) is defined as the overall financial health of the company at a specific time¹ (Bhunia, Mukhuti & Roy, 2011). In this study, the emphasis will be placed on profitability and efficiency influenced by the board, and it will be further detailed as the ratio of market value of assets to its book value (Kusnadi & Maka, 2005). Notable examples of corporate governance impacting performance are the demise of Enron, where the concerns regarding the composition and size of the board of directors were

¹ The use of company performance is in line with prior studies, such as Bulan et al. (2009), Horváth et al. (2012), Kartika et al. (2012), as well as Muchemwa, M (2014).

highlighted (Vinten, 2002) and the more recent failure of African Bank, that could possibly have been prevented through the correct corporate governance structures (Mushangwe, 2014). Therefore, it should be determined how much of an impact the size of the board has on company performance in order to identify its impact on failures such as these.

King III insinuates that the size of the board has a positive relationship with the probability of a company complying with corporate governance. This is because a larger company is more likely to have the required number and proportion of non-executive directors on its board (South African Institute of Chartered Accountants, 2014). This study aims to identify how significant this relationship's effect is on the company's performance. By finding the optimal level of board members (or finding out that there is none) in relation to performance, a company can prioritise their members by quality instead of quantity, which can improve the quality and performance of the company.

Literature Review

The downfall of Enron in the early 2000's has been believed to be caused by a list of factors, one of which being a lack of corporate governance (Munzig, 2003). This can be considered to be due to issues such as lack of communication on the board, which could be affected by its size, an unclear direction of how to come to a conclusion with regards to the most effective way to make business decisions, as well as intimidation tactics to ensure that the board voted a certain way instead of in a way that was in shareholders' best interests (Munzig, 2003). In a similar light, African Bank was said to have had issues with corporate governance in the banking industry (Mushangwe, 2014). This was caused by, firstly, having a higher board size than other banks, and with that higher size, a larger portion were executive directors (Mushangwe, 2014). This was an issue due to the fact that banks are required to be highly independent, and with a ratio of 36% of executive directors, compared to the norm of 18%, African Bank had the executive directors leading the decisions of the board (Mushangwe, 2014).

Looking at the board in detail, the characteristics of a company's board has been found to be a largely influential factor in such company's performance (Bulan, Snyal, & Zhipeng, 2009). Three main board characteristics have been considered in literature, namely 1) the size of the board 2) the size of the company, and 3) the proportion of non-executive directors (Bulan et al., 2009). According to Bulan et al. (2009), performance has a negative relationship with board size, as well as a negative relationship with company size, whereas the proportion of non-executive directors is directly related to performance (Bulan et al., 2009).

Prior literature, which focuses on each of these three factors, along with other supporting factors, will be reviewed and discussed in more detail to follow. Thereafter, the composition of the board of directors within a South African regulatory framework will be assessed.

Board Size

Although much debate exists around the optimal size of a company's board, it is believed that the smaller the size of the board, the better its monitoring abilities over the company (Coles, Daniel, & Naveen, 2008). Furthermore, Muchemwa (2014) stated that the more directors that sit on a board, the higher the risk that there is less control and structure in a board meeting, which could consequently result in less effective decision-making for the company.

Contrary literature, in support of larger board sizes, has found that a larger board size was better for the CEO, as it meant that he/she would receive more feedback and could obtain more expert advice from outside members rather than just from members of his/her staff (Coles et al., 2008).

A large factor that is believed to be the explanation of the influence of board size on company performance is the 'resource dependency theory' (Muchemwa, 2014). This theory relies on the assumption that when a board appoints a director, it does so with the expectation that the new member will support the company and concern himself with its issues, as well as try and resolve them whenever it is possible (Muchemwa, 2014). Therefore, under this theory, the more directors appointed to the company, the higher improved performance of the company as the directors add their necessary resources (i.e. time, skill, and other capital) to the company (Muchemwa, 2014). However, Muchemwa (2014) and Horváth et al. (2012) state that there is also the risk of 'free-riders' on the board, where directors may not use their resources to increase the performance of the company. This meets the definition of 'free-riding', as it is seen as benefiting from the work of others without partaking in said work (Pasour, 1981).

Finally, Muchemwa (2014) found another alternative, being that although there is a relationship similar to that in the case of Kusnadi et al. (2005), there is no significance between board size and company performance (Muchemwa, 2014). As the study by Muchemwa (2014) was completed in a South African context, it implies that companies in South Africa might not be using its board size advantageously to improve its performance.

