UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

GORDON INSTITUTE
OF BUSINESS SCIENCE
University of Pretoria

CONTRIBUTION OF BROAD-BASED BLACK ECONOMIC EMPOWERMENT TO THE FINANCIAL PERFORMANCE OF COMPANIES LISTED ON THE JSE DURING A RECESSION

Jan Hendrik van Heerden

96183790

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

9 November 2011

ABSTRACT

The ANC government has implemented various mechanisms to promote inclusivity of all economic citizens over the past 15 years. The main objectives of all the policies was to promote economic transformation in order to enable meaningful participation of black people in the economy and to change the racial composition of ownership and management structures of existing and new enterprises. The purpose of the research was to determine the contribution of Broad-Based Black Economic Empowerment (BBBEE) to the financial performance of companies on the Johannesburg Stock Exchange (JSE) during the economic recession. The underlying assumption was that companies with greater overall BBBEE compliance rating should outperform companies with a lower overall BEE compliance rating. The top BBBEE rated companies on the JSE were analysed to determine whether these companies outperformed that sector indices. Market-to-book-value, Price-Earnings Ratio and Annual Return were used as financial performance measures. The results showed that there was a positive correlation between the companies' BBBEE rating and the financial performance. On further investigation it was revealed that on average the companies with greater BBBEE ratings did not outperform companies with lower BBBEE ratings nor did they outperform the sector indices.

KEYWORDS

Broad-Based Black Economic Empowerment, Johannesburg Stock Exchange, Financial Performance

DECLARATION

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

Jan Hendrik van Heerden

09 November 2011

ACKNOWLEDGEMENTS

Without the support of family, friends, work colleagues and fellow MBA students the journey to complete the MBA project would have been a tedious task and very lonesome.

A special thanks to:

- The CEO of The Cable Company, Chris van Heerden, for allowing me to embark on the MBA course and for being patient during the numerous times I was absent from work during the past two years.
- My research supervisor, Thea Pieterse, for being understanding and patient through the process.
- Empowerdex for making the data freely available.
- Lastly, a very special thanks to my wife, Liz, and children, Danika and Tristan, for all the support during the last two years. Thank you for all the patients, understanding, compromises and missed occasions to allow me to complete my MBA.

CONTENTS

LIST OF TABLES AND FIGURES

LIST OF FIGURES

1. INTRODUCTION TO RESEARCH PROBLEM

1.1. Introduction to BBBEE

The ANC government has formulated a vision of an economy that can meet the needs of all its economic citizens in a sustainable manner, subsequently government has outlined broad economic strategies to transform the economy by 2014 (Department of Trade and Industry, 2003). The ANC government has introduced the Broad-Based Black Economic Empowerment Act, No. 53 of 2003, to stimulate wealth distribution and ownership to black South Africans (The Department of Trade and Industry, 2004).

The objectives of the act are to facilitate broad-based black economic empowerment (BBBEE) by (The Department of Trade and Industry, 2004):

(a) promoting economic transformation in order to enable meaningful participation of black people in the economy;

(b) achieving a substantial change in the racial composition of ownership and management structures and in the skilled occupations of existing and new enterprises;

(c) increasing the extent to which communities, workers, cooperatives and other collective enterprises own and manage existing and new enterprises and increasing their access to economic activities, infrastructure and skills training.

The objectives of the act are clearly based on human development and empowerment rather than economic growth whereas the strategy for transformation clearly indicates economic growth as key principle through inclusivity of all the economic citizens (Department of Trade and Industry, 2003). Ward and Muller (2010) indicated that no formal or legal mechanism compelled businesses to participate in BEE however in practice a BEE transaction was an "unavoidable imperative for many enterprises", companies with appropriate BEE credentials could benefit from lucrative government contracts.

Government will apply BEE criteria as set out in the scorecard whenever it (Department of Trade and Industry, 2003):

- Grants a licence to engage in a specific regulated economic activity, for example, gambling or mining,
- Grants concession to a private enterprise to operate an asset or enterprise on behalf of the state,
- Sells an asset or a state-owned enterprise,
- Enters into a public-private partnership,
- Engages in any economic activity.

Engdahl and Hauki (2001) stated that empowerment is becoming a vital part in most of the government's policies; the government is now increasingly using

both legislative leverage and its buying power to promote black economic empowerment. Southall (2006) argued that the BEE programme to correct racial imbalances is a political necessity however the ANC needs to do more to combine its empowerment strategies with delivery of a “better life for all”.

Chabane, Goldstein and Roberts (2006) stated that “the nature and orientation of “big business” is an important dimension of a country’s development trajectory and competitive position” and that “large corporations in South Africa have undoubtedly played an important role in making major investments to realize economies of scale and scope and in adopting and exploiting new technologies”. In order to include blacks in the ownership of these large businesses redistribution took place in two phases. The first through shares distribution and the second through government pressure in the form of legislation, like the Mining Charter, pressuring companies to include black conglomerates into ownership structure through private equity deals (Chabane *et al*., 2006).

1.2. Current Business Problem

South Africa’s experience with its black economic empowerment (BEE) in not unique, similar programmes in the USA and Malaysia has produced a range of different outcomes. In the USA the inequality still remains after 30 years of

initiating BEE programmes however in Malaysia poverty has been drastically reduced during a 20-year period despite some claims that transfer of ownership to the indigenous population remains low (Sartorius and Botha, 2008). Sartorius and Botha (2008) suggests that there are a number of lessons to be learnt from the empowerment initiative by Malaysia:

- Empowerment initiatives take at least two decades to deliver their effects,
- The education of previously disadvantaged individuals is crucial for the initiative's success,
- Empowerment should focus on developing skills and not only on redistribution of assets,
- Social support for empowerment should be elicited among all racial groups by ensuring that empowerment transactions are conducted according to well-defined, socially acceptable rules and that the truly deprived are benefiting,
- Economic growth is a key element for empowerment initiatives to succeed.

Engdahl and Hauki (2001) indicated that re-arranging the racial composition of the ownership structure of the economy, the market economy and political stability would be ensured. In contradiction to the statement by Engdahl and Hauki (2001) above, Southall (2006) stated that critics argue that black economic empowerment serves as a block to foreign investment, encourages a

re-racialisation of the political economy, and promotes the growth of a small but remarkably wealthy politically connected empowerment elite.

Andrews (2007) indicate that anti-BEE activist will promote that “BEE will not catalyze growth because it will not lead to effective structural change in the South African economy. Institutional macrostructures that underlie the economic patterns limiting racial transformation and growth are rigid and do not change easily; they are especially protected by elites with an interest to maintain them”.

Esser and Dekker (2008) suggested that “concerns have been raised that BBBEE will put an unnecessary burden on companies”.

1.3. Motivation for Research

The purpose of the research was to determine the contribution of BBBEE on the financial performance of companies on the Johannesburg Stock Exchange (JSE) during the economic recession. The underlying assumption was that companies with greater overall BEE compliance rating should outperform companies with a lower overall BEE compliance rating.

The study was important in the South African context because of the urgency to transform the economic activity to include all economic citizens. The study could

increase the understanding of management of organisations with regards to the impact on financial performance as a result of BEE compliance and in specific which components of the BEE Balance Scorecard are more likely to improve financial performance.

