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The effects of the individual BEE scorecard elements on the performance of JSE-listed firms in South Africa

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in partial fulfilment of the requirements for the degree of
Master of Commerce
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PLAGIARISM DECLARATION

I understand what plagiarism entails and am aware of the University's policy in this regard. I declare that this research report is my own original work and that all sources have been accurately reported and acknowledged. It is submitted in partial fulfilment of the requirements for the degree of a Master of Commerce in Accounting at the University of the Witwatersrand, Johannesburg. This research has not been submitted for any degree or examination at any other university. I further declare that I have obtained the necessary authorisation and consent to carry out this research.



Signature

27 February 2019

Date:

Abstract

Black Economic Empowerment (BEE) legislation was introduced in South Africa to combat the significant modern-day racial inequality caused by Apartheid. While social returns are the primary objective of BEE, one must assess whether compliance with this legislation has also yielded financial returns. Prior studies have mainly focused on the effect of the composite BEE Scorecard on performance, and have produced inconclusive and conflicting results. This study therefore aims to gain further insight into the impact of the BEE scorecard by isolating the influence of each element of the BEE scorecard on performance.

A quantitative study was undertaken using Johannesburg Stock Exchange-listed firms as the population. A multivariate panel regression analysis was performed using return on assets (ROA), return on equity (ROE) and share returns (SHR) as proxies for performance over the period 2011 to 2017. The final sample translated into 346 company-year observations for the ROA and ROE models, and 381 for the SHR model.

Initial analyses evidenced a strong positive correlation between ROA/ROE and Employment Equity. The regression analyses, which controlled for profitability, growth, asset utilisation, debt, size, industry and macro-economic factors, returned two significant findings. The Ownership element of the scorecard was positively associated with both ROA and ROE, while Socio-Economic Development was negatively associated with ROA.

The findings from this study add to the body of BEE research that shareholders, managers and policy-makers can consider when making decisions about BEE policies. Ongoing research to further develop these findings will assist companies in supporting the movement for economic unity while maximising their own value creation.

Key Words: Black Economic Empowerment; BEE scorecard; performance; return on assets; return on equity; share returns.

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Chapter I - Introduction

1.1 Background

The primary objective of a company is to maximise shareholder wealth through the design and execution of effective strategies. Such strategies need to incorporate and adjust to the environment within which the company operates, taking into account key political, economic, social, technological, legal, regulatory and environmental factors. These key operating factors can have a major impact on corporate strategy and consequently wealth creation, highlighting the central role that market structure has in shaping the optimal corporate strategy.

Historically, Apartheid, which was a policy of racial segregation, destabilised the South African socio-economic environment and gave rise to modern-day racial inequality. The significance of this inequality has driven government to redress Apartheid's legacy through the introduction of Black Economic Empowerment (BEE) legislation. To comply with this regulation, companies operating in South Africa need to incorporate BEE legislation into the development of their corporate and operating strategies.

Over the past two decades, two primary pieces of BEE legislation were introduced: the Broad-Based Black Economic Empowerment (BBBEE) Act and the Codes of Good Practice (hereafter Codes) which assist in the implementation of the BBBEE Act. The Codes are especially important, as they contain the detailed regulations of how to implement the framework outlined in the BBBEE Act (Esser & Dekker, 2008). As a means of measuring the compliance of businesses with this act, the 2007 Codes introduced the generic scorecard which outlines several elements that contribute to the empowerment of black people. Each element has a different weighting that contributes to the overall score, based on which a compliance level is allocated to a business (DTI, 2003). These elements were updated in the 2013 Codes and comprise of: Ownership (25 points), Management Control (15 points), Supplier and Enterprise Development (40 points), Skills Development (20 points) and Socio Economic Development (5 points).

Yet, despite almost two decades of BEE legislation, there is near-record high unemployment and a widening inequality gap that is leading to calls for radical economic transformation (Department of Labour, 2017). This 'transformation', a synonym for BEE, is a key issue in

South Africa and businesses are therefore increasingly entering into various BEE deals to grow the different elements of their BEE scorecards (South African Government News Agency, 2017).

There are many incentives for firms to comply with the BBBEE Act and to obtain the highest rating. Apart from the legal requirement to comply, preference to BEE-compliant firms is given when entering into economic transactions with governmental bodies (Alessandri, Black, & Jackson III, 2011; Ferreira & de Villiers, 2011; Kleynhans & Kruger, 2014; Ponte, Roberts, & Van Sittert, 2007). BEE compliance may also help to preserve the property rights of firms fearing expropriation (Acemoglu, Gelb, & Robinson, 2007). Furthermore, when raising capital, prospective investors may be more inclined to invest in BEE compliant companies (Acemoglu et al., 2007). BEE deals can also enhance a firm's reputation with the black majority and assist in gaining access to new market opportunities (Alessandri et al., 2011).

The above-mentioned incentives, coupled with the social and political pressures, has led to an increasing number of companies entering into BEE deals, emphasising the importance of understanding the effect of such deals on a firm. While social returns are the primary objective of BEE, one needs to question whether compliance with BEE or any of its components has led to the dual impact of yielding financial returns along with the social returns. Although the impact of BEE compliance on the financial performance of such entities has been investigated (Empowerdex Economic Empowerment Rating Agency, 2007; Ferreira & de Villiers, 2011; Kleynhans & Kruger, 2014; Krüger, 2011; Van der Merwe & Ferreira, 2014; Ward & Muller, 2010), the results are conflicting and largely inconclusive.

A limitation of these earlier studies is that they only addressed the composite BEE scorecard. Consequently, this study aims to isolate the influence of each element of the BEE scorecard on performance. By understanding the impact of each element, the impact of BEE compliance on financial returns can be more accurately determined. Furthermore, companies that wish to become compliant or increase their compliance level can choose to invest in those elements that will have the greatest positive effect on performance while also increasing their BEE score.

This research paper is set out as follows: The remainder of Chapter I will outline the problem, purpose and significance of the study, followed by the hypotheses, assumptions and limitations. Chapter II will summarise the history of BEE, related legislation and the structure of the BEE scorecard. It will also provide a review of prior studies performed on the impact of BEE on performance. Thereafter, Chapter III will discuss the methodology, as well as the reliability and validity tests employed in the research paper. Chapter IV will then examine the results of the study, with Chapter V analysing and discussing these findings. Lastly, Chapter VI will conclude the matter and outline areas for future research.

1.2 Problem Statement

Due to the legal requirements and associated incentives to comply with the BBBEE Act, firms will strategically invest in the different BEE-scorecard elements to maximise their overall BEE score. However, companies need to be mindful which element they choose to invest in, as there is empirical evidence that BEE can negatively impact a company's performance (Acemoglu et al., 2007; Du Plessis, 2017; Ferreira & de Villiers, 2011; Krüger, 2011; Mehta & Ward, 2017; Van der Merwe & Ferreira, 2014).

The literature has shown that BEE can negatively impact a firm's bottom-line, liquidity and overall efficiency which can lead to losses, as firms are 'forced' to enter into suboptimal deals in an effort to comply with BEE legislation (Ferreira & de Villiers, 2011). Suboptimal strategies can lead to lower performance, profitability and investment (Acemoglu et al., 2007). The impact of BEE on performance may therefore be far-reaching and requires detailed investigation, particularly regarding the impact of each element of the scorecard.

1.3 Purpose of the Research

The purpose of this research is to further deconstruct the effects BEE compliance has on the performance of Johannesburg Stock Exchange (JSE)-listed companies, specifically by seeking to isolate the influence of the individual scorecard elements on company performance.

1.4 Significance of the Study

The overall BEE score is comprised of five (previously seven) elements, with each element having a different impact on a company's performance. This study aims to address a gap in

the literature by investigating the effect of each element of the BEE scorecard on the performance of listed firms in South Africa. Majority of prior studies have focused on the aggregate or overall effect of BEE on performance, approaching BEE as a binary variable – the company in question is either compliant or non-compliant (Akinsomi, Kola, Ndlovu, & Motloung, 2016; Du Plessis, 2017; Ferreira & de Villiers, 2011; Kleynhans & Kruger, 2014; Ward & Muller, 2010). Only one prior study by Van der Merwe and Ferreira (2014) focused on the effect of each element on performance; however, the proxies used for performance, like many other studies, were share price or other share-price-based multiples (Du Plessis, 2017; Ferreira & de Villiers, 2011; Mathura, 2010; Van der Merwe & Ferreira, 2014; Van Heerden, 2011). The results of these previous share-based studies may be inaccurate, as market inefficiencies (which can stem from fickle external factors) can distort share prices and consequently distort the results (Niederhoffer, 1971).

This study will add to the current literature by using more intrinsic and therefore more robust proxies as measures of performance, such as return on assets (ROA) and return on equity (ROE) which have been used as performance measures in previous studies (Acemoglu et al., 2007; Kleynhans & Kruger, 2014; Krüger, 2011). These proxies are less likely to be affected by external factors such as market sentiment and are therefore more accurate measures of performance. Consequently, the results of this study will more accurately illustrate the effects of each of the BEE elements on the performance of listed companies in South Africa.

Shareholders and management can use the results of this study to optimise investment in BEE elements, thereby allowing the dual objectives of enhancing BEE credentials and wealth-creation to be met. Policy makers can also benefit from this study, as the results identify the non-value adding elements which can be reviewed and adjusted so as to harmonise the interests of the country with the interests of business.

1.5 Hypotheses

The study investigated the effect of each element of the BEE scorecard on a firm's performance. The elements that were tested were: Ownership, Management Control, Employment Equity, Skills Development, Preferential Procurement, Enterprise Development and Socio-Economic Development. Each of these elements have a benefit versus cost contention, raising the question as to whether the benefits exceed the cost or vice versa

(Acemoglu et al., 2007; Van der Merwe & Ferreira, 2014). The following seven hypotheses were formed:

H_1. The higher the Ownership scores the better the performance.

The Ownership element entails issuing shares to black people to increase the effective ownership of entities by black people (DTI, 2013). When using share-price as a measure of performance, many studies have shown a positive relationship between the total BEE score and share returns (Alessandri et al., 2011; Strydom, Christison, & Matias, 2009; Ward & Muller, 2010; Wolmarans & Sartorius, 2009). However, Acemoglu et al. (2007) believe that due to firms often being forced to finance such BEE deals, an increase in BEE ownership may negatively affect a firm's liquidity and consequently their performance. In support of this view, Van der Merwe and Ferreira (2014) found a negative association between the BEE ownership element and share returns, though this finding is inconsistent with majority of the studies.

H_2. The higher the Management Control scores the better the performance.

The Management Control element measures the effective control of entities by black people by measuring the number of black people holding board positions and being involved in board participation, senior management, middle management and junior management of the entity (DTI, 2013). Van der Merwe and Ferreira (2014) found a significant positive association between Management Control and share returns. This may be due to the addition of diversity in the workplace which can increase innovation and performance (Empowerdex Economic Empowerment Rating Agency, 2007). However, others argue that due to the many years of black oppression there is a shortage of candidates that have the necessary training and skillset required to fill managerial positions **and** qualify for BEE (Acemoglu et al., 2007). Therefore, under-skilled personnel may be hired that require additional training, the costs of which may outweigh the benefits, resulting in a harmful effect on a firm's performance (Acemoglu et al., 2007; Ferreira & de Villiers, 2011).