Company Size

The size effect anomaly has stated that there is an inverse relationship between the size of the company and its performance (Okada, 2006). The anomaly has also found that the size of the company and the size of the returns (i.e. the performance of the investments) are inversely related (Okada, 2006). The size effect anomaly was opposed by Bulan et al. (2009), who found that company size had a significantly 'U-shaped' impact on the performance of the company. It was evidenced that there are generally smaller boards in smaller companies, which caused an increase in productivity and performance (Bulan et al., 2009). This same outcome was found in the research done by Guest (2009), which strengthened the argument concerning this relationship.

Hawawini et al. (2001) found that the size of the company creates a competitive advantage as larger companies are seen to be more efficient than smaller ones. However, Okada (2006) argued that there is little to no effect of company size on company performance.

Non-Executive Directors

Bulan et al. (2009) believes that one of the main factors that positively influence company performance is the independence of the board. Independence in this case was measured as the proportion of non-executive directors in the company (Bulan et al., 2009).

Owing to the potential independent monitoring that can be achieved by non-executive directors and that these directors have more objective insights into company decisions, having a higher proportion of non-executives could have a direct impact on the performance of the company (Jung & Wook, 2011). However, it could also be argued that the costs of additional non-executive directors could reach the point where they outweigh the benefit (or in smaller companies they may not be affordable) in which case it may have an inverse relationship to performance (Jung & Wook, 2011).

Looking at the relationship between board composition and company performance, Guest (2009) found that the more non-executive directors on a board, the more chance the directors can identify and manage ineffective directors who are not working efficiently. Guest (2009) also stated that the more non-executive directors there are on the board, the higher the chance that those directors can sway the board to act in favour of shareholders interest.

Coles et al. (2008) found that when holding executive directors constant, Tobin's Q (as a proxy for company performance) increased with an increase in non-executive directors. This strengthens the argument that a higher proportion of non-executive directors causes company performance to increase. However, Cole et al. (2008) further noted that the most effective proportion of non-executive directors and size of the board is dependent on the size of the company, complexity, and need for company-specific knowledge. The more complex or large the company, the better it is for it to have non-executive directors that can provide an outsiders perspective and a larger range of skills required for decision making (Coles et al., 2008). The optimal composition of the board would not be a set number for every company, as different complexities and amounts of internal knowledge and skills are required.

The South African Context

According to King III, all South African listed companies *should* follow King III guidance on the structure of the board of directors (South African Institute of Chartered Accountants, 2014). This structure is that the board should consist of at least two executives (being the Chief Executive Officer (CEO) and the Chief Financial Officer (CFO)), with the majority of the board being non-executives, and the majority of the non-executives being independent (South African Institute of Chartered Accountants, 2014). Therefore, to comply with King III, a company should ensure that no matter how big its board is, the majority of the board should

be non-executives. With this guidance, a company should have no less than five members (i.e. executive and non-executive directors) on its board. With the majority being non-executives there is likely to be a great deal of monitoring on company boards and objective decisions being made (Horváth & Spirollari, 2012; South African Institute of Chartered Accountants, 2014). However, according to Klein (1998) there is also the risk that the more non-executives there are, the less company-specific knowledge they have, leading to less effective decision making – and lower company performance.

South African listed companies are labelled as some of the best governed companies in emerging markets (Muchemwa, 2014). The benefits to complying with King III is that good corporate governance increases investor trust in companies, which in turn allows them to perceive the company as less risky and reduce the cost of equity, as they would expect a lower rate of return (Bauer, Gunster, & Otten, 2003). Following a lower cost of equity, would be a lower weighted average cost of equity, which would cause the company valuation to increase (Bauer et al., 2003). Therefore, there appears to be a positive relationship between corporate governance compliance and company performance.

Methodology

The literature reviewed revealed unclear conclusions regarding the effect of board size on company performance. Furthermore, much of the research is outdated and not in a South African context, allowing this paper to determine the current outcome of this question in South Africa.

The research question for this paper is thus: Does the size of the board of director's impact the performance of the company in South Africa?

The null (H_0) and alternative (H_1) and (H_2) hypotheses for this research question are as follows:

H_0 : There is no statistically significant relationship between the size of the board of directors and the performance of the company.

H_1 : There is a statistically significant positive relationship between the size of the board of directors and the performance of the company.

H_2 : There is a statistically significant negative relationship between the size of the board of directors and the performance of the company.