1.4. Scope of the Study

The study was confined to listed companies on the JSE covering all sectors. JSE financial data on the listed companies was available in the public domain. The main study was conducted over the period of 30 June 2007 to 30 June 2010. In an attempt to compensate for the global economic recession the financial performance data was also measure from 30 June 2005 to 30 June 2008 and the period form 30 June 2008 to 30 June 2010.

1.5. Research Aim and Objectives

The objective of the study was to contribute to a better understanding of a correlation between the seven components of the BEE Balance Scorecard and the financial performance of the companies on the JSE. The research questions answered was:

- Does the level of BEE compliance have an effect on the financial performance of companies on the JSE?
- Does the level of BEE compliance shield companies from macro-economic effect like a global economic recession?

The research study has clarified the relationship between BBBEE and company performance and secondly added value and insight into the purpose of BBBEE for companies and also role of the companies to contribute to an improved and more equal South Africa. By understanding the influence of BBBEE on the organisation managers can make calculated decisions that would benefit both the organisation as well as the socio-economic environment.

2. LITERATURE REVIEW

2.1. Broad-Based Black Economic Empowerment and its Measurement

BEE has been described as: “an integrated and coherent socio-economic process that directly contributes to the economic transformation of South Africa and brings about significant increases in the number of black people that manage, own and control the country’s economy, as well as significant decreases in income equalities (Department of Trade and Industry, 2003).”

From its inception, the success of BEE has been questioned although there was steady growth in the black middle class since 1994 and black ownership of capital on the JSE has increased to four percent as a result of a number of industry charters there is growing criticism of BEE that has only benefited the politically connected elite (Sartorius and Botha, 2008; Jackson, Alessandri and Black, 2005; Ponte, Roberts and Sittert, 2007). Ponte et al. (2007) reasons that managerialisation of BEE is likely to lead to a predominant focus on process and system management rather than the overall objective of BEE.

Empowerdex (2011) was involved together with The Department of Trade and Industry in designing the BEE Generic Scorecard. The seven elements of the BEE Generic Scorecard with associated weightings is shown in table 1.

Empowerdex calculates a total BEE score (out of 100) based on seven subcategories (each out of 100) and then rank the companies according to their BEE score. These categories indicate progress in advancing the interests of black (non-white) people in the following areas: ownership in the company, management (directors and executive directors), employment equity (including top-management), skills development, affirmative procurement, enterprise development (developing black business partners, including suppliers), and corporate social investment (being investment towards education and community development).

Table 1: BEE Generic Scorecard

ELEMENT	**WEIGHTING**
Ownership	20
Management Control	10
Employment Equity	15
Skills Development	15
Preferential Procurement	20
Enterprise Development	15
Socio-Economic Development	5

Adapted from Empowerdex (2011)

Cahan and Van Staden (2009) emphasised that companies are not forced to comply to BEE ratings however they choose to do so. Cahan and Van Staden

(2009) also indicated that the BEE ratings are not easily exaggerated or falsified for independent organisations determine BEE ratings suggesting the BEE ratings are truly reflective of an organisation's effort to comply with BEE practices.

The literature regarding the BEE elements of the BEE Generic Scorecard will be discussed in the sections below.

2.1.1. The BEE Generic Scorecard: Ownership

Jackson *et al.* (2005) indicated that in 1995 blacks still owned less than one percent of the total market value on the JSE where the JSE constituted almost 90% of the African continent's capitalization. According to Jackson *et al.* (2005) Black Economic Empowerment transactions involve the sale of equity stakes of a firm to black investors or consortia, usually at a 10 – 15% discounted price from market value.

Mazibuko and Boshoff (2003) suggest that Employee Share Ownership Schemes (ESOPs) is easy and inexpensive to design and implement to transfer ownership to blacks, it further has the advantage of improving workforce efficiency. Workforce efficiency can potentially advance growth which is in line

with the key principles of the government's BEE strategy (Department of Trade and Industry, 2003).

Engdahl and Hauki (2001) states that black economic empowerment is process aimed at redressing the imbalances in the ownership and control of South Africa's economic resources by increasing black participation at all levels of the economy. Southall (2004) stated that blacks have made extremely limited inroads into the ownership, control and senior management of the private corporate sector.

2.1.2. The BEE Generic Scorecard: Management

Jackson *et al.* (2005) indicated that in 1990, blacks occupied less than three percent of management positions. Ponte *et al.* (2007) indicated that BEE has been a process that provides enhanced opportunities for black individuals, rather than groups, to improve their position via affirmative action but argues that meaningful empowerment is unlikely to take place.

2.1.3. The BEE Generic Scorecard: Employment Equity

In the BEE strategy (Department of Trade and Industry, 2003) Black Economic Empowerment is describe as an inclusive process where a more equitable economy will benefit all South African economic citizens. Cahan and Van Staden (2009) view BEE practices as being critically important for South African companies because of the country's past and continuing racial inequalities.

2.1.4. The BEE Generic Scorecard: Skills Development

Employment creation has been limited and has failed to keep up with the growth of the labour force. At the same time industry restructuring has seen firms shifting to more skilled jobs (Ponte *et al.*, 2007). Ponte *et al.* (2007) also indicated that legislation on skills development is not successful due to the lack of effective sanction.

Engdahl and Hauki (2001) suggest that inclusivity of all economic citizens shall be done by education, skills transfer and management development. Maumbe and Van Wyk (2011) stated that training improved employee performance and reduced the skills gap. They further suggested that the skills shortage in South Africa and the developing world is an obstacle to attain development goals and that "any effort to alleviate this problem, however small, goes a long way in

equipping the citizens with the necessary skills that enable them to participate in the economy".

2.1.5. The BEE Generic Scorecard: Preferential Procurement

In the BEE strategy (Department of Trade and Industry, 2003) it is indicated that government is utilizing its preferential procurement policy to promote BEE in the South African economy. Wallace (1999) indicated in her study that preferential government procurement initiatives are crucial for the upliftment and development of local communities. "Preferential procurement has more evident benefits for small and medium enterprises that are specifically owned and managed by historically disadvantaged individuals (Chabane *et al*., 2006)". Andrews (2007) states that BEE compliance helps firm to benefit from future engagements with government.

2.1.6. The BEE Generic Scorecard: Enterprise Development

In the BEE strategy (Department of Trade and Industry, 2003) it is indicated that government is increasing its procurement from black-owned firms and will expand its supplier development programs to ensure that more black enterprises are created. Southall (2006) states that the underdeveloped state of

black business under apartheid, aspirant black businessmen were capitalists without capital, they therefore required financial assistance from either the state or the private sector to leverage ownership and control of corporations.

2.1.7. The BEE Generic Scorecard: Socio-Economic Development

Cahan and Van Staden (2009) indicated that there is a positive correlation between organisation's BEE rating and the level to which they disclose their corporate social investment however they indicated that many organisations disclose their corporate social investment spend to be regarded as legitimate by their stakeholders and in specific labour and government as stakeholders. Fig (2005) suggest a corporate's typical self-definition of corporate social investment as follows: "CSI encompasses projects that are external to the business or outward looking projects undertaken for the purpose of uplifting communities in general and those which have a strong developmental approach. It also includes project with a focus on social, developmental or community aspects where the investment is not primarily driven as a marketing initiative".

Esser and Dekker (2008) suggested that "the South African Broad Based Black Economic Empowerment Act 53 of 2003, not only aims at correcting racial imbalances, but also strives to promote social investment and the

empowerment of communities. By adhering to this act, directors will by implication consider the interests of the community and give effect to the triple-bottom line approach when managing a company".