H_3. The higher the Employment Equity scores the worse the performance.

The Employment Equity element measures the initiatives intended to achieve equity in the workplace under the BEE Act and the Employment Equity Act 1998 (DTI, 2013). This incentivises the entity to employ black staff in its senior, middle and junior management

positions. Acemoglu et al. (2007) believe that Apartheid oppression has resulted in a shortage of BEE candidates that have the necessary skillset for managerial positions. Therefore, personnel without the necessary skillsets may be hired which can negatively affect a firm's performance (Acemoglu et al., 2007; Ferreira & de Villiers, 2011).

H_4. The higher the Preferential Procurement scores the worse the performance.

The Preferential Procurement element measures the extent to which enterprises buy goods and services from suppliers with strong BEE scores compared to the total spend on goods and services by that entity (DTI, 2013). Van der Merwe and Ferreira (2014) found a significant negative association between Preferential Procurement and share returns, possibly because firms may be inclined to choose BEE suppliers over other suppliers even when the products are inferior (Ferreira & de Villiers, 2011). Furthermore, even if the products are on par, the buying company might be paying a "BEE premium". BEE suppliers that lack size do not benefit from economies of scale, making production inefficient. The purchasing company therefore pays for such inefficiencies because there is not a sufficiently large database of capable BEE suppliers.

H_5. The higher the Enterprise Development scores the better the performance.

The Enterprise Development score measures the extent to which enterprises carry out initiatives intended to assist and accelerate the development and sustainability of other enterprises (DTI, 2013). Investing and supporting black entrepreneurs can be an effective tool to create or improve a company's upstream and downstream partners. If successful, these BEE entities have later been found to become significant business partners, positively affecting the performance of an entity (Empowerdex Economic Empowerment Rating Agency, 2007). However, forcing such investments may also place financial strain on such entities, negatively affecting their performance.

H_6. The higher the Skills Development scores the better the performance.

The Skills Development element measures the extent to which employers carry out initiatives designed to develop the competencies of black employees and black people internally and externally (DTI, 2013). Investing in the skillsets of employees may lead to greater productivity in the entity which in turn may better the entity's performance (Empowerdex Economic Empowerment Rating Agency, 2007). Furthermore, by viewing Skills

Development from a Corporate Social Responsibility (CSR) standpoint, a business can be viewed in a positive light by the market, which may enhance the performance of a firm and lead to growth in market share (Galan, 2006).

H_7. The higher the Socio-Economic Development scores the better the performance. The Socio-Economic Development element measures the extent to which entities carry out initiatives that promote access to the economy for black people (DTI, 2013). Although no studies have been performed regarding the Socio-Economic Development element and performance, greater involvement in the local community can often improve an entity's positioning, resulting in better performance (Empowerdex Economic Empowerment Rating Agency, 2007). In addition, by viewing Socio-Economic Development from a CSR standpoint, a business can be viewed in a positive light by the market and lead to growth in market share (Galan, 2006).

1.6 Assumptions, Limitations and Delimitations

This study assumes that return on assets (net profit divided by total assets), return on equity (net profit divided by ordinary equity) and shareholder returns (change in share price over the year plus dividend yield) are sufficient proxies for performance. Furthermore, it is assumed that the control variables, namely profitability, growth, asset utilisation, debt, size, industry and macro-economic factors, are the primary factors that influence a company's performance aside from BEE (Capon, Farley, & Hoenig, 1990; Ward & Muller, 2010).

This study has a number of limitations. Firstly, the study sample is comprised of approximately 100 of the most empowered companies according to Empowerdex's annual rankings and the results may therefore not accurately apply to companies that are less compliant. Secondly, this study uses unbalanced panel data which may bias the findings if the missing data over time are not random (Wooldridge, 2015). Thirdly, many of the companies used in the model are large entities. Therefore extrapolating the results to smaller entities may not be accurate, as size has been shown to affect the impact of BEE on performance (Ward & Muller, 2010).Fourth, some of the proxies used for performance are accounting measures (return on assets and return on equity) and as such are subject to manipulation by firms which may further impact the accuracy of the findings (Lemma, Negash, Mlilo, & Lulseged, 2018).

A further limitation of this study is that the effect of endogeneity on the model was not addressed which can impact the robustness of the results (Roberts & Whited, 2013). Lastly, the Hausman test was used to ascertain which model (random-effects (RE) or fixed-effects (FE)) should be used for the study. The results recommended the use of an FE regression model. This may have impacted the results, as an RE model is generally preferred since it reduces the effect of omitted variable bias. Furthermore, in a case where there is unexplained heterogeneity, even after covariates are considered, an FE model may result in bias in the estimation of errors, coefficients and p-values, which is not so if an RE model is used (Berkey, Hoaglin, Antczak-Bouckoms, Mosteller, & Colditz, 1998).

1.7 Definitions

Aggregate BEE Score – The sum of all the points allocated to each element of the scorecard.

BEE Score – A rating of BEE compliance based on the balanced scorecard.

BEE Elements – The different categories on the scorecard used to rate a firm's overall BEE compliance level.

Black Enterprise – An enterprise that is at least 50.1% owned by black people and in which black people have substantial participation in the management control of the enterprise (DTI, 2013).

Black People – "African, Coloured or Indian persons who are natural persons and: are citizens of the Republic of South Africa by birth or descent; or are citizens of the Republic of South Africa by naturalisation before the commencement date of the Constitution of the Republic of South Africa Act of 1993; or became citizens of the Republic of South Africa after the commencement date of the Constitution of the Republic of South Africa Act of 1993, but who, but for the Apartheid policy that had been in place prior to that date, would have been entitled to acquire citizenship by naturalisation prior to that date" (DTI, 2013).

Scorecard – The compliance scorecard used to measure the level of BEE compliance by incorporating the different elements of empowerment as per the 2013 Codes (DTI, 2007).

Share Returns – The year-on-year change in share price plus the dividend yield.

Chapter II - Literature Review

This study aims to address the gap in current literature regarding the effect of BEE on the performance of companies in South Africa by studying the effect of each BEE element on performance. The following literature review will describe the background and policy consequences of BEE, as well as the prior studies surrounding the effect of BEE on a firm's performance.

2.1 Background of BEE

In the early 2000s, post-Apartheid South Africa had an unemployment rate of 40%, with the vast majority of unemployed being black people (Dhanorkar, 2010). It became evident that greater participation of black South Africans was needed in order to grow the economy. However, obstacles such as a lack of assets and access to capital greatly hindered the opportunities for their participation (Kleynhans & Kruger, 2014), resulting in the legislation of the BBBEE Act of 2003 (DTI, 2003). Several years later in 2007, Codes of Good Practice were developed and published to assist in the implementation of the operational aspects of the BBBEE Act (DTI, 2007). In 2013, these codes were revised and the Amended Codes of Good Practice 2013 were introduced to further clarify and enhance the function of the BBBEE Act of 2013 (DTI, 2013).

2.1.1 The BEE Scorecard

The primary purpose of the BBBEE Act is to increase the participation of black people in the economy and to promote economic unity and equal opportunity (DTI, 2003). As part of the 2007 Codes of Good Practice, a balanced scorecard with seven elements was introduced whose purpose was twofold: first, to clarify what measures a company needed to take to become BEE compliant, second to provide a means for governing authorities to measure the compliance levels of companies (Acemoglu et al., 2007; Kleynhans & Kruger, 2014). The 2013 Amended Codes of Good Practice revised the scorecard into five elements, each with a different weighting, ranging from 5 to 40 (DTI, 2015) (Figure 1).

Figure 1: Structure of the revised BEE Scorecard as outlined by the Department of Trade and Industries effective 1 May 2015 (DTI, 2013).

Old Scorecard (2007)	Points	Revised Scorecard (2013)	Points
Ownership	20	Ownership	25
Management Control	10	Management Control	15
Employment Equity	15		
Preferential Procurement	20	Enterprise and Supplier Development	40
Enterprise Development	15		
Skills Development	15	Skills Development	20
Socio-Economic Development	5	Socio-Economic Development	5
Total	100	Total	105

As seen in Figure 1, Management Control and Employment Equity merged into one element, Management Control. Preferential Procurement and Enterprise Development also merged into one element, Enterprise and Supplier Development (DTI, 2015). Furthermore, the revised codes increased the total weighting from 100 to 105 and also introduced minimum requirements for the priority elements, namely Ownership, Skills Development, and Enterprise and Suppler Development (DTI, 2015). As seen in Table 1 below, the generic scorecard is used to measure an entity's BEE compliance, as the aggregate score determines the BEE compliance status or recognition level (DTI, 2013). A score of 100 or more is the most compliant (a 'Level 1' rating). A score of 40 to 55 is the least compliant, yet still compliant ('Level 8' rating). Any score below 40 indicates that the firm in question is non-compliant. This BEE recognition level is computed by summing the points earned for each element, with the objective of achieving the highest ranking of a Level 1 Contributor. Since each element of the BEE scorecard contributes to the overall score, it is necessary to understand the objectives, advantages and disadvantages of each element of the scorecard

Table 1: BBBEE recognition levels in accordance with the number of points achieved on the scorecard (DTI, 2013).

BBBEE Status	Qualification	BBBEE Recognition Level
Level 1 Contributor	≥ 100 Points	135%
Level 2 Contributor	≥ 95 but < 100	125%
Level 3 Contributor	≥ 90 but < 95	110%
Level 4 Contributor	≥ 80 but < 90	100%
Level 5 Contributor	≥ 75 but < 80	80%
Level 6 Contributor	≥ 70 but < 75	60%
Level 7 Contributor	≥ 55 but < 70	50%
Level 8 Contributor	≥ 40 but < 55	10%
Non-compliant	< 40	0%

Ownership

The ownership element measures the effective ownership of entities by black people (DTI, 2013). There are three primary indicators of black ownership. The first is that both black men and women should hold exercisable voting rights, the second is that both black men and women should hold an economic interest in the entity and the third relates to the percentage of the net value of the entity held by black men and women (DTI, 2013).

Often, the black participants in BEE share deals do not have sufficient resources to pay for the shares. As a result, these participants will pay a small cash contribution and the remainder will be debt finance, either by the vendor company or a third party (Nobaza, 2014; Sartorius & Botha, 2008). In cases where financing is provided by the vendor company, harm can be caused to the entity as it can jeopardise its liquidity (Acemoglu et al., 2007). To avoid this, some companies raise capital through a sell-off of assets as seen with SASOL, who warned its shareholders that it might have to sell up to R15 billion of assets to finance BEE deals (Van Wyk, Dahmer, & Custy, 2004). However, this is a problem, as the sale of assets reduces a firm's production capacity, which negatively affects its performance. It is however interesting to note that when measuring performance using share returns as a proxy, many studies have shown a positive relationship surrounding the BEE deal announcement (Alessandri et al., 2011; Strydom et al., 2009; Ward & Muller, 2010; Wolmarans & Sartorius, 2009).