Research Approach

In order to assess the relationship (if any) between the size of the board of directors and the performance of the company, a sample of companies was selected for testing. This sample consisted of all 40 companies listed on the JSE Top 40 Index as seen in Appendix A. This sample was chosen as a replication of the Yermack (1996) and Kusnadi et al. (2005) studies, which included the Forbes Top 100 companies. Furthermore, a range of prior studies done in South Africa have shown the JSE Top 40 to be a suitable sampling population (Hearn, 2009; Hindley, 2012; Mare & Wentzel, 2007).

The most recent audited Annual Financial Statements available up until April 2015 were sourced for each company, being the 2014-year-end results. Each company must have been listed for a period of at least three consecutive years prior to the study. This would limit any survivorship bias (Kusnadi & Maka, 2005). All of the JSE Top 40 companies selected had at least three consecutive years on the JSE, thus they were all valid for the sample base.

Relying on prior literature from Kusnadi et al. (2005) and Guest (2009), company performance was measured using Tobin's Q. This measure hypothesises that the market value of the assets should be equivalent to the book value (otherwise referred to as the replacement value). The result of this ratio is used to demonstrate whether the assets are more or less 'expensive' on the market relative to its replacement cost (i.e. a ratio above one indicates it is viewed as more valuable on the market). The ratio is calculated as follows:

$$Tobin's\ Q = \frac{Market\ Value\ Assets}{Book\ Value\ Assets}$$

Market Value Assets

$$= Market\ Capitalisation + Book\ Value\ Liabilities + Preference\ Shares$$

The market value of assets was calculated by taking the market capitalisation at financial year-end, the book value of the liabilities, and the liquidation value of the preference shares (Kusnadi & Maka, 2005). This is due to a company's assets being funded by equity (i.e. market capitalisation and preference shares) and liabilities – so the total asset value can be calculated by aggregating these factors. The reason for the use of book value liabilities is that prior literature can support that the slight deviation from market value liabilities, which is used in the original Tobin's Q formula, would not be large enough to tamper with the final result (Chung & Pruitt, 1994). This therefore allows an acceptable simplification in using book value (Chung & Pruitt, 1994).

The liquidation value of the preference shares was calculated by taking the par value of the equity preference shares (which was calculated as the number of shares in issue multiplied by the par value of preference shares) from the Annual Financial Statements of each company. This way of calculating the asset market value for Tobin's Q is in line with the method followed by Chung and Pruitt (1994).

The 'Book Value Assets' were taken directly from the Annual Financial Statements at their face value.

It should be noted that the company's market value can be linked to performance due to the fact that when company performance increases, the share price in the market increases, which in turn increases the company's market capitalisation – and, therefore, its company value (Kartika, Puspitasari, & Sudiyatno, 2012). This increases the argument by Kusnadi et al. (2005) of the suitability of Tobin's Q as the measurement for company performance.

Research Method

An ordinary least squares 'OLS' regression analysis is performed to test for any relationship between the size of the board of directors and the company's performance. The company's performance, as measured by Tobin's Q will be the dependent variable. Owing to the limited sample of 40 companies, a maximum of three independent variables could be selected at any time.

Multiple stage testing will be performed, with the first stage only including the size of the board as the independent variable in order to initially test the H_0 . Following from that, the second and third stage of testing will include two additional control variables. The first control variable will be ROA, as it is often used as a measure for performance (Hawawini, Subramanian, & Verdin, 2001). In stage two, the second control variable will be the size of the company, as it appears to have a large influence on company performance upon reviewing the relevant literature (Coles et al, 2008; Horváth et al., 2012; Kusnadi et al., 2005). In stage three, this control variable will be replaced with the proportion of non-executive directors, which was also found to be influential in the literature reviewed (Coles et al., 2008; Guest, 2009; Horváth et al, 2012; Kusnadi et al.,2005).

The formulae used to the H_0 , whilst controlling for other factors is as follows:

Test One:

Stage One:

$$\text{Company Performance} = \text{Board Size} \times A_0 + e_{i,t}$$

Stage Two:

$$\text{Company Performance} = \text{Board Size} \times A_0 + \text{ROA} \times A_1 + \text{Company Size} \times A_2 + e_{i,t}$$

Stage Three:

$$\text{Company Performance} = \text{Board Size} \times A_0 + \text{ROA} \times A_1 + \text{Non Executive Directors} \times A_3 + e_{i,t}$$

Where ' A_{0-5} ' are the relationships between the control variables and the dependent variable and ' $e_{i,t}$ ' is the residual (which contains random or fixed effects on company performance that are not brought about by either of the three control variables).