Hamann, Agbazue, Kapelus and Hein (2005) and Gray (2006) agreed that BBBEE policies created a black elite and had little benefit for the poor.

2.2. Financial Benefit of BBBEE

Ward and Muller (2010) studied the long-term share price reaction to Black Economic Empowerment announcements on the JSE and found that the cumulative abnormal returns for smaller companies reached a maximum of 20% after day t+180 and large companies peaked at 10% indicating that smaller companies benefit more from being BEE compliant as they are able to increase their turnover and margins on account of their BEE rating and improved access to state and other contracts. In contrast with large companies the relative benefit from BEE compliance are small, given that these companies are likely to be already well entrenched. Jackson *et al.* (2005) confirms the notion that investors reward firms that participate in empowerment deals. In contrast Ponte et al. (2007) indicated that business has cast BEE as a "risk" which threatens investor confidence.

Jackson *et al.* (2005) and Sartorius and Botha (2008) reason that when a corporation enters into a black empowerment deal, it is often viewed in a very positive light and receives favourable media attention that can translate into increase business prospects for the firm in many ways, furthermore these BEE deals can benefit the firm through social and economic contacts to gain access to new markets or opportunities, especially in the public sector. Sartorius and Botha (2008) reasons that companies enter into BEE deals to maintain market share and use BEE ownership initiative to raise finance.

Many of the black empowerment groups represent influential consortia of unions, powerful business persons and former politicians and activists. Through alignment to these groups firms are exposed to new business which can have a positive effect on future cash flows potentially realising positive influence on the firm's stock price Jackson *et al.* (2005). Esser and Dekker (2008) indicated that there is proof that companies with a higher BEE rating experience increase profit margins.

The financial benefit from BEE compliance might yet not have been realised but the Malaysian study has indicated that is takes up to two decades to see the effect of an empowerment initiative (Sartorius and Botha, 2008). Andrews (2007) states that BEE compliance helps firm to benefit from future engagements with government. "Preferential procurement has more evident

benefits for small and medium enterprises that are specifically owned and managed by historically disadvantaged individuals (Chabane *et al*., 2006)".

3. RESEARCH QUESTIONS AND PROPOSITIONS

Q1: Does the level of BEE compliance have an effect on the financial performance of companies on the JSE?

Q2: Does the level of BEE compliance shield companies from macro-economic effect like a global economic recession?

From the research question the following hypotheses were formulated to be tested with regards to the impact of BEE on the financial performance on companies on the JSE.

The correlation between the total BEE rating obtained by the organisations on the JSE and their financial performance will be measured. The underlying assumption to be tested was that companies with a higher level of BEE rating will produce greater financial results. The proposition to be tested was:

P1: Companies with a higher level BEE rating will produce greater financial results.

Secondly, it was determined from the financial performance measures whether a greater BEE rating would shield companies from macro-economic effects like a recession. The associated proposition to be tested was:

P1b: Companies with a higher level BEE rating will produce greater financial results even under the influence of an economic recession.

Thirdly the correlation between each of the seven BEE elements as indicated in table 1 and financial performance of the organisations on the JSE will be measured. The purpose is to determine which BEE scorecard element produces greater financial results. The propositions to be tested are:

P2: Companies with a higher level Ownership rating will produce greater financial results.

P3: Companies with a higher level Management Control rating will produce greater financial results.

P4: Companies with a higher level Employment Equity rating will produce greater financial results.

P5: Companies with a higher level Skills Development rating will produce greater financial results.

P6: Companies with a higher level Preferential Procurement rating will produce greater financial results.

P7: Companies with a higher level Enterprise Development rating will produce greater financial results.

P8: Companies with a higher level Socio-Economic Development rating will produce greater financial results.

4. RESEARCH METHODOLOGY

4.1. Research Design

The purpose of the study was to measure the relationship between financial performance and BEE Generic Scorecard rating and was therefore a causal study. It was expected that companies with a higher level of BEE rating will experience greater financial performance and companies with a lower level of BEE rating will experiences lesser financial performance.

The time dimension of the study was longitudinal to determine the above mentioned relationship over an extended period of five years. Two effective time periods were implemented. The first from 30 June 2007 to 30 June 2010 and the second time period implemented to determine the resistance of high BEE rated companies against the recessionary market effect from the period 30 June 2005 to 30 June 2008 and 30 June 2008 to 30 June 2010 in order to capture August 2008 which was the date the global recession was triggered.

Secondary data was collected on selected JSE listed companies to determine financial performance over the period of five years. A similar study conducted by Abdo and Fisher (2007) suggested the following financial performance measures:

- Annual average share price return also known as annual return of compounded annual growth rate (CAGR). The CAGR was calculated from the closing share price as at 30 June 2005, 30 June 2007, 30 June 2008 and 30 June 2010 obtained from JSE Monthly Bulletin (2011) and McGregor BFA (2011). The CAGR was calculated for the periods 30 June 2005 to 30 June 2008, 30 June 2008 to 30 June 2010 and 30 June 2007 to 30 June 2010 for the reasons explained above.
- Market-to-book value (MTBV) which is a proxy for firm value calculated as market capitalization divided by equity as per balance sheet. A value less than one indicate that a firm was not successful in creating value for shareholders. MTBV as at 30 June 2010 was obtained from McGregor BFA (2011).
- Price-earnings ratio (P/E ratio) calculated as the share price divide by the earnings per share. Higher P/E ratios are associated with firms with high growth rates and lower perceived risk. P/E ratios as at 30 June 2010 was obtained from McGregor BFA (2011).

BEE ratings for the companies were obtained from Empowerdex (2011). Data from the Top Empowerment Companies (TEC) reports for 2006 to 2011 was tabulated to establish which companies was at the top for each year during the period under review (30 June 2007 to 30 June 2010) . The data manipulation resulted in 66 companies which met the criteria of being a top BEE performer for each year during the period under review. The Empowerdex ratings were

based on the previous financial year of the companies therefore the BEE compliance performance of the companies with 2010 financial year ends will reflect in the 2011 TEC report.

4.2. Population and Sampling

The unit of analysis was listed companies on the JSE with a BEE rating. The period under review was 30 June 2007 to 30 June 2010. This three year period was shorter than most studies of this nature. The periods form 30 June 2005 to 30 June 2008 and 30 June 2008 to 30 June 2010 was implemented to test the recessionary effect.

The population under review consists of all JSE listed companies over all industries and sectors. The sample was constructed from the Empowerdex TEC report as explained above.

Due to time constraints a sample will be analysed and not the entire population. Due to the sample selection technique implemented the sample must be tested for normality, validity and reliability.

The sample selection technique utilised is subject selection bias and results in a non-probability sample. Non-probability samples allow for greater sampling error which includes:

- Sample not being representative of the population
- Deductions from sample analysis not accurate

The sample of 66 listed companies on the JSE is representative of the entire population of listed companies on the JSE in all sectors and industries however inference cannot be made beyond the borders of the stated population. The research results obtained will therefore only represent the population of listed companies on the JSE and no assumptions can be made with regards to companies outside the population. Companies with dual listings where the primary listing was not on the JSE and companies that entered or exited the JSE during the period of review were excluded from the sample. The effective sample of 49 companies remained.

4.3. Data Analysis

Descriptive statistics and correlations were utilised to determine the relationship between the financial performance of the organisations in the sample and the impact of the elements of the BEE Generic Scorecard.