Management Control

The Management Control element measures the effective control of entities by black people by measuring the number of black people holding board positions and being involved in board participation, senior management, middle management and junior management of the entity (DTI, 2013). It is difficult to score well in this element, as it requires extensive efforts during the recruitment process to meet the high targets for black representation (Norton Rose Fulbright, 2015). This difficulty may be due to the many years of black oppression, resulting in a shortage of candidates that have the necessary training and skillset required to fill managerial positions and qualify for BEE (Acemoglu et al., 2007). Therefore, in order to meet these targets, under-skilled personnel may be hired that require additional training, the costs of which may outweigh the benefits, resulting in a harmful effect on a firm's performance (Acemoglu et al., 2007; Ferreira & de Villiers, 2011). In addition, undeserving employees may be unnecessarily promoted to improve control by black management, which may also negatively impact a firm's performance (Ferreira & de Villiers, 2011).

On the other hand, employing black people in management positions can add diversity to the workplace which can increase innovation and performance (Empowerdex Economic Empowerment Rating Agency, 2007). Furthermore, a significant positive relationship has been found between the Management Control element and share returns (Van der Merwe & Ferreira, 2014).

Employment Equity

The Employment Equity element measures the initiatives intended to achieve equity in the workplace under the BEE Act and the Employment Equity Act 1998 (DTI, 2013). In order to excel in this element, companies need to focus on hiring black employees throughout the different levels of staff in their respective companies (Norton Rose Fulbright, 2015). This element is similar to the Management Control element and as such, it is logical that the two elements were combined into one in the new scorecard. Consequently, the challenges and advantages associated with this element are similar to those discussed under the Management Control element above.

Preferential Procurement

The Preferential Procurement element measures the extent to which enterprises buy goods and services from suppliers with strong BEE scores compared to the total spend on goods and services by that entity. This element is one of the primary commercial incentives behind BEE legislation (DTI, 2013). Companies that wish to score well in this element need to first consider the BEE scores of all its suppliers prior to transacting with them to ensure that they have a BEE score of level 4 or higher. In a similar manner, the company itself is incentivised to maintain a high BEE score to ensure that it maintains its existing supplier base (Norton Rose Fulbright, 2015).

Preferential Procurement can lead to cost savings as seen in a report by Empowerdex. The report found that efforts to locate the best BEE alternatives resulted in entities finding even better suppliers than previously used (Empowerdex Economic Empowerment Rating Agency, 2007). However, complying with the Preferential Procurement element may also harm company performance. Van der Merwe and Ferreira (2014) found a significant negative association between Preferential Procurement and share returns, possibly because firms choose BEE suppliers over other suppliers even when products are inferior (Ferreira & de Villiers, 2011). Furthermore, even if products are on par, the buying company might be paying a "BEE premium". Often, BEE suppliers lack size and do not benefit from economies of scale which makes production inefficient. The purchasing company therefore pays for such inefficiencies because there is not a sufficiently large database of capable BEE suppliers. Preferential Procurement may also have a negative effect on a macro-economic scale as it can limit access of foreign firms to government contracts, ultimately isolating South Africa (Van Wyk et al., 2004).

Enterprise Development

The Enterprise Development score measures the extent to which enterprises carry out initiatives intended to assist and accelerate the development and sustainability of black enterprises (as defined) (DTI, 2013). This can be achieved by contributing 3% of net profits after tax to such enterprises (Norton Rose Fulbright, 2015). An advantage of this element is that investing and supporting black entrepreneurs can improve a company's upstream and downstream partners, with these BEE entities ultimately becoming significant business partners (Empowerdex Economic Empowerment Rating Agency, 2007). However, such

contributions may also place financial pressure on entities which can negatively affect an entity's performance.

Skills Development

The Skills Development element measures the extent to which employers carry out initiatives designed to develop the competencies of black employees and black people internally and externally (DTI, 2013). For example, an entity can receive points for sponsoring specific learning programmes or bursaries that are recognised under the current Codes (Norton Rose Fulbright, 2015). On the one hand, Skills Development can improve a company's performance as it leads to improvements in the skillsets of employees, in turn bettering operations (Empowerdex Economic Empowerment Rating Agency, 2007). On the other hand, such initiatives may place unnecessary financial burdens on firms that require such capital to be used for more important areas in the business, negatively affecting the firm's performance.

Socio-Economic Development

The Socio-Economic Development element measures the extent to which entities carry out initiatives that contribute towards socio-economic development or sector specific initiatives that promote access to the economy for black people (DTI, 2013). For an entity to achieve maximum points for this element, it should contribute 1% of its net profits after tax to beneficiaries recognised for these purposes as per the Codes (Norton Rose Fulbright, 2015). Although such an initiative may promote the firm's image from a CSR perspective, improving market share and ultimately improving performance (Galan, 2006), it can also place unnecessary financial burdens on firms that would better use these resources for other areas of their operations (Van Wyk et al., 2004).

2.2 Consequences of BEE Policy

The effectiveness of BEE has long been debated. From its inception, there have been both proponents and opponents of the legislation. On the one hand, BEE is a necessary policy to increase black people's share in business ownership, executive control and transfer of skills. On the other hand, BEE is seen to be a major business risk which may cause more harm than good (Ponte et al., 2007; Van Wyk et al., 2004). Ferreira and de Villiers (2011) propose that there are two primary reasons why a company would want to be compliant: firstly, a company may wish to be socially responsible and assist in correcting errors of the past;

secondly, there is an economic incentive as entities that are compliant receive preferential treatment which can better their economic performance.

BEE has many positive attributes that can affect South Africa on a macro-economic level. According to Van Wyk et al. (2004), although BEE compliance will be costly for firms, it will eventually lead to higher economic levels of growth which will attract foreign investment, create jobs, alleviate poverty and ultimately benefit the population in a sustainable manner. These benefits may be realised through BEE policies promoting a more effective management team through diversification of the workplace, greater productivity through investment in skills development and cost savings when entities attempt to locate the best alternatives to meet preferential procurement requirements (Empowerdex Economic Empowerment Rating Agency, 2007).

BEE can also be viewed as an act of corporate governance as it emphasises the need to correct the South African socio-economic environment (Esser & Dekker, 2008). It can therefore be inferred that compliance with these corporate governance disclosures is of vital importance to the success of any firm, as corporate governance in South Africa has been found to be significantly positively correlated with financial performance (Abdo & Fisher, 2007). This is to such an extent that investors even place a premium on entities that adopt good corporate governance policies (Abdo & Fisher, 2007).

An extension of this idea is to regard BEE as an act of CSR (Esser & Dekker, 2008; Sartorius & Botha, 2008; Wolmarans & Sartorius, 2009). On a direct level, BEE will increase black participation in businesses through its Ownership and Management Control elements. On an indirect level – the CSR perspective - BEE will ensure the community at large benefits through its Preferential Procurement, Enterprise Development and Socio-Economic Development elements (Esser & Dekker, 2008). CSR can also increase financial performance for the respective company. Entities that increase their CSR levels can improve their reputation in the market, recruit or retain high quality workers and even charge a premium price on its output. If these benefits outweigh the costs of achieving that particular CSR status, it can be a profit maximising strategy (Siegel & Vitaliano, 2007).

On the other hand, the most obvious risk of BEE is that non-compliant companies will receive a poor BEE rating which will negatively affect its ability to do business in South Africa (Esser & Dekker, 2008). The risks of BEE can even reach a macro-economic level, as BEE can deter foreign investment (Southall, 2006). This is evidenced by a government leak regarding a proposed BEE plan which scared away a $1.5 billion investment in the mining industry and led to a large sell-off of shares in several of the leading mining companies (Van Wyk et al., 2004). Furthermore, SASOL emphasised the importance of BEE risk management in its submissions to the Securities and Exchange Commission in compliance with New York Stock Exchange listing requirements, where BEE was disclosed as 1 of 30 business risks facing South African companies (Van Wyk et al., 2004).

On a micro-economic level, Kleynhans and Kruger (2014) refer to a 'push-pull' effect in which the high costs of compliance with BEE will offset any gains it may bring, effectively ensuring that economic growth remains stagnant. Furthermore, many criticise BEE, claiming that it only promotes the growth of a small but remarkably wealthy elite group that are politically connected. Some also believe that it is encouraging the re-racialisation of the South African economy which is causing more harm than good (Southall, 2006). This sentiment is further evidenced by a case study performed by Hiam, Eshghi, and Eshghi (2017) in which even non-white historically-disadvantaged company managers had very negative perceptions of BEE's ability to truly provide socio-economic equality to black South Africans.

As a result of these risks, the effectiveness and methods of implementation of BEE are still being questioned. Many firms are not compliant or are 'fronting' (Van Wyk et al., 2004), where 'fronting' is the deliberate circumvention of the BBBEE Act and the Codes by using schemes to misrepresent the substance of their BEE compliance (DTI, 2018). In response to non-compliance and circumvention of BEE, current legislation has been continuously amended and new legislation propagated to enhance the efficacy of the act. A recent enactment by the JSE involved two amendments to its listing requirements effective 1 June 2018. The first amendment obliges all JSE-listed companies to disclose the racial diversity at board level. Entities are expected to develop a policy for the promotion of racial diversity, as well as formulate an annual report to their shareholders on how they complied with that policy. The second amendment is that every listed entity is required to publish their BBBEE

annual compliance report on their company website, coupled with an announcement on the stock exchange news services of this publication (JSE, 2017). This new legislation calls attention to a firm's attitude towards BEE along with its compliance levels, further emphasising the importance of understanding the consequences BEE can have on performance.

In conclusion, the proposed advantages and disadvantages surrounding BEE policy are multi-faceted and complex, with much doubt surrounding the consequences of this legislation. The importance of continuously researching and understanding the implications that BEE can have on the performance of South African businesses can therefore not be under-estimated. The next section reviews the studies that have attempted to ascertain the impact of BEE on an entity's performance.

2.3 Current Literature on the Association between BEE and Performance

There have been both qualitative and quantitative studies performed on the effect of BEE compliance on performance. The studies that follow shed light on both the positive and negative findings that BEE can have on performance.

Empowerdex, a leading economic empowerment ratings agency, performed a quantitative study in 2007 to ascertain the effect of BEE on the profit margins and productivity of firms. The study was performed in response to public concern with regard to BEE, as there was a belief that it adds "a notable and unnecessary cost burden" to businesses (Empowerdex Economic Empowerment Rating Agency, 2007). Empowerdex studied the top 99 firms over the period 2003 to 2005 and found that maintaining or increasing the BEE score did not negatively impact the profitability or productivity of an entity. In contrast, the research showed that the most empowered companies had average profit margins of more than 34%, whereas the least empowered companies had profit margins lower than the general average. This study proved that BEE costs are perceived, rather than real. Furthermore, the study also illustrated that the adoption of BEE can both address the economic imbalance in society as well as increase the performance of the entity (Empowerdex Economic Empowerment Rating Agency, 2007).