Each variable used is measured as follows:

Company Performance is measured using Tobin's Q as previously explained. This is in line with prior papers, as discussed in the literature.

Return on assets 'ROA' is measured as the operating income over the total assets of each company for each of its year-ends. This ratio represents how efficiently the company generates income through the use of assets.

Company size is measured as the market capitalisation of each company at its financial year-end, translated into ZAR if necessary at the ruling exchange rate at the reporting date. The ruling exchange rate was sourced from the Reserve Bank, whilst the share prices at year-end were taken from Bloomberg.

Board size is measured as the total number of executive and non-executive directors in each company at year-end.

Non-Executive Directors are measured as those directors not involved in the management of the company (i.e. all directors that aren't executives).

As this study is done in a South African context, the analysis will be further split up into the effects of the independent variables on Tobin's Q (i.e. company performance) within the respective sectors in which each company operates (Ruland & Zhou, 2006). From the literature reviewed, it was argued that the complexity of the company, the company size, and the composition of the board can all influence company performance. Therefore, it is possible that in different sectors, companies may be grouped into their level of complexity and structure, etc. With this in mind it could be possible that when the companies are grouped into their sectors, the size of the board could have different effects on the performance of the company. The sectors that will be the focus of this study will be those that are the most common on the JSE. According to the JSE SA Sector categories (2015), the three sectors, based on company revenue, are Resources, Financials, and Industrials (i.e. other) (JSE, 2015).

Test Two:

$$\text{Company Performance} = \text{Board Size} \times A_0 + \text{SectorType} \times A_4 + e_{i,t}$$

Results

Before analysing the results from the OLS regression, the average (mean) and range of the boards are calculated to indicate their possible level of King III compliance. It should be noted that a limitation of this study would be that by using the JSE Top 40, there would be a likelihood of companies having similar structure and board size, which would skew the results. However, the results from calculating the mean and range of the board showed that the sizes range from 9 to 21 members, with the average size of a board being 13,98, with a median of 13,5 members (Appendix B). With King III in mind, the minimum number of directors on the board was 9 (above the minimum required of five) showing adherence to King III and thus being an indicator of good corporate governance. This could, again, lead to a limitation of scope, as with the minimum number of directors on the board being 9, it is unlikely that any of these companies would not adhere to King III, whereas if one were to examine smaller companies a lack of adherence may be more likely (as the board size would likely decline).

The impact of board size, and other factors, on company performance in three different stages, is shown in Table 1.

**Table 1:
The Effect of Board Size on Company Performance**

VARIABLES	Stage 1 Company performance	Stage 2 Company performance	Stage 3 Company performance
Size of board	0.0130 (0.0547)	0.0524 (0.0463)	0.0812 (0.0495)
ROA		5.850*** (1.428)	6.316*** (1.452)
Size of company		6.62e-07 (3.98e-07)	
Proportion of non-exec's			1.650 (1.496)
Constant	1.727** (0.786)	0.400 (0.710)	-1.143 (1.554)
Observations	40	40	40
R-squared	0.001	0.377	0.351

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 1 shows the relationship between each of the independent variables company performance. The manner in which Table 1 is set out allows for the view of the size of independent variables (such as board size, ROA, etc.) being listed in the first column, whereas the company performance is the dependent variable (i.e. Tobin's Q) throughout the above test.

When looking at the significance levels of the different stages, it is clear that ROA has a highly significant positive relationship with company performance. This supports the findings in prior literature (Coles et al., 2008; Hawawini et al., 2001; Kartika et al., 2012; Kusnadi et al., 2005). However, the results differ from Coles et al. (2008) and Guest (2009) with the remainder of the control/independent variables where, in this study, there is no relationship between the size of the company or the proportion of non-executive directors and company performance.

Although insignificant, there does still appear to be a positive relationship between company performance and the remainder of the variables. The positive relationship between company performance and company size disproves the size-effect theory and is explained by Hawawini et al. (2001) who state that a larger company has a larger competitive advantage. Furthermore, Okada (2006) found no significant relationship between these two variables.

When looking at the relationship between company performance and non-executive directors, the lack of a significant relationship is supported by Bhagat et al. (2000). However, Bulan et al. (2009), Coles et al. (2008), Jung et al. (2011), and Guest (2009) argue that more non-executive directors allow for more monitoring and reduced fraud and errors in companies. This enhances

voting towards decisions in the company that may improve shareholder wealth, which in turn improves overall financial performance.