Pairwise Pearson correlation was conducted to explain the correlation between the seven BEE elements. Bivariate correlations were conducted to determine the relationship between the BEE elements and the financial performance measures.

One-way ANOVA testing was done to determine the statistical significant differences in the means of the financial performance measures between the relevant groups.

4.3.1. Data clustering

The study from Ward and Muller (2010) indicated that larger organisations benefit less from BEE transactions, it was therefore suggested that sample population be grouped according to market capitalisation to distinguish between small, medium and large organisations. Mordant and Muller (2003) suggested the construction of control portfolios when analysing the performance of listed companies. Market size effect, value effect and resource effect are market effects that influence the performance of shares. The market effects were compensated for by implementing the control portfolios.

Abdo and Fisher (2007) argue in order to isolate the effects of industry dynamics and competitiveness on financial performance the sample companies

must be grouped into the JSE sectors. The sector data was further grouped into high BEE scoring clusters and low BEE scoring clusters to differentiate.

4.4. Limitations

4.4.1. Time Period

The time period for the study was shorter than other similar studies. The full effect of the charters that came into action during 2004 to 2009 would not have been realised in the financial data.

4.4.2. Sample Size

The sample was also too small to perform statistical analysis on the clustered data because some of the cluster only had 1 company.

4.4.3. Selection bias

The effective sample of 49 companies selected according to the qualifying criteria would result in a non-probability sample.

4.4.4. Financial measures

The financial measures implemented were market performance measures. Profitability and efficiency measures could have been used that incorporates the company operations and dynamics.

5. RESULTS

5.1. General Findings

The unit of analysis was companies on the JSE that were rated in the top 100 companies for the last 3 years based on their overall BEE score. There were 64 companies meeting the qualifying criteria of being in the top 100 BEE-rated list for the last 3 year consecutively. Companies that listed or delisted during the period under review were excluded and the same for companies with dual listings where the primary listing was not on the JSE. A total of 49 companies have met the total selection criteria. Figures 1 and 2 below indicate the frequency distribution of the overall BEE scores for 2009 and 2011.

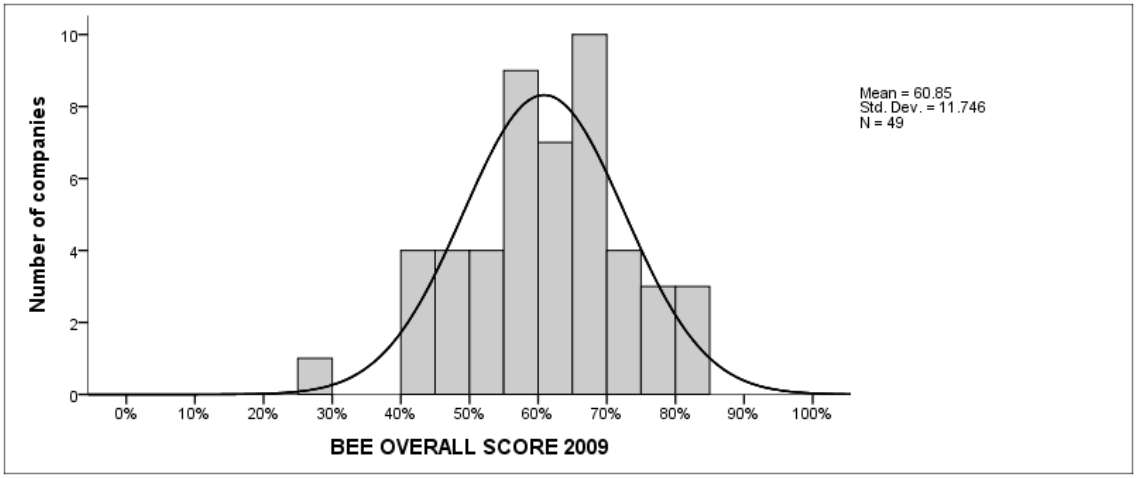

Figure 1: Distribution of the overall BEE score for 2009

The results are skewed to the left with 2011 results more left skewed than 2009 indicating the improvement in the overall BEE score from 2009 to 2011. The

mean has increased from 60.85% in 2009 to 74.84% in 2011. The median for 2009 was 62.18% and 75.85% in 2011 indicating the 50% of the companies had an overall BEE score of greater than 62.18% in 2009 and 75.85% in 2011. The Kurtosis values of -0.053 for 2009 and 0.193 for 2011 indicate that the distribution moved from rather flat in 2009 to rather peaked in 2011 confirmed by the increase in the maximum values of 84.62% with a standard deviation of 11.75% in 2009 to 92.83% with a standard deviation of 10.10% in 2011.

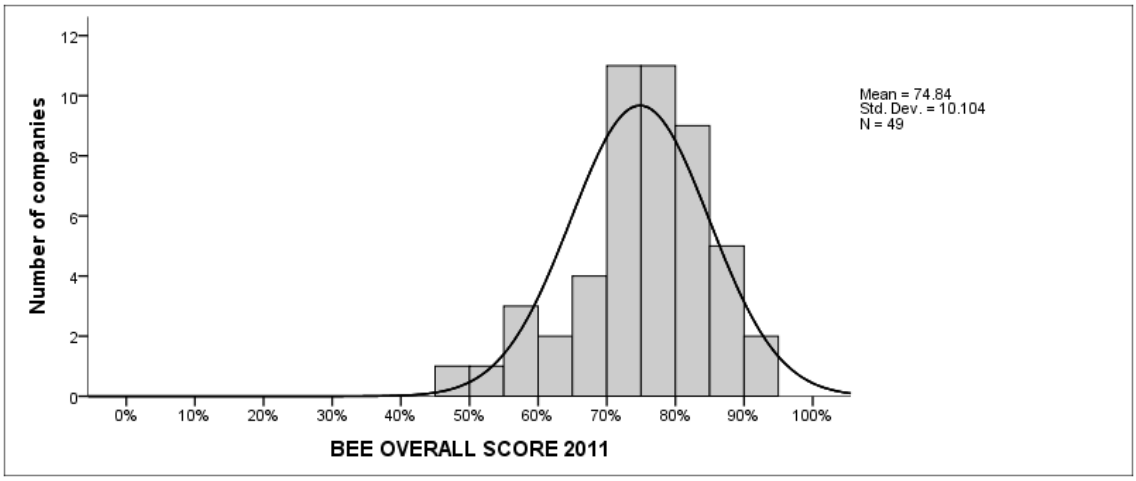

Figure 2: Distribution of the overall BEE score for 2011

The selection criteria of the sample companies could create a sample with selection bias and has to be kept in mind when analysing the results. The distributions of the data indicate that the sample is however adequate for statistical analysis. Cronbach's Alpha coeficient of 0.758 indicates acceptable internal consistency reliability for the scale with the sample data.

Table 2 below indicates the mean scores of the seven BEE categories for 2009 and 2011. The weighting of each category, shown in the second column, was used to translate the relevant scores into percentages. The percentage change from 2009 to 2011 is shown in the final column. The average improvement in BEE scores of 14% from 2009 to 2011 indicates the continued efforts of organisations to improve their BEE status.

Table 2: BEE categories

BEE Category	Weight	Mean 2009	Mean 2011	% Change
Ownership	20	78%	87%	9%
Management	10	51%	61%	10%
Employment Equity	15	36%	50%	14%
Skills Development	15	44%	58%	14%
Preferential Procurement	20	60%	84%	24%
Enterprise Development	15	79%	91%	12%
Socio-economic Development	5	82%	95%	13%
Mean		61%	75%	14%

The highest scoring category for both periods was socio-economic development and the lowest scoring category was employment equity. The preferential procurement category has shown the greatest improvement from 2009 to 2011.