Krüger (2011) carried out a qualitative study by performing an empirical survey amongst 500 managers in small, medium and large businesses, asking them their thoughts on the effect of BEE on performance. The survey focused on the effect of BEE on the following ten dimensions of performance: overall domestic and global competitiveness, service excellence and client satisfaction, quality and acceptance of products and services, productivity, entrepreneurial spirit, production performance, human development and staff morale, business ethics, sales and access to markets, and financial performance. Contrary to the positive findings of the report by Empowerdex Economic Empowerment Rating Agency (2007), the results showed a mainly negative perception of the impact of BEE on all ten dimensions of performance.

Sartorius and Botha (2008) focused on the Ownership element of the scorecard by examining equity transfers of companies listed on the JSE using a qualitative methodology. As of 2008, less than 25% of equity had been transferred to BEE partners among 62 companies included in the analysis. The study revealed that the primary reason that companies initiate BEE equity transfers was the perceived need for CSR, in combination with the incentive of profit-making. These companies were also aware that BEE is essential for South Africa to sustain its economic and democratic structures.

Wolmarans and Sartorius (2009) approached BEE purely from a CSR standpoint, as BEE was effectively introduced to rectify the injustices of Apartheid. They found that the share price of companies increased (in the short term) after the public announcement of a BEE deal, in line with Mehta and Ward (2017) who also found a positive relationship between BEE scores and share returns in the short term. An act of CSR by a business can be viewed in a positive light by both the shareholders and the market, which in turn may enhance the performance of a firm, potentially leading to a growth in market share (Galan, 2006). This growth may also result from the disclosure of a value-added statement such as an entity's BEE scorecard which is a method used by South African companies to establish legitimacy with the public (Cahan & Van Staden, 2009).

In a similar fashion to Wolmarans and Sartorius (2009), Alessandri et al. (2011) also investigated BEE from the viewpoint of it being an act of CSR by South African businesses. They focused on whether BEE is a value-creating CSR activity and the conditions in which

BEE would create or destroy value. Their findings showed that when BEE was undertaken as a legitimate CSR initiative, it was value-creating. However, if BEE initiatives were undertaken in a symbolic manner to 'trick' the market, it was transparent to key stakeholders and potentially destroyed company value.

A number of studies investigated the long-term impact of BEE on share returns. Ward and Muller (2010) studied the long-term impact of BEE-ownership-deals announcements on share price performance. They found that in the long term, BEE announcements had a positive effect on share prices but only for smaller companies (those with market capitalisation of less than R3.5 billion). Interestingly, for larger companies there was a marginally negative effect. Ward and Muller (2010) explained that this could be due to the large size of these companies, where the benefits of BEE are suppressed relative to their entrenched reputation in the market. This implies that when measuring the effect of BEE on performance, the size of the company should be controlled for.

Mehta and Ward (2017) used an event study methodology to similarly investigate the long-term impact of BEE scores on share prices. They found that firms with better BEE scores generated less share returns than firms with lower BEE scores. They referred to this as a "surprising phenomenon" and attributed it to the possibility of the high cost of BEE compliance over the long term which may negatively impact returns. Ferreira and de Villiers (2011) used a linear regression approach to investigate the long-term effect of BEE. In line with Ward and Muller (2010) and Mehta and Ward (2017), the results of the study showed a significant negative relationship between an entity's overall BEE score and future share returns. In addition to the reasons cited above, Ferreira and de Villiers (2011) believe that the negative long-term returns could be due to managers over-investing in BEE activities to improve their BEE scores, which can negatively affect returns.

Du Plessis (2017) studied the effect of BEE on the risk and return of listed firms in the industrial and financial sectors of the JSE. Like majority of prior studies, the BEE compliance of the firms in the study was approached from a binary standpoint – the firm was either BEE compliant or not. The purpose of this study was to seek evidence that BEE-compliant firms outperform their non-compliant counterparts. However, the results proved to be the opposite.

In contrast to the findings of Wolmarans and Sartorius (2009) and Alessandri et al. (2011), non-compliant firms outperformed their BEE compliant counterparts.

Moving away from BEE's effect on share returns, Acemoglu et al. (2007) performed a study investigating the effect of the overall BEE score and the Ownership score on investment, labour productivity and profitability of South African firms. The regression analysis demonstrated that BEE had little impact on all three performance measures. If anything, there was a slightly negative impact on investment and productivity, but this result was not statistically significant. Acemoglu et al. (2007) believe that possible reasons for the insignificant results include the length of time required for BEE to have an impact and the lack of BEE data available at that time – only three years' worth of BEE data (2004 - 2006) were used in the study. In addition, the economic costs and benefits can cancel each other out, leaving an aggregate nil effect on a firm's performance.

Kleynhans and Kruger (2014) studied the effect of the aggregate BEE score on a firm's economic competitiveness, investment and profitability. The quantitative study used regression analysis to analyse the top 50 BEE companies from 2009 to 2011, and demonstrated that on average 21.1% of the variation in operating profits is explained by variation in BEE scores. This finding provided evidence that BEE does affect profitability. Similarly, when using the level of investment as a proxy for competitiveness, the results showed a positive relationship with BEE scores, further evidencing BEE's influence.

Lastly, the only study to investigate individual BEE scorecard elements was performed by Van der Merwe and Ferreira (2014), who investigated the short-term association of the seven scorecard elements with the share price of listed entities. The study focused on the impact of the announcement of BEE deals between 2005 and 2011 and discovered the following: Management Control has a positive effect on share returns, while Ownership and Preferential Procurement has a negative effect on share returns. The remaining elements of the scorecard were not found to have any significant association with share returns in the short term.

It is thus evident that current literature is inconclusive as to the overall effect of BEE on company performance. It is also clear that there is a gap in current literature regarding the

effect of the individual elements of the BEE scorecard on a firm's performance, which this study aims to address.

Chapter III – Methodology

This study aims to deconstruct the effects that BEE compliance has on the performance of listed companies by isolating the influence of the individual scorecard elements on performance. Shareholders and management can use the results of this study to optimise investment in elements to meet the dual objective of enhancing both their BEE credentials and wealth-creation. Policy-makers can also make use of this study to review and adjust the non-value adding elements to harmonise the interests of the country with the interests of business. To meet these objectives, a quantitative study using multivariate panel regression analyses was performed as detailed in the following sections.

3.1 Sample and Data

JSE-listed firms were the population for this research. The initial sample for the study comprised the Top 100 most-empowered firms in each year from 2011 to 2017 inclusive according to Empowerdex's annual rankings. As the qualifying Top 100 most-empowered firms changed on a yearly basis, an unbalanced panel was employed in this research. The panel data was obtained from three primary sources. The first data source was IRESS Expert (hereafter IRESS) which is a South African reporting database that provides historical financial information on South African companies. The second data source was Osiris which is a comprehensive global reporting database that provides historical financial information on more than 38 000 listed companies around the world. The third source was Empowerdex, a leading South African BEE ratings agency and research house. Intellidex, a market leader in the field of BEE research, kindly assisted in obtaining the BEE scorecard data of the Top 100 most-empowered companies for the years 2011 to 2017 from Empowerdex. This data was managed using both Microsoft Excel 2013 as well as STATA (StataCorp LLC, USA) software.

Company-year observations for which IRESS, Osiris or Empowerdex were missing data were excluded, as inclusion of these observations in the analysis would have distorted the results (Baeyens, Manigart, & Verschueren, 2003). Furthermore, companies in the banking and financial sectors were removed, as the policies and consequently the performance of these companies are affected by additional determinants such as regulatory capital requirements (Lemma & Negash, 2011).

The final sample comprised 106 companies from seven different industries, namely consumer discretionary, consumer staples, health care, information and communications technology, industrials, materials and property. The final sample translated into 346 company-year observations for the ROA and ROE models, and 381 for the SHR model. This difference arose due to the different control variables used in the respective models.

3.2 Data Analysis

Empirical testing was employed to ascertain the effect of each element of the scorecard on the performance of listed firms. Performance was measured using three proxies, namely: return on assets (ROA), return on equity (ROE) and share returns (SHR). For each proxy, a corresponding Panel-Data Ordinary Least Square regression analysis was performed using STATA software.

ROA was analysed using the following model:

$$ROA_{it} = \beta_0 + \beta_1 OWN_{it} + \beta_2 MC_{it} + \beta_3 EE_{it} + \beta_4 SD_{it} + \beta_5 PP_{it} + \beta_6 ED_{it} + \beta_7 SED_{it} + \beta_8 GM_{it} + \beta_9 S/FA_{it} + \beta_{10} SCH_{it} + \beta_{11} CR_{it} + \beta_{12} DE_{it} + \beta_{13} SZ_{it} + \beta_{14} GDP_{it} + \beta_{15} IRoa_{it} + \varepsilon_{it} \quad (1)$$

ROE was analysed using the following model:

$$ROE_{it} = \beta_0 + \beta_1 OWN_{it} + \beta_2 MC_{it} + \beta_3 EE_{it} + \beta_4 SD_{it} + \beta_5 PP_{it} + \beta_6 ED_{it} + \beta_7 SED_{it} + \beta_8 GM_{it} + \beta_9 S/FA_{it} + \beta_{10} SCH_{it} + \beta_{11} CR_{it} + \beta_{12} SZ_{it} + \beta_{13} GDP_{it} + \beta_{14} IRoe_{it} + \varepsilon_{it} \quad (2)$$

SHR was analysed using the following model

$$SHR_{it} = \beta_0 + \beta_1 OWN_{it} + \beta_2 MC_{it} + \beta_3 EE_{it} + \beta_4 SD_{it} + \beta_5 PP_{it} + \beta_6 ED_{it} + \beta_7 SED_{it} + \beta_8 ROA_{it} + \beta_9 SZ_{it} + \beta_{10} BTM_{it} + \beta_{11} GDP_{it} + \beta_{12} IShR_{it} + \varepsilon_{it} \quad (3)$$

The explanation of each variable in equations (1), (2) and (3) is given in Table 2 below.

Table 2: The regression model variables with the corresponding explanations.