The relationship between board size and company performance was also found to be insignificant, yet positive. The positive aspect of the relationship could be justified by prior literature, which stated that a larger board would allow for more non-executive directors (and increase monitoring of the company) (Bulan et al., 2009). It can also be justified by having more executive directors with the required company specific knowledge and skills to make the most efficient decisions that would enhance the company performance (Bulan et al., 2009). However, the final result is still insignificant, and this difference to prior literature, such as Kusnadi et al. (2005) and Coles et al. (2008), might be explained by all of the prior studies being performed in developed countries, whereas in South Africa – an emerging market – there may be different factors that cause a different relationship between the two variables.

Table 2:
The Effect of Board Size on Company Performance per Sector

VARIABLES	Company performance
Size of board	-0.0112 (0.0519)
Sector: Industrial	1.206*** (0.426)
Sector: Resources	0.0292 (0.506)
Constant	1.423 (0.882)
Observations	40
R-squared	0.272

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In Table 2 the 'Financial sector' is isolated as a reference group for the regression. This is owing to the 'sector' variable being an ordinal variable. Thus, in Table 2, it should be noted that the Financial sector is compared to the Industrial sector, as well as being compared to the Resources sector to determine which sector is better at influencing company performance. The results from Table 2 show that companies in the industrial sector have a statistically significant positive relationship with company performance. However, there is no significant relationship with any of the other independent variables, showing that the size of the board has no effect on company performance – overall or per sector, amongst the sampled companies assessed.

Discussion

The majority of the literature review that found significant relationships between the board size and company performance were performed in developed economies. This might indicate that the relationship is dependent on the developmental stage of the country, and this study in South Africa would find variant results. Within emerging markets, markets are not as efficient, thus investor information is not often reflected in the share price when it becomes newly available (BlackRock, 2015). To explain the insignificant relationship using this information, it is acknowledged that Tobin's Q is used as one of the measurement variables, and Tobin's Q consists of market capitalisation. Thus, the lack of efficiency in transferring company information into the market value could result in the lack of a statistically significant relationship between the two variables – therefore, it would suggest reasoning's behind the difference in the relationship found between this study and prior literature. With this, emerging markets also appear to have under-developed communication foundations compared to developed markets (Khanna & Palepu, 1997). Therefore, it is inferred that the size of the board may have no relationship with company performance as the size will not impact the ability to communicate and make informed decisions due to emerging markets poor communication skills.

Another possible reason behind this difference is explained by Bauer et al. (2003) who suggest that the constructs relationship is often stronger with companies that have less developed governance standards. This suggests that a weaker relationship exists between company performance and a more highly developed corporate governance standard (Bauer et al., 2003). Thus, this could imply that having a strong corporate governance system could add little increased performance for a company.

Furthermore, Klein (1998) noted that the higher the level of non-executive directors, the less company specific knowledge they have that might be required. Most South African companies are compliant with King III – giving them a higher proportion of non-executive directors. In addition, there is the likelihood of a great deal of the JSE Top 40 companies being complex due to their size and specialised nature (i.e. mining, financial, etc.). Therefore, there is the possibility that the performance added due to the monitoring by non-executive directors could be counteracted by the lack of company specific knowledge these directors have with regards to decision making. This would cause the end result to be that there is no significant relationship in either direction when it comes to board size and company performance. The likelihood of this being the reason is strengthened due to the average proportion of non-executive directors from the JSE Top 40 being 76% (Appendix B).

Conclusion

The results show that return on assets has a statistically significant positive relationship with company performance, as measured by Tobin's Q, which is in support of prior literature. However, no statistically significant relationship between non-executive directors and company performance, as well as company size and its performance was found, which is contrary to prior literature. This was suggested to be owing to South Africa being an emerging market, as emerging markets lack efficiency in communication and information transfer. Another possible reason given was the high level of corporate governance in South Africa, which increases the

monitoring effectiveness of the non-executive directors whilst counteracting the lack of executives required for company specific skills and knowledge for decision-making. Finally, the relationship between board size and company performance, which was undetermined, appears to also show no statistically significant relationship.

In conclusion, there appears to be no significant relationship between board size and company performance within the JSE Top 40 companies in South Africa. South Africa may have a high level of corporate governance, but this is not linked to the performance of the company when looking at board size in this case. Therefore, although the lack of corporate governance and inefficient board size and composition had a large impact on the downfall of Enron and African Bank, the suggestion in this study is that the incorrect board size may increase the chances of 'unexpected' failure of the company as was seen with these two situations, but the size of the board will not cause a company's performance to change significantly – i.e. a larger board size will not be a factor in the increased profitability of the company.