The pairwise Pearson correlation between the BEE categories is shown in table 3. The correlation matrix indicates that there are both positive and negative correlations between the BEE categories. The strength of correlation for the 49 samples varies from weak to medium, there are no strong correlations and therefore limits double counting effect. Correlation coefficients in the range of

0.10 to 0.29 represent a low or weak correlation; coefficients from 0.30 to 0.49 represent a medium or moderate correlation and coefficients from 0.50 to 1.00 represents a large or strong correlation.

Table 3: Pairwise correlation matrix for BEE categories

		I	II	III	IV	V	VI	VII
Ownership (I)	Correlation	1						
	Sig. (2-tailed)							
Management (II)	Correlation	.235	1					
	Sig. (2-tailed)	.104						
Employment Equity (III)	Correlation	-.033	.399**	1				
	Sig. (2-tailed)	.820	.005					
Skills Development (IV)	Correlation	-.119	.001	.272	1			
	Sig. (2-tailed)	.416	.994	.059				
Preferential Procurement (V)	Correlation	-.054	.306*	.322*	.064	1		
	Sig. (2-tailed)	.711	.032	.024	.664			
Enterprise Development (VI)	Correlation	-.016	-.246	-.144	.066	.096	1	
	Sig. (2-tailed)	.914	.089	.325	.653	.513		
Socio-Economic Development (VII)	Correlation	.211	.184	-.008	.355*	.221	.420**	1
	Sig. (2-tailed)	.146	.206	.957	.012	.127	.003	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Figures 3,4 and 5 below show the scatterplots of the mean overall BEE score and the financial performance measures annual return, MTBV and P/E ratio. The financial measures were calculated for the period 30 June 2007 to 30 June 2010. A positive correlation between the mean overall BEE score and the financial measures are evident in the scatterplots shown by the positive sloped fit line. The correlation between the mean overall BEE score and annual return is the weakest due to the influence of the outliers.

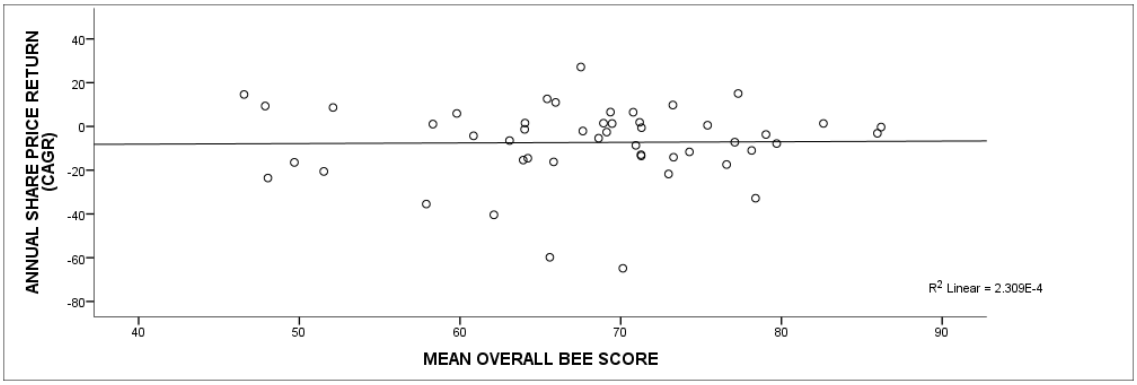

Figure 3: Scatterplot of mean overall BEE score and annual return (CAGR)

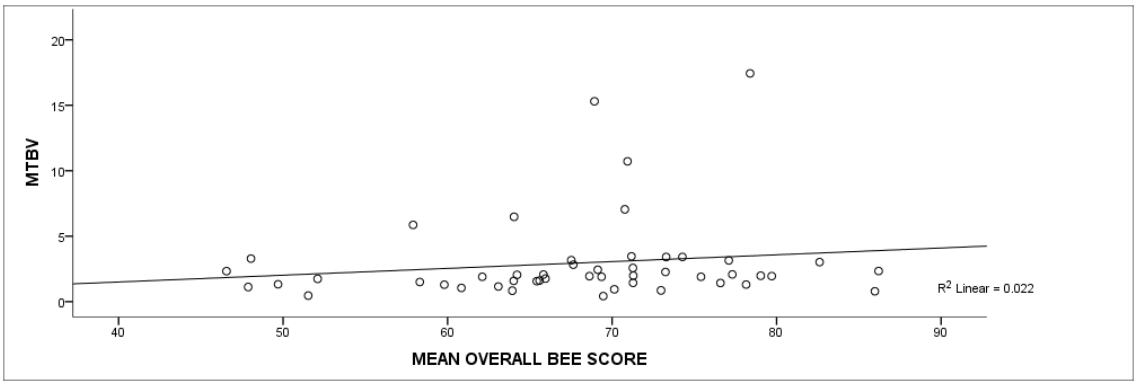

Figure 4: Scatterplot of mean overall BEE score and MTBV

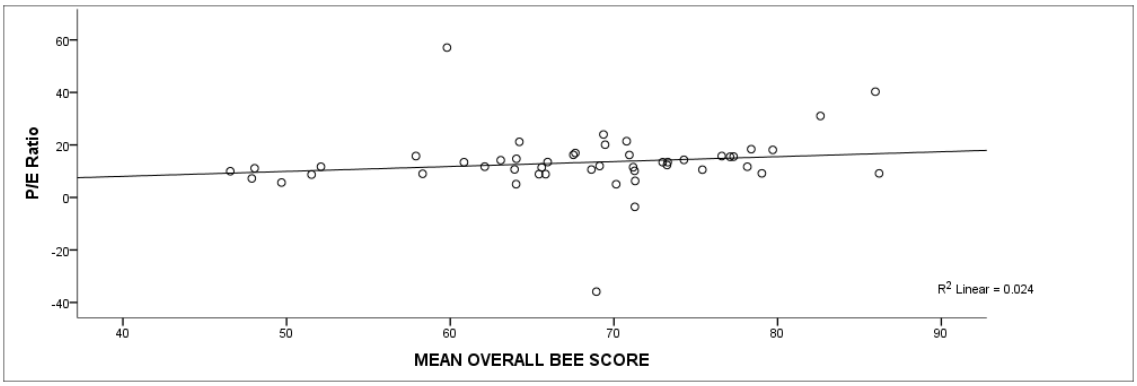

Figure 5: Scatterplot of mean overall BEE score and P/E ratio

The tabulated Pearson correlation between the mean BEE score for the BEE categories and financial performance measure is shown in table 4.

The preferential procurement category has the highest correlation with P/E ratio and employment equity the second highest correlation with P/E ratio. The employment equity category has the highest correlation with both MTBV and annual return. The correlation coefficients for the correlation between the BEE categories and the financial performance measures are below 0.29 indicating weak correlations.