Variable	**Explanation**
i	The company being analysed.
t	The year t.
β	The regression coefficient generated by the regression output.
OWN	The Ownership element of the BEE scorecard.
MC	The Management Control element of the BEE scorecard.
EE	The Employment Equity element of the BEE scorecard.
SD	The Skills Development element of the BEE scorecard.
PP	The Preferential Procurement element of the BEE scorecard.
ED	The Enterprise Development element of the BEE scorecard.
SED	The Socio-Economic Development element of the BEE scorecard.
GM	The Gross Margin (%) calculated as follows: $GM = {}^{Gross\ Profit}/_{Sales}$
S/FA	The Sales to Fixed Assets ratio (%) calculated as follows: $S/FA = {}^{Sales}/_{Fixed\ Assets}$
SCH	The year-on-year Sales Change (%) calculated as follows: $SCh = {}^{(Sales_t\ -\ Sales_{t-1})}/_{Sales_{t-1}}$
CR	The Current ratio (%) calculated as follows: $CR = {}^{Current\ Assets}/_{Current\ Liabilites}$
DE	The Debt-Equity ratio (%) calculated as follows: $DE = {}^{Long\ Term\ Debt}/_{Ordinary\ Share\ Capital}$
SZ	The size of the company calculated as follows: $SZ = ln(Market\ Capitalisation)$
GDP	The real growth in Gross Domestic Product (GDP)(%) calculated as follows: $GDP = {}^{(GDP_t\ -\ GDP_{t-1})}/_{GDP_{t-1}}$
BTM	The Book to Market Ratio (%) calculated as follows: $BTM = {}^{Book\ Value}/_{Market\ Capitalisation}$
IRoa	The ROA Industry Control Variable calculated as follows: $IRoa = {}^{(ROA_{IndustryAvg}\ -\ ROA_{JSEAvg})}/_{ROA_{JSEAvg}}$

IRoe	The ROE Industry Control Variable calculated as follows: $IRoe = {(ROE_{IndustryAvg} - ROE_{JSEAvg})}/{ROE_{JSEAvg}}$
IShR	The SHR Industry Control Variable as follows: $IShR = {(SHR_{IndustryAvg} - SHR_{JSEAvg})}/{SHR_{JSEAvg}}$
ε	The error term generated by the regression output which is expected to have a mean equal to zero (0).

The dependent variable is performance which was measured using ROA (defined as net profit before tax divided by total assets), ROE (defined as net income divided by equity) and SHR (defined as the change in share price plus the dividend yield). These three proxies allow performance to be measured from three different standpoints, namely: the operating performance of the entity (ROA), the return on shareholders invested equity (ROE) and a market-based return (SHR).

The independent variables are the seven elements of the generic BEE scorecard: Ownership, Management Control, Employment Equity, Skills Development, Preferential Procurement, Enterprise Development and Socio-Economic Development. During majority of the time period being studied, the scorecard consisted of seven elements (years 2011 to 2014) as opposed to five (years 2015 to 2017). Furthermore, for 2015 to 2017, both five- and seven-element scorecards were generated by Empowerdex, whereas for the years 2011 - 2014, only seven-element scorecards were generated. Therefore, seven elements were used in the regression equations in order to ensure comparability of the data over the time period.

Modelling performance requires a more holistic approach and a broad base of explanatory variables (Capon et al., 1990). Capon et al. (1990) performed a meta-analysis in which over 400 performance studies were analysed, and this study was used as the source of the control variables introduced into the regression models. The study showed that some of the most important factors affecting performance are profitability, growth, debt, asset utilisation, size, industry and macro-economic factors.

Therefore, the following control variables were introduced into equations (1) and (2): gross margin (GM) representing profitability, year-on-year change in sales (SCH) representing

growth, current and debt-equity ratios (CR and DE) representing debt, sales to fixed assets ratio (S/FA) representing asset utilisation, natural logarithm of the market capitalisation (SZ) representing size, and the real growth in gross domestic product (GDP) representing macro-economic factors. Operating-Expenses-to-Sales (O/S) was also introduced, however due to high correlation with GM, it was subsequently excluded from the models (see Table 4 in section 4.1). Furthermore, as the Debt-Equity ratio (DE) has the same primary inputs as ROE (the dependent variable), this inflated the results and consequently was excluded from the ROE model (Equation (2)).

The performance of an industry versus the overall economy in which a firm operates also greatly affects the competitiveness and profitability of that firm (Porter, 1998). Therefore, to control for industry affects, the difference between the average ROA/ROE of the respective industry compared to the average ROA/ROE of the JSE during that year was used (IRoa and IRoe). The application of dummy variables would have been appropriate to control for industry, however the Hausman test recommended the use of a fixed-effects model (see section 4.2.2) and therefore dummy variables would have been excluded as they are time invariant.

SHR is a vastly different measure from ROA and ROE and therefore alternate control variables were introduced into Equation (3). Fama and French (1998) found that company size (SZ), book-to-market (BTM) and earnings-to-price (EP) were most highly associated with future share returns, as they could control for size, growth and risk. However, EP was found to be highly correlated with BTM (see Table 6 in section 4.2.1) and EP was therefore excluded from the model. Ferreira and de Villiers (2011) and Van Heerden (2011) also controlled for the industry in which the company operates. Industry was controlled for in a similar manner to the ROA and ROE regression analyses, using the difference between the average share returns of the respective industry compared to the average share returns of the JSE during that year (IShR). In the end, the following control variables were introduced into Equation (3): SZ, BTM, ROA, GDP and IShR.

3.3 Reliability and Validity

The data in this study were obtained from Empowerdex. Empowerdex is a BEE rating agency that is registered with the Independent Regulatory Board for Auditors (IRBA) and is

accredited by the South African National Accreditation System (SANAS), the only national body responsible for giving formal recognition to certification bodies. Empowerdex also specializes in BEE research and provides BEE advisory services, thereby enhancing the reliability of the data used in the study.

Furthermore, this study used panel-data over a seven-year period. Panel data are superior to both cross-sectional and time-series data as they allow the researcher to perform a more in-depth analysis. Panel data also improve the efficiency of econometric estimates as they increase the degrees of freedom while decreasing the collinearity amongst explanatory variables (Hsiao, 2014).

To ensure the validity of the findings, namely the appropriateness of the inferences from the results, the following tests were conducted.

3.3.1 Testing for Linearity

The relationships between the dependent and independent variables were visually analysed to check for a linear relationship or alternatively, the need to perform appropriate transformations. Transformations were executed; however the transformed variables did not improve the explanatory power of the respective models and were therefore not included. Furthermore, the normality of the distribution of the variables was not addressed, as the regression model is robust and corrects for any abnormal distribution.

3.3.2 Testing for Collinearity

Even with the use of panel data, there is a risk of multi-collinearity amongst the independent variables (Hsiao, 2014). As multi-collinearity adversely affects the results, the model was tested for this occurrence using both a correlation matrix and a variance inflation factor (VIF) test, as is the required initial step in any regression analysis (Mansfield & Helms, 1982). Variables with a VIF greater than 5 and which had high correlations with other variables as per the correlation matrix were excluded from the models (Mansfield & Helms, 1982).

3.3.3 The Hausman Test

Prior to the regression analysis being performed, the Hausman test was conducted to ascertain whether the model was a random effects (RE) model or fixed effects (FE) model. Thereafter, the regression was performed using the relevant model.

3.3.4 Testing for Heteroscedasticity

Heteroscedasticity may lead to incorrect inferences from the model due to the understatement of the variance and covariance. The White Test was therefore used to test for heteroscedasticity which was subsequently controlled for using White's Robust Standard Errors (White, 1980).

Chapter IV – Results

This research aims to deconstruct the effects that BEE compliance has on the performance of listed companies by isolating the influence of the individual scorecard elements on performance. Descriptive statistics will be presented first, followed by the Hausman Test and regression results for the ROA, ROE and SHR models.

4.1 Descriptive Statistics

Descriptive statistics of the dependent, independent and control variables are presented in Table 3 and discussed in the relevant sections below.

Table 3: Descriptive Statistics for the dependent, independent and control variables.

Type	Variable	Mean	Median	Min	Max	StdDev
Dependent	ROA (%)	8.80	8.34	-32.61	33.16	9.38
	ROE (%)	13.11	13.60	-79.08	82.20	19.03
	SHR (%)	4.52	0.00	-78.41	521.00	42.91
Independent*	Own	15.70	17.68	0.00	23.00	6.36
	MC	5.99	6.06	0.00	11.00	2.74
	EE	6.77	6.86	0.00	14.43	2.98
	SD	9.26	10.02	0.00	18.00	3.82
	PP	16.81	17.50	0.00	20.00	3.51
	ED	13.89	15.00	0.00	15.00	2.93
	SED	4.71	5.00	0.00	5.00	0.86
Control	GM (%)	38.12	34.86	-0.31	99.38	20.96
	S/FA(%)	19.70	4.84	0.48	467.02	55.09
	SCH (%)	8.57	8.85	-70.43	57.45	16.46
	O/S (%)	29.71	23.28	0.00	117.97	23.55
	CR (%)	1.48	1.35	0.10	7.01	0.77
	DE (%)	1.39	0.94	0.09	31.96	1.86
	Size	15.51	15.73	9.92	20.75	2.12
	GDP (%)	1.99	2.20	0.60	3.30	0.85
	BTM (%)	0.92	0.57	0.06	14.28	1.52
	IRoa (%)	-0.32	-1.23	-7.41	6.15	3.45
	IRoe (%)	-1.63	-2.73	-23.20	23.28	10.11
	IShr (%)	-2.88	-2.58	-8.68	1.19	2.39

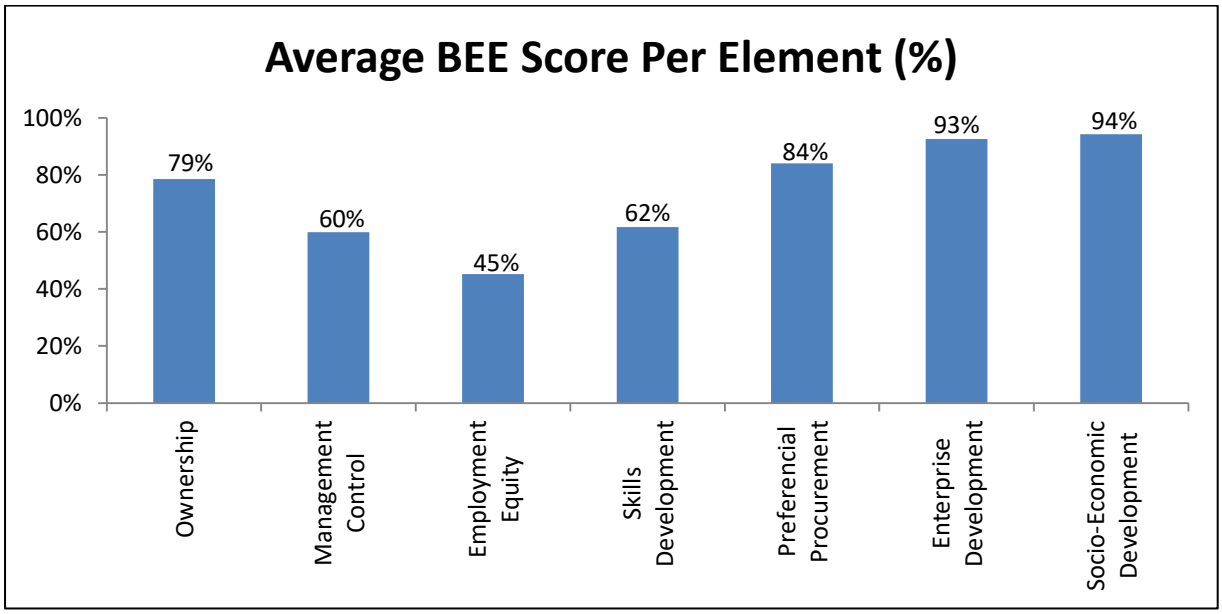
*Raw BEE scores are presented for the independent variables.
Where BTM = Book to market, CR = Current Ratio, DE = Debt-Equity Ratio, ED = Enterprise Development, EE = Employment Equity, GDP = Gross Domestic Product, GM = Gross Margin, IRoa = ROA Industry Control Variable, IRoe = ROE Industry Control Variable, IShr = SHR Industry Control Variable, MC = Management Control, O/S = Operating Expenses to Sales, Own = Ownership, PP = Preferential Procurement, ROA = Return on Assets, ROE = Return on Equity, SCH = Sales Change, SD = Skills Development, SED = Socio-Economic Development, S/FA = Sales to Fixed Assets, SHR = Share Returns, StdDev = standard deviation.