Recommendations

The results of this study imply that incurring additional costs to obtain the most efficient and objective board might not positively impact company performance in South Africa. Therefore it is recommended that the size of the board be kept to a minimum but that King III considerations should be complied with to ensure the company meets the standards of corporate governance.

A smaller board not only reduces total director remuneration, but also allows for prudence by appointing only those directors that can increase company performance. The communication between directors would also be more efficient. Therefore, a smaller, but flexible, board with highly qualified staff is recommended whilst maintaining a high level of corporate governance.

Bibliography

- Bauer, R., Gunster, N., & Otten, R. (2003). Empirical Evidence on Corporate Governance in Europe. *Journal of Asset Management*, (October), 1–24. doi:10.2139/ssrn.444543
- Bhagat, S., & Black, B. (2000). Board Independence and Long-Term Firm Performance. *Social Science Research Network Electronic Journal*, (February), 1–44. Retrieved from http://www.researchgate.net/profile/Sanjai_Bhagat/publication/228230283_The_Non-Correlation_Between_Board_Independence_and_Long-Term_Firm_Performance/links/004635307445468f0f000000.pdf
- BlackRock. (2015). Capitalising on Market Inefficiencies in Global Stock Markets. Retrieved June 5, 2015, from <https://www.blackrock.com/investing/resources/education/alternative-investments-education-center/how-can-i-use-alternative-investments/capitalizing-on-market-inefficiencies-in-global-stock-markets>
- Bulan, L., Snyal, P., & Zhipeng, Y. (2009). Directors, Outsiders and Efficiency: An Analysis of How Board Characteristics Influence Firm Productivity. *Journal of Economics and*

- Business*, (August), 1–38. Retrieved from <http://people.brandeis.edu/~lbulan/prodBoard.pdf>
- Chung, K. H., & Pruitt, S. W. (1994). A Simple Approximation of Tobin's q. *Journal of the Financial Management*. Memphis: Wiley. doi:10.2307/3665623
- Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of Financial Economics*, 87(February), 329–356. doi:10.1016/j.jfineco.2006.08.008
- Guest, P. M. (2009). The Impact of Board Size on Firm Performance: Evidence from the UK. *Journal of Asset Management*, 15(4), 385–404. Retrieved from https://dspace.lib.cranfield.ac.uk/bitstream/1826/4169/4/The_impact_of_board_size_on_firm_performance.pdf
- Hawawini, G., Subramanian, V., & Verdin, P. (2001). Is performance driven by industry - or industry- or firm-specific factors? A new look at the evidence Venkat Subramanian Paul Verdin. *Strategic Management Journal*, 24(January), 1–16. Retrieved from http://www.readcube.com/articles/10.1002/smj.278?r3_referer=wol&tracking_action=preview_click&show_checkout=1&purchase_site_license=LICENSE_DENIED
- Hearn, B. (2009). Liquidity estimation in major African equity markets. *Journal of Economic Literature*, 44, 1–36. Retrieved from http://stage.cassknowledge.com/sites/default/files/article-attachments/173~~173_brucehearn_liquidity_estimation_in_major_african_equity_markets.pdf
- Hindley, A. T. (2012). *Integrated reporting compliance with the Global Reporting Initiative framework: An analysis of the South African mining industry*. The International Business & Economics Research Journal. North-West University. Retrieved from http://dspace.nwu.ac.za/bitstream/handle/10394/8701/Hindley_AT.pdf?sequence=1
- JSE. (2015). SA Sector. Retrieved June 5, 2015, from <https://www.jse.co.za/services/market-data/indices/ftse-jse-africa-index-series/sa-sector>
- Horváth, R., & Spirollari, P. (2012). Do the Board of Directors' Characteristics Influence Firm's Performance? The U.S. Evidence. *Journal of Economic Literature*, 4, 470–486. Retrieved from <http://www.vse.cz/polek/download.php?jnl=pep&pdf=435.pdf>
- Jung, J., & Wook, S. (2011). Effects of Independent and Friendly Outside Directors. *Journal of Economic Literature*, 1–42. Retrieved from <http://www.ifc.org/wps/wcm/connect/5b21b30048a7e5bca34fe76060ad5911/Effects+of+Independent+and+Friendly+Outside+Directors.pdf?MOD=AJPERES&CACHEID=5b21b30048a7e5bca34fe76060ad5911>
- Kartika, A., Puspitasari, E., & Sudiyatno, B. (2012). The Company's Policy, Firm Performance, and Firm Value: An Empirical Research on Indonesia Stock Exchange. *American International Journal of Contemporary Research*, 2(12), 30–40. Retrieved from http://www.aijcrnet.com/journals/Vol_2_No_12_December_2012/4.pdf