Table 4: Correlation between BEE categories and financial performance measures

	Mean	Min	Max		Correlation with P/E Ratio	Correlation with MTBV	Correlation with Annual Return
Ownership	82%	10%	118%	Correlation	-.135	.084	.009
				Sig. (2-tailed)	.356	.567	.952
Management	56%	16%	103%	Correlation	.081	.188	-.061
				Sig. (2-tailed)	.579	.195	.676
Employment Equity	43%	46%	100%	Correlation	.214	.211	.209
				Sig. (2-tailed)	.140	.146	.150
Skills Development	51%	6%	81%	Correlation	.082	-.200	-.002
				Sig. (2-tailed)	.576	.168	.987
Preferential Procurement	72%	35%	99%	Correlation	.284*	.205	-.183
				Sig. (2-tailed)	.048	.158	.208
Enterprise Developmnt	85%	18%	100%	Correlation	.097	-.046	.052
				Sig. (2-tailed)	.508	.756	.722
Socio-Economic Development	89%	46%	100%	Correlation	.046	.023	-.001
				Sig. (2-tailed)	.755	.875	.995
Overall Score	68%	47%	86%	Correlation	.154	.149	.015
				Sig. (2-tailed)	.291	.307	.917

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The correlation between preferential procurement and P/E ratio is the only correlation that is statistical significant indicating that the confidence in the other results is low. The mean overall BEE score correlates at 0.154, 0.149 and 0.015 with the respective financial performance measures. The low Pearson correlation values indicate that the correlation with the financial performance measures is weak. The negative correlation values require further investigation.

5.2. Segmenting Results by Sector

Abdo and Fisher (2007) argue in order to isolate the effects of industry dynamics and competitiveness on financial performance the sample companies must be grouped into the JSE sectors. The sector scores are shown in Table 5.

The financial sector has the highest mean overall BEE score of 77% and the oil and gas sector the lowest mean overall BEE score of 58%. None of the sectors scored below 50%. The minimum mean overall BEE score of 47% for the consumer services sector and the maximum mean overall BEE score of 86% for the financial sector indicates the narrow range of BEE scores across all sectors.

Table 5: BEE category and overall score by JSE sector

Sector	N	I	II	III	IV	V	VI	VII	Overall Score	Min Score	Max Score
Oil and Gas:J500	1	83%	78%	18%	53%	49%	57%	100%	58%	58%	58%
Basic Materials:J510	4	81%	55%	32%	43%	67%	67%	78%	60%	48%	71%
Industrials:J520	15	85%	44%	30%	47%	68%	91%	88%	65%	48%	74%
Consumer Goods:J530	3	68%	61%	48%	54%	79%	83%	100%	68%	60%	77%
Health Care:J540	3	97%	53%	46%	70%	70%	79%	84%	72%	68%	79%
Consumer Services:J550	7	73%	46%	50%	55%	59%	84%	89%	64%	47%	77%
Telecommunication:J560	2	50%	89%	65%	58%	79%	45%	66%	63%	62%	64%
Financials:J580	11	87%	68%	59%	56%	82%	93%	95%	77%	69%	86%
Technology:J590	3	95%	71%	40%	27%	94%	96%	92%	74%	71%	80%
Mean	49	80%	63%	43%	51%	72%	77%	88%	67%	59%	74%

Table 6 shows the annual return (CAGR) for the portfolio of companies in the associated JSE sectors. The index return for the specific sectors is shown in the third column with the percentage difference between the index return and portfolio annual return in the last column.

The return was calculated for period 30 June 2007 to 30 June 2010.

The portfolio of companies in the basic materials sector outperformed the sector index by 12.31% and the worst performing portfolio of companies are those in the industrials sector which under performed by 11.84%.

Table 6: Returns by sector

Sector	N	Index Return	Annual Return (CAGR)	% Difference
Oil And Gas:J500	1	1.07%	1.07%	0.00%
Basic Materials:J510	4	-6.27%	6.05%	12.31%
Industrials:J520	15	-5.84%	-17.68%	-11.84%
Consumer Goods:J530	3	9.69%	1.22%	-8.47%
Health Care:J540	3	10.14%	12.63%	2.49%
Consumer Services:J550	7	5.61%	10.32%	4.71%
Telecommunication:J560	2	-0.88%	-2.45%	-1.57%
Financials:J580	11	-6.70%	-1.61%	5.09%
Technology:J590	3	1.76%	-9.27%	-11.03%
Mean	49	0.95%	0.03%	-0.92%

Table 6b shows the annual returns for the portfolio of companies in the high and low clusters per sector.

Table 6b: Returns by sector with high and low clusters

Sector	N	Index Return	N LOW Cluster	Annual Return LOW Cluster	% Difference	N HIGH Cluster	Annual Return HIGH Cluster	% Difference
Oil and Gas:J500	1	1.07%	1	1.07%	0.00%	0	N/A	N/A
Basic Materials:J510	4	-6.27%	3	7.64%	13.91%	1	-13.48%	-7.21%
Industrials:J520	15	-5.84%	8	-23.43%	N/A	7	-8.30%	-2.46%
Consumer Goods:J530	3	9.69%	1	5.92%	-3.77%	2	-0.46%	-10.15%
Health Care: J540	3	10.14%	0	N/A	N/A	3	12.63%	2.49%
Consumer Services:J550	7	5.61%	5	12.16%	6.56%	2	-14.14%	-19.74%
Telecommunication:J560	2	-0.88%	2	-2.45%	-1.57%	0	N/A	N/A
Financials:J580	11	-6.70%	0	N/A	N/A	11	-1.61%	5.09%
Technology:J590	3	1.76%	0	N/A	N/A	3	-9.27%	-11.03%

The portfolios were clustered into high and low clusters with regards to the mean overall BEE score. The clusters were determine by the *k*-means classification method and produced two clusters with cluster mean of 58.84% for the low cluster and 74.06% for the high cluster. The financial returns were calculated from 30 June 2007 to 30 June 2010.

The portfolio of companies in the high cluster in health care and financials sectors outperformed the sector indices whereas the portfolio of companies in the low cluster in basic materials and consumer services sectors outperformed the sector indices.

Table 7 shows the returns of the JSE sectors and return for the portfolio of companies in the specific sector. The share price returns where calculated over two periods, the first period from 30 June 2005 to 30 June 2008 prior to the worldwide economic recession and the second period from 30 June 2008 to 30 June 2010 which includes the worldwide economic recession and recovery periods.

The companies in the portfolios associated with the basic materials, health care, consumer services and telecommunication sectors outperformed the sector indices in the period prior to the recession. The companies in the portfolio associated with the financials sector were the only outperformer of the sector indices in the period during the economic recession and recovery period.

Table 7: Returns by sector with recessionary effect

Sector	N	Index Return 2005 - 2008	Annual Return (CAGR) 2005 - 2008	% Difference 2005 - 2008	Index Return 2008 -2010	Annual Return (CAGR) 2008 - 2010	% Difference 2008 - 2010
Oil and Gas:J500	1	39.36%	36.61%	-2.75%	-22.83%	-22.83%	0.00%
Basic Materials:J510	4	42.47%	95.17%	52.70%	-20.90%	-24.87%	-3.97%
Industrials:J520	15	21.30%	14.78%	-6.53%	0.13%	-5.11%	-5.24%
Consumer Goods:J530	3	21.59%	17.89%	-3.69%	16.47%	8.52%	-7.95%
Health Care:J540	3	6.73%	7.78%	1.05%	41.66%	40.34%	-1.33%
Consumer Services:J550	7	12.19%	23.69%	11.50%	24.33%	23.92%	-0.41%
Telecommunication:J560	2	33.77%	38.09%	4.32%	-9.42%	-13.61%	-4.20%
Financials:J580	11	5.30%	3.69%	-1.61%	8.09%	17.46%	9.37%
Technology:J590	3	17.58%	11.94%	-5.64%	15.52%	2.32%	-13.20%
Mean	49	25.44%	27.74%	2.30%	5.90%	2.90%	-2.99%

Table 8 shows the MTBV for the indices and the portfolio of companies associated with the sectors.