4.1.1 BEE Scorecard Elements

All elements had minimum scores of zero (Table 3). The maximum scores achieved for Ownership and Management Control exceeded their maximum weightings of 20 and 10, respectively, as these elements carry bonus points as per the generic scorecard. With regard to Employment Equity, not a single company in the sample reached the maximum achievable score of 15, with 14.43 being the highest recorded score. In contrast, the median Enterprise Development and Socio-Economic Development scores were equal to the maximum weighting of 15 allocated to these elements.

As each BEE element has a different weighting, percentages were calculated to allow for a fair comparison across elements (Figure 2). The highest scoring element was Socio-Economic Development with an average score of 94%, followed by Enterprise Development and Preferential Procurement scoring 93% and 84%, respectively. The lowest scoring element was Employment Equity scoring 45%, followed by Management Control and Skills Development which scored 60% and 62% respectively. Ownership was in the middle with an average score of 79%.

Figure 2: Chart comparison of the average score of each BEE element.



4.1.2 Dependent and Control Variables

As seen in Table 3, the average ROA was 8.80% with a standard deviation of 9.38% and was highly variable (range -32.61% to 33.16%). ROE had an average of 13.11%, with a high standard deviation of 19.03%, as well as high variability (range -79.08% to 82.20%). On the other hand, SHR was low, averaging only 4.52% compared to an average inflation rate of 5.64% over the same period. SHR also had a very high standard deviation of 42.91% and high variability (range -78.41% to 521.00%).

4.2 Regression Analyses

4.2.1 Correlation and Multi-collinearity

Tables 4, 5 and 6 below present the correlation matrices for the ROA, ROE and SHR models, respectively (see equations (1), (2) and (3) in section 3.2 for these models). Among the BEE elements, collinearity was relatively low, with the highest result of 33.4% between Socio-Economic Development (SED) and Enterprise Development (ED). This was followed by 26.1% between Skills Development (SD) and Employment Equity (EE). Although these correlations were significant at the 1% level, the VIF for all the BEE elements were below 1.4 (Table 7, 8 and 9), well below the cut-off of 5 (Mansfield & Helms, 1982).

When analysing the results between the BEE elements and the dependent variables, Employment Equity (EE) was found to have a strong positive correlation with both ROA and ROE of 12.8% and 17.4%, respectively (Tables 4 and 5). In contrast, in the SHR model, Employment Equity had a negative correlation of 2.4% with the dependent variable (Table 6). Though not significant, Management Control presented low positive correlations with ROA and ROE of 5.1% and 5.7%, respectively, yet had a weak negative correlation of 10.8% with SHR. Ownership and Preferential Procurement were negatively correlated with ROA, ROE and SHR, yet not at a statistically significant level.

With regard to the control variables, Gross Margin (GM) and Operating-Expenses-to-Sales (O/S) had a highly significant positive correlation of 78.4% (Table 4 and 5) and O/S therefore had to be excluded from both the ROA and ROE models to control for multi-collinearity. Similarly, Book-to-Market (BTM) and Earnings-to-Price (EP) had a highly significant positive correlation of 87.9% in the SHR model (Table 6). Consequently, EP was also

removed from the SHR model due to multi-collinearity. Among the remaining variables, some significant correlations were found in the range of 40% to 45% (Table 6); however, the VIF for these variables were all below 1.5 (Table 9), far below the level suggestive of multi-collinearity.

Table 4: ROA Correlation Matrix with the 7 BEE scorecard elements and 9 control variables.

	ROA	Own	MC	EE	SD	PP	ED	SED	GM	S/FA	SCH	O/S	CR	DE	Size	GDP	IRoa
ROA	1.000																
Own	-0.047	1.000															
MC	0.051	0.175***	1.000														
EE	0.128**	-0.016	0.253***	1.000													
SD	0.000	0.200***	0.180***	0.261***	1.000												
PP	-0.033	0.210***	0.206***	0.017	0.214***	1.000											
ED	-0.029	0.010	0.034	-0.057	0.071	0.127**	1.000										
SED	-0.004	0.094*	0.204***	0.131**	0.224***	0.228***	0.334***	1.000									
GM	0.286***	0.046	0.230***	0.075	0.088	0.228***	-0.082	0.057	1.000								
S/FA	-0.110*	0.018	-0.171***	-0.011	-0.065	0.086	0.083	-0.203***	-0.243***	1.000							
SCH	0.219***	0.012	-0.001	0.052	-0.079	-0.127*	-0.038	-0.010	0.079	0.041	1.000						
O/S	0.042	-0.062	0.131**	0.107*	0.061	0.164**	-0.014	0.086	0.784***	-0.147**	-0.003	1.000					
CR	0.117*	-0.119*	-0.061	-0.167***	-0.142**	-0.155**	-0.003	-0.025	-0.090	-0.118*	-0.041	-0.076	1.000				
DE	-0.121*	0.072	-0.027	0.111*	0.108*	0.033	0.060	0.016	0.072	0.011	-0.031	-0.061	-0.308***	1.000			
Size	0.308***	0.083	0.195***	0.077	0.163***	-0.019	-0.072	0.091	0.331***	-0.147**	0.039	-0.058	-0.187***	0.116*	1.000		
GDP	0.093	-0.050	-0.108*	0.079	-0.163***	-0.115*	-0.141**	-0.119*	0.002	0.021	0.099	0.024	-0.025	0.044	-0.067	1.000	
IRoa	0.295***	-0.116*	0.102*	0.272***	-0.057	-0.087	-0.012	0.057	0.157**	-0.087	0.131**	0.176***	-0.142**	0.024	0.132**	-0.030	1.000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Where CR = Current Ratio, DE = Debt-Equity Ratio, ED = Enterprise Development, EE = Employment Equity, GDP = Gross Domestic Product, GM = Gross Margin, IRoa = ROA Industry Control Variable, MC = Management Control, O/S = Operating Expenses to Sales, Own = Ownership, PP = Preferential Procurement, ROA = Return on Assets, SCH = Sales Change, SD = Skills Development, SED = Socio-Economic Development, S/FA = Sales to Fixed Assets.

Table 5: ROE Correlation Matrix with the 7 BEE scorecard elements and 8 control variables.

	ROE	Own	MC	EE	SD	PP	ED	SED	GM	S/FA	SCH	O/S	CR	Size	GDP	IRoe
ROE	1.000															
Own	-0.057	1.000														
MC	0.070	0.175***	1.000													
EE	0.174***	-0.016	0.253***	1.000												
SD	0.059	0.200***	0.180***	0.261***	1.000											
PP	-0.094	0.210***	0.206***	0.017	0.214***	1.000										
ED	0.004	0.010	0.034	-0.057	0.071	0.127**	1.000									
SED	0.004	0.094*	0.204***	0.131**	0.224***	0.228***	0.334***	1.000								
GM	0.186***	0.046	0.230***	0.075	0.088	0.228***	-0.082	0.057	1.000							
S/FA	-0.050	0.018	-0.171***	-0.011	-0.065	0.086	0.083	-0.203***	-0.243***	1.000						
SCH	0.211***	0.012	-0.001	0.052	-0.079	-0.127*	-0.038	-0.010	0.079	0.041	1.000					
O/S	-0.028	-0.062	0.131**	0.107*	0.061	0.164**	-0.014	0.086	0.784***	-0.147**	-0.003	1.000				
CR	-0.048	-0.119*	-0.061	-0.167***	-0.142**	-0.155**	-0.003	-0.025	-0.090	-0.118*	-0.041	-0.076	1.000			
Size	0.296***	0.083	0.195***	0.077	0.163***	-0.019	-0.072	0.091	0.331***	-0.147**	0.039	-0.058	-0.187***	1.000		
GDP	0.041	-0.050	-0.108*	0.079	-0.163***	-0.115*	-0.141**	-0.119*	0.002	0.021	0.099	0.024	-0.025	-0.067	1.000	
IRoe	0.258***	-0.079	0.110*	0.171***	-0.075	-0.081	0.029	0.000	0.148**	-0.001	0.070	0.128*	-0.123*	0.132**	-0.128**	1.000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Where CR = Current Ratio, ED = Enterprise Development, EE = Employment Equity, GDP = Gross Domestic Product, GM = Gross Margin, IRoe = ROE Industry Control Variable, MC = Management Control, O/S = Operating Expenses to Sales, Own = Ownership, PP = Preferential Procurement, ROE = Return on Equity, SCH = Sales Change, SD = Skills Development, SED = Socio-Economic Development, S/FA = Sales to Fixed Assets.

Table 6: Share Returns Correlation Matrix with the 7 BEE scorecard elements and 6 control variables.

	SHR	Own	MC	EE	SD	PP	ED	SED	ROA	Size	GDP	BTM	EP	IShr
SHR	1.000													
Own	-0.000	1.000												
MC	-0.108*	0.175***	1.000											
EE	-0.024	-0.016	0.253***	1.000										
SD	-0.060	0.200***	0.180***	0.261***	1.000									
PP	-0.001	0.210***	0.206***	0.017	0.214***	1.000								
ED	-0.056	0.010	0.034	-0.057	0.071	0.127**	1.000							
SED	-0.034	0.094*	0.204***	0.131**	0.224***	0.228***	0.334***	1.000						
ROA	0.259***	-0.047	0.051	0.128**	0.000	-0.033	-0.029	-0.004	1.000					
Size	-0.033	0.083	0.195***	0.077	0.163***	-0.019	-0.072	0.091	0.308***	1.000				
GDP	0.007	-0.050	-0.108*	0.079	-0.163***	-0.115*	-0.141**	-0.119*	0.093	-0.067	1.000			
BTM	-0.223***	-0.027	0.064	-0.085	0.068	0.053	0.022	0.034	-0.459***	-0.426***	-0.175***	1.000		
EP	-0.009	0.007	-0.050	-0.053	-0.050	0.098	0.054	-0.075	-0.004	-0.404***	0.036	0.879***	1.000	
IShr	-0.040	0.080	-0.250***	-0.176***	-0.019	0.007	-0.022	-0.128**	-0.152**	-0.214***	0.211***	0.127*	0.144**	1.000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Where BTM = Book to market, ED = Enterprise Development, EE = Employment Equity, EP = Earnings to Price, GDP = Gross Domestic Product, IShr = SHR Industry Control Variable, MC = Management Control, Own = Ownership, PP = Preferential Procurement, ROA = Return on Assets, SD = Skills Development, SED = Socio-Economic Development, SHR = Share Returns.