- Maka, Y. T., & Kusnadi, Y. (2005). Size really matters: Further evidence on the negative relationship between board size and firm value. *Pacific-Basin Finance Journal*, 13(3). Retrieved from <http://www.sciencedirect.com/science/article/pii/S0927538X04000733>
- Mare, E., & Wentzel, D. C. (2007). Extreme value theory – An application to the South African equity market. *Investment Analysts Journal*, 36(66), 73–77. Retrieved from <http://www.iassa.co.za/wp-content/uploads/2009/06/0615WentzelMare66No5final.pdf>
- Muchemwa, M. R. (2014). *The Relationship between Board Composition and Firm Performance: A Study of South African Public Companies*. University of the Witwatersrand. Retrieved from [http://146.141.12.21/bitstream/handle/10539/15133/Raymond Research Report - Board Composition and Firm Performance Final Report - corrected V1.pdf?sequence=2](http://146.141.12.21/bitstream/handle/10539/15133/Raymond%20Research%20Report%20-%20Board%20Composition%20and%20Firm%20Performance%20Final%20Report%20-%20corrected%20V1.pdf?sequence=2)
- Munzig, P. G. (2003). *Enron and the Economics of Corporate Governance*. Stanford University. Retrieved from http://economics.stanford.edu/files/Theses/Theses_2003/Munzig.pdf
- Okada, K. (2006). Size Effect and Firm Size. *Security Analysts Journal*, 44(7), 1–24. Retrieved from <https://www.saa.or.jp/english/publications/kengoOkada.pdf>
- Pasour, E. C. J. (1981). The Free Rider as a Basis for Government Intervention. *Journal of Libertarian Studies*, 5(4), 453–464. Retrieved from <https://mises.org/library/free-rider-basis-government-intervention-0>
- Ruland, W., & Zhou, P. (2006). Dividend Payout and Future Earnings Growth. *Financial Analysts Journal*, 62(3). Retrieved from <http://www.cfapubs.org/doi/abs/10.2469/faj.v62.n3.4157>
- South African Institute of Chartered Accountants. (2014). *King Report of Governance*. LexisNexis (Vol. 2D). South Africa.
- Vinten, G. (2002). The corporate governance lessons of Enron. *Corporate Governance: The International Journal of Business in Society*, 2(4), 4–9. doi:10.1108/14720700210447632
- Yermack, D. (1996). Higher Market Valuation of Companies with a Small Board of Directors. *Journal of Financial Economics*, 40(2), 185–211. Retrieved from [http://www.fdp.hse.ru/data/086/482/1225/Sept 16 Higher market valuation of companies with a small board of directors.pdf](http://www.fdp.hse.ru/data/086/482/1225/Sept%2016%20Higher%20market%20valuation%20of%20companies%20with%20a%20small%20board%20of%20directors.pdf)

Appendices:

Appendix A: Top 40 Companies

JSE Top 40 Index				
Name	Year-End	Sector	Ruling Exchange Rate	
1 British American Tobacco	31-Dec	Industrial	R/£: 18,0111	
2 SAB Miller	31-Mar	Industrial	R/\$: 10,54	
3 BHP Billiton	30-Jun	Resources	R/\$: 10,6284	
4 Richemont	31-Mar	Industrial	R/€: 14,5176	
5 Anglo American	31-Dec	Resources	R/\$: 11,5559	
6 MTN	31-Mar	Industrial	N/A ¹	
7 Naspers	31-Mar	Industrial	N/A ¹	
8 Sasol	30-Jun	Resources	N/A ¹	
9 Standard Bank	31-Dec	Financial	N/A ¹	
1 Vodacom	31-Mar	Industrial	N/A ¹	
0				
1 Kumba Iron Ore	31-Dec	Resources	N/A ¹	
1				
1 First Rand	30-Jun	Financial	N/A ¹	
2				
1 Old Mutual	31-Dec	Financial	R/£: 18,0111	
3				
1 Absa	31-Dec	Financial	N/A ¹	
4				
1 Sanlam	31-Dec	Financial	N/A ¹	
5				
1 Shoprite Checkers	30-Jun	Industrial	N/A ¹	
6				
1 Remgro Ltd	30-Jun	Industrial	N/A ¹	
7				
1 Nedbank	31-Dec	Financial	N/A ¹	
8				
1 Aspen Health Care	30-Jun	Industrial	N/A ¹	
9				
2 Anglo American Platinum	31-Dec	Resources	N/A ¹	
0				

¹ Where a ruling exchange rate is listed as “N/A”, that company’s financial statements have been sourced in the Republic of South Africa. Thus, no exchange rates were necessary.