Table 8: Firm value by sector

Sector	N	MTBV INDEX	MTBV PORTFOLIO
Oil and Gas:J500	1	3.68	1.90
Basic Materials:J510	4	1.59	1.46
Industrials:J520	15	2.15	2.63
Consumer Goods:J530	3	1.72	2.88
Health Care:J540	3	3.31	2.89
Consumer Services:J550	7	3.55	5.69
Telecommunication:J560	2	2.18	1.97
Financials:J580	11	1.74	2.89
Technology:J590	3	1.53	2.98
Mean	49	2.39	2.81

Abdo and Fisher (2007) used MTBV (Market-to-book-value) as a proxy for firm value. Basic materials, oil and gas and telecommunication sectors were the only sectors where the portfolio of companies did not create more firm value than the indices. However on average the portfolio of companies has created more value than the reported sector indices.

The results for the firm value analysis can be seen in table 8b below. The portfolio of companies in the high cluster in consumer services and financials sectors outperformed the sector indices whereas the portfolio of companies in the low cluster in industrials, consumer goods and consumer services sectors outperformed the sector indices.

Table 8b: Firm value by sector including low and high clusters

Sector	N	MTBV INDEX	MTBV PORTFOLIO	MTBV LOW CLUSTER	MTBV HIGH CLUSTER
Oil and Gas:J500	1	3.68	1.90	1.90	N/A
Basic Materials:J510	4	1.59	1.46	1.47	1.44
Industrials:J520	15	2.15	2.63	3.48	1.67
Consumer Goods:J530	3	1.72	2.88	2.83	2.90
Health Care:J540	3	3.31	2.89	N/A	2.89
Consumer Services:J550	7	3.55	5.69	5.76	4.89
Telecommunication:J560	2	2.18	1.97	0.79	N/A
Financials:J580	11	1.74	2.89	N/A	2.89
Technology:J590	3	1.53	2.98	N/A	1.51

5.2.1. Statistical Significance of Sector Results

The one-way ANOVA test was conducted to determine the statistical significant difference in the means of financial performance measures for the different sector portfolios. The oil and gas sector was excluded from this test due to the number of companies in this sector which prohibited the test from being completed. The output is shown in table 9.

Table 9: One-way ANOVA results for sector portfolios and financial measures

		Sum of Squares	df	Mean Square	F	Sig.
P/E	Between Groups	998.126	7	142.589	1.038	.421
	Within Groups	5495.453	40	137.386		
	Total	6493.579	47			
MTBV	Between Groups	105.131	7	15.019	1.401	.232
	Within Groups	428.652	40	10.716		
	Total	533.783	47			
PRICE RETURN 2007-2010	Between Groups	4669.725	7	667.104	2.649	.024
	Within Groups	10071.682	40	251.792		
	Total	14741.407	47			
PRICE RETURN 2005-2008	Between Groups	7128.325	7	1018.332	1.212	.319
	Within Groups	33611.566	40	840.289		
	Total	40739.891	47			
PRICE RETURN 2008-2010	Between Groups	14817.323	7	2116.760	4.703	.001
	Within Groups	18002.865	40	450.072		
	Total	32820.188	47			

The results of the one-way ANOVA test show that there was a statistical significant difference ($p<0.05$) in the means of the sector portfolios for two of the financial measures, these measures were Annual Return (30 June 2007 to 30 June 2010) and Annual Return (30 June 2008 to 30 June 2010). Levene's test for homogeneity of variance, shown in table 11, confirms that the above mentioned groups did not violate the homogeneity of variance assumption ($p>0.05$). The Welch and Brown-Forsythe robust tests of equality of means, as shown in table 10, indicate that there was statistical significant difference in the means of the sector portfolios with regards to only the Annual Return for the period 30 Jun 2008 to 30 June 2010.

Table 10: Robust tests of equality of means

		Statistic[a]	df1	df2	Sig.
P/E	Welch	.593	7	8.396	.748
	Brown-Forsythe	1.052	7	6.158	.482
MTBV	Welch	.652	7	7.191	.707
	Brown-Forsythe	1.587	7	10.242	.243
PRICE RETURN 2007-2010	Welch	2.547	7	8.118	.105
	Brown-Forsythe	2.375	7	4.897	.182
PRICE RETURN 2005-2008	Welch	1.220	7	8.074	.389
	Brown-Forsythe	1.296	7	8.165	.358
PRICE RETURN 2008-2010	Welch	4.496	7	8.139	.025
	Brown-Forsythe	6.133	7	9.658	.006

a. Asymptotically F distributed.

The Tukey HSD confirms that there was a statistical significant difference ($p<0.05$) in the means of the financial measure, annual return (2008-2010), between basic materials, health care, consumer services and financials sectors.

There were no other significant differences reported between the means of the financial performance measures of the sector portfolios.

Table 11: Levene's test for homogeneity of variance

	Levene Statistic	df1	df2	Sig.
P/E	2.184	7	40	.056
MTBV	5.251	7	40	.000
PRICE RETURN 2007-2010	1.004	7	40	.443
PRICE RETURN 2005-2008	4.500	7	40	.001
PRICE RETURN 2008-2010	.855	7	40	.549

Table 12: Tukey HSD post hoc test

Dependent Variable	(I) SECTOR CODE	(J) SECTOR CODE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
PRICE RETURN 2008-2010	BASIC MATERIALS: J510	HEALTH CARE:J540	-64.34608*	16.20314	.006	-116.1394	-12.5527
		CONSUMER SERVICES: J550	-47.99992*	13.29714	.017	-90.5042	-5.4956
		FINANCIALS: J580	-44.98623*	12.38683	.016	-84.5807	-5.3917

*. The mean difference is significant at the 0.05 level.

The one-way ANOVA for the sector portfolios by high and low cluster has shown the same correlation results. The Tukey HSD post hoc test could however not be conducted because there was groups with only one sample company. The results are shown in table 13. The $p<0.05$ indicate that there was

significant differences between the means from the financial measures of the sector portfolios by high and low cluster for the annual return measures of 2008 to 2010.

Table 13: One-way ANOVA result for sector portfolios and financial measures by high and low clusters

		Sum of Squares	df	Mean Square	F	Sig.
P/E	Between Groups	2347.854	12	195.655	1.691	.110
	Within Groups	4164.118	36	115.670		
	Total	6511.973	48			
MTBV	Between Groups	111.179	12	9.265	.785	.662
	Within Groups	424.742	36	11.798		
	Total	535.921	48			
PRICE RETURN 2007-2010	Between Groups	5309.421	12	442.452	1.676	.114
	Within Groups	9504.033	36	264.001		
	Total	14813.455	48			
PRICE RETURN 2005-2008	Between Groups	13034.501	12	1086.208	1.394	.214
	Within Groups	28054.246	36	779.285		
	Total	41088.747	48			
PRICE RETURN 2008-2010	Between Groups	16649.672	12	1387.473	2.965	.006
	Within Groups	16848.449	36	468.012		
	Total	33498.121	48			

5.3. Segmenting Results by Size Effect, Value Effect and Resource Effect

Mordant and Muller (2003) suggest the construction of control portfolios when analysing the performance of listed companies. Market size effect, value effect

and resource effect are market effects that influence the performance of shares. The market effects are compensated for by implementing the control portfolios. Table 14 below shows the resultant control portfolios.