4.2.2 The Hausman Test

The Hausman Test returned p-values of 0.000 for all three models (Appendix A), thus rejecting the null-hypothesis and suggesting that a fixed effects regression analysis was most appropriate for the models being analysed. The results of the fixed-effects regression analyses are therefore presented below. Furthermore, as more reliance is placed on models which control for heteroscedasticity, White's Test and White's Robust Standard Errors (WRSE) were applied to each model.

4.2.3 Return on Assets Regression

Table 7 presents the results of the ROA regression analysis.

Table 7: ROA regression results before and after controlling for heteroscedasticity.

	Model 1		**Model 2**		
Variables	**Before Applying WRSE**		**After Applying WRSE**		**VIF**
	Coeff.	s.e.	Coeff.	s.e.	
BEE elements					
OWN	0.301**	(0.141)	0.301*	(0.175)	1.22
MC	-0.189	(0.289)	-0.189	(0.226)	1.32
EE	-0.285	(0.227)	-0.285	(0.235)	1.33
SD	-0.350*	(0.189)	-0.350	(0.251)	1.36
PP	0.005	(0.161)	0.005	(0.170)	1.39
ED	-0.443**	(0.222)	-0.443	(0.273)	1.14
SED	-1.530**	(0.717)	-1.530**	(0.737)	1.27
Control variables					
GM	0.123**	(0.051)	0.123	(0.080)	1.32
S/FA	0.033	(0.050)	0.033	(0.044)	1.26
SCH	0.057**	(0.026)	0.057*	(0.032)	1.12
CR	2.425*	(1.455)	2.425*	(1.225)	1.42
DE	-3.370***	(0.737)	-3.370***	(0.788)	1.45
Size	0.609	(0.966)	0.609	(0.899)	1.34
GDP	0.890*	(0.526)	0.890	(0.539)	1.12
IRoa	0.603***	(0.206)	0.603**	(0.281)	1.30
Constant	7.801	(16.510)	7.801	(15.480)	
Observations	346		346		
R-squared	0.226		0.226		
Number of id	106		106		
Prob>F	0.000		0.000		

* p<0.1, ** p<0.05, *** p<0.01
Standard errors in parentheses
Where Coeff. = Coefficient, CR = Current Ratio, DE = Debt-Equity Ratio, ED = Enterprise Development, EE = Employment Equity, GDP = Gross Domestic Product, GM = Gross Margin, IRoa = ROA Industry Control Variable, MC = Management Control, Own = Ownership, PP = Preferential Procurement, s.e. = standard error, SCH = Sales Change, SD = Skills Development, SED = Socio-Economic Development, S/FA = Sales to Fixed Assets, WRSE = The application of Whites Robust Standard Errors.

Controlling for heteroscedasticity had a noteworthy effect on the model, with a number of variables (SD, ED, GM and GDP) becoming non-significant in Model 2 versus Model 1. Results are presented for Model 2, after controlling for heteroscedasticity. There is overwhelming evidence in support of the validity of the model, coupled with a coefficient of determination (R^2) of 22.6%. With regard to the BEE elements, only Ownership and Socio-Economic Development returned statistically significant results at the 10% and 5% levels, respectively. Ownership was found to be positively associated with ROA (coefficient of 0.301), indicating that an increase in Ownership leads to an increase in ROA. Conversely, Socio-Economic Development was negatively associated with ROA (coefficient of -1.530) which indicates that the higher the Socio-Economic Development score, the lower the ROA. Although Management Control, Employment Equity, Skills Development and Enterprise Development appeared to be negatively associated with ROA and Preferential Procurement positively associated, these findings were not statistically significant. It can therefore be concluded that they do not significantly influence ROA.

Regarding the control variables, the results were as expected. Debt-equity was found to be negatively associated with ROA, while the remaining variables were found to be positively associated. However, only four of these variables had significant associations, namely: change-in-sales, current ratio, debt-equity ratio and industry effects.

4.2.4 Return on Equity Regression

Table 8 presents the results of the ROE regression. The p-values of Models 3 and 4 of 0.026 and 0.004, respectively, provide strong and overwhelming evidence in support of the validity of the models. The R^2 of 10.6% is low and signifies a lower explanatory power of the independent variables in comparison with the ROA model.

Table 8: ROE regression results before and after controlling for heteroscedasticity.

	Model 3		Model 4		
Variables	**Before Applying WRSE**		**After Applying WRSE**		**VIF**
	Coeff.	s.e.	Coeff.	s.e.	
BEE elements					
OWN	0.863***	(0.315)	0.863**	(0.370)	1.19
MC	-0.911	(0.646)	-0.911	(0.611)	1.33
EE	-0.611	(0.504)	-0.611	(0.513)	1.31
SD	-0.354	(0.421)	-0.354	(0.519)	1.33
PP	-0.002	(0.360)	-0.002	(0.310)	1.39
ED	-0.620	(0.496)	-0.620	(0.483)	1.12
SED	-3.074*	(1.600)	-3.074	(2.012)	1.26
Control variables					
GM	0.170	(0.114)	0.170	(0.167)	1.33
S/FA	0.012	(0.112)	0.012	(0.097)	1.26
SCH	0.131**	(0.057)	0.131**	(0.057)	1.09
CR	4.777	(3.210)	4.777**	(2.025)	1.12
Size	0.248	(2.162)	0.248	(2.025)	1.30
GDP	0.786	(1.187)	0.786	(1.206)	1.15
IRoe	0.193*	(0.112)	0.193**	(0.079)	1.19
Constant	15.330	(36.902)	15.330	(38.910)	
Observations	346		346		
R-squared	0.106		0.106		
Number of id	106		106		
Prob>F	0.026		0.004		

* p<0.1, ** p<0.05, *** p<0.01
Standard errors in parentheses
Where Coeff. = Coefficient, CR = Current Ratio, ED = Enterprise Development, EE = Employment Equity, GDP = Gross Domestic Product, GM = Gross Margin, IRoe = ROE Industry Control Variable, MC = Management Control, Own = Ownership, PP = Preferential Procurement, s.e. = standard error, SCH = Sales Change, SD = Skills Development, SED = Socio-Economic Development, S/FA = Sales to Fixed Assets, WRSE = The application of Whites Robust Standard Errors.

Controlling for heteroscedasticity had a noteworthy effect on the model and results are therefore presented for Model 4, after applying WRSE. Among the BEE variables, Ownership was positively associated with ROE, while all of the remaining elements were negatively associated. However, only Ownership was statistically significant (at the 5% level). This finding indicates that an increase in Ownership leads to an increase in ROE, in line with the findings of the ROA regression. None of the remaining elements significantly affected ROE.

As expected, all of the control variables were positively associated with ROE, with sales change, current ratio and industry effects having significant results at the 5% level.

4.2.5 Share Returns Regression

The results of the SHR regression are presented in Table 9. Although the p-values of 0.000 for both models provide overwhelming evidence in support of their validity, the models returned a fairly low R^2 of only 12.8%, similar to that of the ROE model.

Table 9: SHR regression results before and after controlling for heteroscedasticity.

	Model 5		**Model 6**		
Variables	**Before Applying WRSE**		**After Applying WRSE**		**VIF**
	Coeff.	s.e.	Coeff.	s.e.	
BEE elements					
OWN	-0.169	(1.065)	-0.169	(0.680)	1.17
MC	-0.089	(1.987)	-0.089	(1.674)	1.30
EE	-0.036	(1.621)	-0.036	(1.098)	1.23
SD	1.378	(1.255)	1.378	(1.854)	1.25
PP	-0.365	(1.168)	-0.365	(1.411)	1.21
ED	-0.467	(1.453)	-0.467	(2.065)	1.11
SED	2.063	(5.419)	2.063	(2.831)	1.20
Control variables					
ROA	1.090**	(0.478)	1.090***	(0.361)	1.30
Size	-23.460***	(7.036)	-23.460***	(6.390)	1.43
BTM	-22.970***	(4.485)	-22.970***	(5.963)	1.51
GDP	-7.400*	(3.871)	-7.400**	(3.200)	1.14
IShR	-1.130	(1.759)	-1.130	(1.503)	1.06
Constant	382.601***	(122.434)	382.601***	(105.416)	
Observations	381		381		
R-squared	0.128		0.128		
Number of id	110		110		
Prob>F	0.000		0.000		

* p<0.1, ** p<0.05, *** p<0.01
Standard errors in parentheses
Where BTM = Book to market, Coeff. = Coefficient, ED = Enterprise Development, EE = Employment Equity, GDP = Gross Domestic Product, IShr = SHR Industry Control Variable, MC = Management Control, Own = Ownership, PP = Preferential Procurement, s.e. = standard error, ROA = Return on Assets, SD = Skills Development, SED = Socio-Economic Development, WRSE = The application of Whites Robust Standard Errors.

In the final model, Model 6, there were no significant results among the BEE variables. However, it is noteworthy that Ownership was negatively associated with SHR, opposite to the findings in both the ROA and ROE models discussed above. Furthermore, Socio-Economic Development was positively associated with SHR, also contrary to the findings in the ROA and ROE models. Of the remaining elements, Management Control, Employment Equity, Preferential Procurement and Enterprise Development were all negatively associated with SHR while Skills Development was positively associated.

Regarding the control variables, all but one, Industry effects, returned a statistically significant relationship with SHR – ROA, size and book-to-market were significant at the 1% level and GDP at the 5% level. As expected, ROA is positively associated with SHR, while book-to-market is negatively associated. However, contrary to expectations, the results show that size and GDP are both negatively associated with share returns.

Chapter V – Discussion

The purpose of this research was to gain further insight into the effect of BEE compliance on the performance of listed companies and specifically to investigate how each element of the scorecard individually impacts such performance. The discussion that follows begins by addressing the general findings and trends evident from this study, followed by a discussion of the regression analyses. Lastly, the implications from this research paper are presented.

5.1 General Findings

The companies included in this analysis performed well from a BEE perspective, with an average score above 75% in four of the seven BEE elements. Enterprise Development and Socio-Economic Development were the most impressive elements, both averaging above 90%. Yet despite these high scores, a minimum score of zero was recorded for every element of the scorecard, in line with the findings of Van der Merwe and Ferreira (2014). Furthermore, the average scores for Skills Development, Management Control and Employment Equity are a cause for concern – these were the lowest scoring elements of the BEE scorecard, with Employment Equity having the lowest average score of only 45%.