2 1	Bidvest	30-Jun	Industrial	N/A ¹
2 2	AngloGold Ashanti	30-Jun	Resources	R/\$: 10,6284

Appendix A: Top 40 Companies (Continued)

2 3	Impala Platinum	30-Jun	Resource s	N/A ¹
2 4	Woolworths	30-Jun	Industrial	N/A ¹
2 5	Tiger Brands	30-Sep	Industrial	N/A ¹
2 6	Mediclinic	31-Mar	Industrial	N/A ¹
2 7	Exxaro	31-Dec	Resource s	N/A ¹
2 8	RMB	30-Jun	Financial	N/A ¹
2 9	Intu Properties PLC	31-Dec	Industrial	R/£: 18,0111
3 0	Growthpoint	30-Jun	Industrial	N/A ¹
3 1	Discovery Ltd	30-Jun	Financial	N/A ¹
3 2	Gold Fields	30-Jun	Resource s	R/\$: 10,6284
3 3	Mondi Plc	31-Dec	Industrial	R/€: 13,9903
3 4	Steinhoff	30-Jun	Industrial	N/A ¹
3 5	Assore	30-Jun	Resource s	N/A ¹
3 6	Investec PLC	31-Mar	Financial	R/£: 17,5649
3 7	Massmart Holdings Ltd	31-Dec	Industrial	N/A ¹
3 8	Imperial Holdings	30-Jun	Industrial	N/A ¹
3 9	Truworths International	30-Jun	Industrial	N/A ¹

4	African Rainbow	30-Jun	Resource	N/A ¹
0	Minerals		s	

Appendix B: Company Composition

JSE Top 40 Index					
	Name	Board Size	Number of Non-Executives	Number of Executives	% Non executives
1	British American Tobacco	12	9	3	75,00%
2	SAB Miller	15	13	2	86,67%
3	BHP Billiton	19	15	4	78,95%
4	Richemont	13	10	3	76,92%
5	Anglo American	11	9	2	81,82%
6	MTN	12	10	2	83,33%
7	Naspers	13	11	2	84,62%
8	Sasol	10	8	2	80,00%
9	Standard Bank	9	6	3	66,67%
10	Vodacom	14	9	5	64,29%
11	Kumba Iron Ore	9	7	2	77,78%
12	First Rand	13	11	2	84,62%
13	Old Mutual	13	11	2	84,62%
14	Absa	14	13	1	92,86%
15	Sanlam	14	11	3	78,57%
16	Shoprite Checkers	12	10	2	83,33%
17	Remgro Ltd	13	11	2	84,62%
18	Nedbank	16	15	1	93,75%

¹ Where a ruling exchange rate is listed as “N/A”, that company’s financial statements have been sourced in the Republic of South Africa. Thus, no exchange rates were necessary.

1 9	Aspen Health Care	12	10	2	83,33%
2 0	Anglo American Platinum	16	12	4	75,00%
2 1	Bidvest	18	14	4	77,78%
2 2	AngloGold Ashanti	21	18	3	85,71%
2 3	Impala Platinum	17	14	3	82,35%
2 4	Woolworths	14	11	3	78,57%
2 5	Tiger Brands	10	8	2	80,00%
2 6	Mediclinic	11	9	2	81,82%

Appendix B: Company Composition (Continued)

2 7	Exxaro	17	14	3	82,35%
2 8	RMB	17	11	6	64,71%
2 9	Intu Properties PLC	12	9	3	75,00%
3 0	Growthpoint	10	8	2	80,00%
3 1	Discovery Ltd	15	8	3	53,33%
3 2	Gold Fields	20	11	9	55,00%
3 3	Mondi Plc	16	11	5	68,75%
3 4	Steinhoff	9	6	3	66,67%
3 5	Assore	11	8	3	72,73%
3 6	Investec PLC	18	10	8	55,56%
3 7	Massmart Holdings Ltd	9	7	2	77,78%
3 8	Imperial Holdings	15	11	4	73,33%

3	Truworths International	21	11	10	52,38%
9					
4	African Rainbow	18	9	9	50,00%
0	Minerals				