Moreover, the finding that not a single company in the sample reached the maximum score for Employment Equity highlights the difficulties that companies are experiencing with this element. This is in-line with the 2018 Commission for Employment Equity annual report, which brings to light the slow level of transformation in the South African workplace. The report reveals that black representation at management levels rose by only 1% year on year since 2001 (Department of Labour, 2018). Norton Rose Fulbright (2015) believe that due to both the high targets for black representation as well as the extensive efforts required during the recruitment process to meet these targets, scoring well in Employment Equity and Management Control is very challenging. It can therefore be argued that companies are compensating low Employment Equity scores by increasing their scores elsewhere in the scorecard, possibly in the Enterprise Development and Socio-Economic Development elements where even the median scores were equal to the maximum weightings. Therefore, government may need to consider revising the Employment Equity targets so that they are more achievable. In addition, government can also focus a greater amount of resources to assist in developing a larger pool of highly-skilled BEE candidates for companies to hire.

The third hypothesis (H_3) postulated that the higher the Employment Equity scores, the worse the performance. However, in the ROA and ROE correlation matrices, there was strong and overwhelming evidence, respectively, of a positive relationship between these two variables and Employment Equity. This implies that an increase in the Employment Equity element may lead to an increase in ROA/ROE. It may therefore be to a company's advantage to try increase its score in the Employment Equity element despite the potential challenges in identifying BEE candidates with the necessary skill sets. If BEE candidates are located, diversity can be added to the workplace which can increase both the innovation and consequently the performance of an entity (Empowerdex Economic Empowerment Rating Agency, 2007).

Challenges in recruiting skilled BEE candidates may also be contributing to the negative relationship between Management Control and SHR that was evident, albeit with weak evidence, in the SHR correlations matrix. This contrasts hypothesis H_2 which postulated that the higher the Management Control scores, the better the performance. A possible reason for this negative relationship may be that due to the many years of black oppression under the Apartheid regime, there is a shortage of candidates that have the necessary training and skillsets required to fill managerial positions and qualify for BEE. Therefore, under-skilled personnel may be hired that require additional training, the costs of which may harm a firm's performance (Acemoglu et al., 2007; Ferreira & de Villiers, 2011).Nevertheless, it is important to note that this finding is in contrast to that of Van der Merwe and Ferreira (2014) who found that Management Control is positively associated with an entity's share returns. As so few studies have been performed regarding the association of the BEE elements and performance, further research would be needed to clarify this finding.

5.2 Regression Models

5.2.1 BEE Scorecard Elements

Of the seven BEE scorecard elements included in the regression analyses, two returned significant results. Firstly, in both the ROA and ROE models, Ownership was significantly, positively associated with performance, confirming the first hypothesis (H_1) which postulated that the higher the Ownership score, the better the performance. This is the first study to find evidence of an association between Ownership and ROA and ROE. Prior studies that found a

positive relationship between Ownership and performance used share returns as the measure of performance (Alessandri et al., 2011; Mehta & Ward, 2017; Strydom et al., 2009; Ward & Muller, 2010; Wolmarans & Sartorius, 2009). This positive relationship may be a result of the equity transfers marketing the firm's image to the public-eye from a CSR perspective (Sartorius & Botha, 2008; Wolmarans & Sartorius, 2009). Additionally, increasing BEE Ownership will result in both a capital injection from the sale of shares as well as greater access to government contracts which can increase performance (Alessandri et al., 2011; Ferreira & de Villiers, 2011; Kleynhans & Kruger, 2014; Ponte et al., 2007). Alessandri et al. (2011) highlight that only when BEE is undertaken as a legitimate CSR initiative will it positively affect performance, implying that firms in this sample are acting legitimately.

The second BEE scorecard element that was significantly related to performance was Socio-Economic Development. There is strong evidence from the regression model of an inverse relationship between Socio-Economic Development and ROA, in contrast to hypothesis H_7 that predicted a positive relationship. Once more, this is the first study to find evidence of such a relationship. A possible reason for this negative affect on ROA may be the financial burdens placed on firms in complying with this element of the scorecard (Van Wyk et al., 2004). For an entity to achieve maximum points for this element, it should contribute 1% of its net profits after tax to recognised beneficiaries (Norton Rose Fulbright, 2015) which clearly has a negative impact on the performance of such entities. This suggests that entities that are struggling financially should rather use their resources to increase their Ownership scores, as this will both improve their BEE score and their performance.

No statistically significant evidence was found to support the hypotheses regarding Management Control, Preferential Procurement, Enterprise Development and Skills Development (H_2, H_4, H_5 and H_6, respectively). Possible reasons may be that the economic costs and benefits of complying with these elements may cancel each other out, leaving an aggregate nil effect on a firm's performance (Acemoglu et al., 2007). Another possible reason may be that the sample focused only on large (listed) firms and therefore the costs/benefits of BEE are suppressed relative to their entrenched reputation in the market (Ward & Muller, 2010).

5.2.2 Control Variables

In all three models, the control variables used were found to have the expected relationships with the dependent variables, aside from the following two anomalies. Even though it would seem logical that the greater the size of the firm and annual GDP the higher the SHR, in the SHR regression both size and GDP returned a negative relationship with SHR. Ward and Muller (2010) also found a negative relationship between firm size and SHR. However, the negative relationship between GDP and SHR is irregular and further research would need to be performed to identify the reason for this anomaly.

5.2.3 Strength of the Regression Models

There was overwhelming evidence to support the validity of the regression models for ROA, ROE and SHR, yet the R^2 values were relatively low (ROA 22.6%, ROE 10.6% and SHR 12.8%). However, these can be considered acceptable as the R^2 values are a vast improvement when compared to previous BEE studies such as Ferreira and de Villiers (2011), Kleynhans and Kruger (2014) and Van der Merwe and Ferreira (2014) who returned R^2 values of 6.2%, 5.6% and 6.6%, respectively. Furthermore, Brown, Lo, and Lys (1999) state that the explanatory power (R^2 values), particularly of return-models, is generally low.

5.3 Research Implications

The findings from this study add to the body of BEE research that shareholders, managers and policy-makers can consider when making decisions about BEE policies. In order to optimise their BEE investment and meet the dual objective of enhancing both their BEE credentials and wealth-creation, shareholders and managers can consider the positive relationship that was found with Ownership and Employment Equity, and in contrast, the negative association with Socio Economic Development. In the case of policy-makers, these relationships can be taken into account when revising and updating the Codes to possibly adjust the Socio-Economic Development element to try and align it more with businesses best interest. Furthermore, due to the low scoring in Employment Equity, policy-makers may need to revise the Employment Equity targets to make them more achievable. In addition, pressure can be placed on government to focus a greater amount of resources to assist in developing a larger pool of highly-skilled BEE candidates for companies to hire.

Chapter VI – Conclusion

Whether due to the legal requirements of BBBEE legislation or the associated incentives, firms will strategically invest in the different BEE-scorecard elements to maximise their overall BEE level. However, the literature shows that although BEE can positively affect performance (Alessandri et al., 2011; Empowerdex Economic Empowerment Rating Agency, 2007; Kleynhans & Kruger, 2014; Sartorius & Botha, 2008), it can also hamper such performance (Acemoglu et al., 2007; Du Plessis, 2017; Ferreira & de Villiers, 2011; Krüger, 2011; Mehta & Ward, 2017). This research provides a deeper understanding into the effect of BEE compliance on the performance of listed companies.

Unlike majority of prior literature that focused only on the aggregate BEE score or the Ownership element, this study investigated how each element of the scorecard individually impacted performance. Through the use of multivariate panel regression analyses, the effect of each of the seven elements of the scorecard on ROA, ROE and SHR was investigated. In this way, performance was addressed from three different perspectives, namely: the operating performance of the entity (ROA), the return on shareholders invested equity (ROE) and a market-based return (SHR).

In initial analyses, there was strong evidence of a positive correlation between ROA/ROE and Employment Equity. In the regression analyses, after controlling for linearity, collinearity and heteroscedasticity, there were two significant results with regard to the BEE Scorecard elements. The Ownership element was significantly, positively associated with both ROA and ROE, while the Socio-Economic Development was significantly negatively associated with ROA. The remaining elements of the scorecard did not significantly affect performance. These results suggest that shareholders and managers may optimise their BEE investment and enhance both their BEE credentials and wealth-creation by increasing investment in the Ownership and Employment Equity elements, while reducing investment in the Socio-Economic Development element. In the case of policy-makers, the Socio-Economic Development element should be revised to better align with businesses best interest. Furthermore, a revision to the Employment Equity targets may also be needed to make them more achievable.

Future research should focus on small-to-medium enterprises, as the effect of each scorecard element may have a more significant impact on performance of these entities as opposed to the large companies included in this analysis. In addition, future research should test the element relationships using the new 2013 scorecard (five elements) as opposed to the old seven-element scorecard. The seven BEE elements were tested in this study as these were the only data that were available for the time period under review. The use of a lagged regression should also be considered as an entity's performance may be influenced by both the current and past BEE scores. Lastly, future research should also address causality as although this study evidences a relationship between some BEE elements and performance, causality will add robustness to the results of such a study.

As the fourth wave of BEE is being introduced (Intellidex, 2018), BEE in the South African economic climate is more relevant than ever and presents itself as an important area for current and future research. In order to amend the injustices of the past, South African companies need to both embrace and manage the challenges brought by this legislation. This study contributes to this cause by assisting firms in meeting BEE legislation requirements while also mitigating the harmful effects it may have on performance. In this way, South African companies can support the movement for economic unity while maximising their own value creation.

Chapter VII – Reference List

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Chapter VIII – Appendices

Appendix A – Hausman Test Results

Variable	ROA	ROE	SHR
OWN	0.151	0.203	0.158
MC	-0.126	-0.302	-1.002
EE	0.073	0.295	-0.648
SD	-0.207	-0.371	-0.141
PP	0.032	-0.075	0.187
ED	-0.052	0.059	-1.004
SED	-0.830	-1.220	0.747
GM	0.082**	0.095	
S/FA	0.008	0.023	
SCH	0.063**	0.142**	
CR	1.630*	0.986	
DE	-1.920***		
Size	1.210***	2.368***	-3.895**
GDP	1.055*	1.220	-4.838
IRoa	0.675***		
IRoe		0.266**	
Roa			1.110***
BTM			-8.979***
IShR			0.535
_cons	-12.103	-26.307	90.386***
chi2	89.968	43.23128	55.536
p	0.000	0.000	0.000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Where BTM = Book to market, CR = Current Ratio, DE = Debt-Equity Ratio, ED = Enterprise Development, EE = Employment Equity, GDP = Gross Domestic Product, GM = Gross Margin, IRoa = ROA Industry Control Variable, IRoe = ROE Industry Control Variable, IShR = SHR Industry Control Variable, MC = Management Control, Own = Ownership, PP = Preferential Procurement, ROA = Return on Assets, ROE = Return on Equity, SCH = Sales Change, SD = Skills Development, SED = Socio-Economic Development, S/FA = Sales to Fixed Assets, SHR = Share Returns.