Table 14: Control portfolios

Key	Description		
LGN	Large	Growth	Non-Resource
LGR	Large	Growth	Resource
LVN	Large	Value	Non-Resource
LVR	Large	Value	Resource
SGN	Small	Growth	Non-Resource
SGR	Small	Growth	Resource
SVN	Small	Value	Non-Resource
SVR	Small	Value	Resource

The control portfolios were constructed as suggested by Mordant and Muller (2003):

- The smallest market capitalisation value from ALSI40 index was used to determine whether a company was large or small, companies with market capitalisation greater than the smallest market capitalisation value from the ALSI40 index was considered large and companies with market capitalisation smaller was considered small
- The median P/E ratio (Price-to-book ratio) was calculated for the sample under review, companies with P/E ratio greater than the median were considered growth companies and companies with P/E ratio smaller than the median were considered value companies

- All mining and non-mining resource shares were considered resources and the rest of the market was considered non-resources.

The BEE category and overall scores by control portfolio is shown in table 15. Both small and large resource companies have scored the lowest overall BEE score with scores 65% and 53% respectively. The minimum overall BEE score was 47% in the portfolio of LGN companies. The maximum overall BEE score of 86% was in the portfolio of LVN companies. The three best scoring portfolios were LVN, SGN and SVN with overall BEE scores 73%, 68% and 68% respectively.

Table 15: BEE category and overall score by control portfolio

Control Portfolio	N	I	II	III	IV	V	VI	VII	Overall Score	Min Score	Max Score
LGN	18	78%	52%	47%	56%	70%	83%	88%	67%	47%	79%
LGR	2	85%	63%	21%	39%	47%	47%	86%	53%	48%	58%
LVN	9	83%	68%	48%	56%	77%	90%	95%	73%	52%	86%
SGN	6	85%	52%	40%	49%	71%	91%	95%	68%	52%	77%
SVN	12	86%	55%	40%	44%	76%	92%	84%	68%	48%	80%
SVR	2	85%	66%	35%	44%	79%	65%	75%	65%	58%	71%
Mean	49	84%	59%	39%	48%	70%	78%	87%	66%	51%	75%

5.4.1. Statistical Significance of Control Portfolio Results

The one-way ANOVA test was conducted to determine the statistical significant difference in the means of financial performance measures for the different control portfolios. The output is shown in table 16.

Table 16: One-way ANOVA results for control portfolios and financial measures

		Sum of Squares	df	Mean Square	F	Sig.
P/E	Between Groups	289.674	5	57.935	.400	.846
	Within Groups	6222.299	43	144.705		
	Total	6511.973	48			
MTBV	Between Groups	31.535	5	6.307	.538	.747
	Within Groups	504.387	43	11.730		
	Total	535.921	48			
PRICE RETURN 2007-2010	Between Groups	3555.282	5	711.056	2.716	.032
	Within Groups	11258.173	43	261.818		
	Total	14813.455	48			
PRICE RETURN 2005-2008	Between Groups	8055.088	5	1611.018	2.097	.084
	Within Groups	33033.659	43	768.225		
	Total	41088.747	48			
PRICE RETURN 2008-2010	Between Groups	12054.388	5	2410.878	4.834	.001
	Within Groups	21443.733	43	498.691		
	Total	33498.121	48			

The results of the one-way ANOVA test show that there was a statistical significant difference ($p<0.05$) in the means of the control portfolios for two of the financial measures, these measures were Annual Return (30 June 2007 to

30 June 2010) and Annual Return (30 June 2008 to 30 June 2010). Levene's test for homogeneity of variance, shown in table 18, confirms that the above mentioned groups did not violate the homogeneity of variance assumption ($p>0.05$). The Welch and Brown-Forsythe robust tests of equality of means, as shown in table 17, indicate that there was statistical significant difference in the means of the sector portfolios with regards to only the Annual Return for the period 30 Jun 2008 to 30 June 2010. The Tukey HSD test, as shown in table 19, confirmed that there was a statistical significant difference ($p<0.05$) in the means of the financial measure, annual return (2008-2010), between four groups. There was a significant difference between control portfolios LGN, SVN and SVR. The second significant difference was between control portfolios SGN and SVR. No other significant differences were reported between the means of the financial performance measures of the control portfolios.

Table 17: Robust tests of equality of means

		Statistic[a]	df1	df2	Sig.
P/E	Welch	2.346	5	7.586	.141
	Brown-Forsythe	.574	5	7.191	.720
MTBV	Welch	2.004	5	6.629	.200
	Brown-Forsythe	.844	5	11.165	.546
PRICE RETURN 2007-2010	Welch	2.958	5	6.253	.105
	Brown-Forsythe	3.772	5	13.277	.024
PRICE RETURN 2005-2008	Welch	.646	5	5.189	.678
	Brown-Forsythe	.779	5	2.244	.639
PRICE RETURN 2008-2010	Welch	29.530	5	8.091	.000
	Brown-Forsythe	7.300	5	27.632	.000

a. Asymptotically F distributed.

Table 18: Levene's test for homogeneity of variance

	Levene Statistic	df1	df2	Sig.
P/E	.642	5	43	.669
MTBV	1.925	5	43	.110
PRICE RETURN 2007-2010	.260	5	43	.932
PRICE RETURN 2005-2008	4.105	5	43	.004
PRICE RETURN 2008-2010	2.035	5	43	.093

Table 19: Tukey HSD post hoc test

Dependent Variable	(I) PORT-FOLIO	(J) PORT-FOLIO	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
PRICE RETURN 2008-2010	LGN	SVN	25.11408*	8.32242	.046	.2965	49.9316
		SVR	58.32157*	16.64484	.013	8.6865	107.9567
	SGN	SVR	55.56237*	18.23351	.043	1.1898	109.9349
	SVN	LGN	-25.11408*	8.32242	.046	-49.9316	-.2965
	SVR	LGN	-58.32157*	16.64484	.013	-107.9567	-8.6865
		SGN	-55.56237*	18.23351	.043	-109.9349	-1.1898

*. The mean difference is significant at the 0.05 level.

The one-way ANOVA for the control portfolios by high and low cluster is shown in table 20. The Tukey HSD post hoc test could however not be conducted because there was groups with only one sample company. The $p<0.05$ indicate that there was significant differences between the means from the financial measures of the sector portfolios by high and low cluster for the annual return measures of 2005 to 2008 and 2008 to 2010.

Table 20: One-way ANOVA result for control portfolios and financial measures by high and low clusters

		Sum of Squares	df	Mean Square	F	Sig.
P/E	Between Groups	1023.877	11	93.080	.628	.794
	Within Groups	5488.096	37	148.327		
	Total	6511.973	48			
MTBV	Between Groups	81.054	11	7.369	.599	.817
	Within Groups	454.867	37	12.294		
	Total	535.921	48			
PRICE RETURN 2007-2010	Between Groups	4918.158	11	447.105	1.672	.119
	Within Groups	9895.296	37	267.440		
	Total	14813.455	48			
PRICE RETURN 2005-2008	Between Groups	18491.291	11	1681.026	2.752	.010
	Within Groups	22597.456	37	610.742		
	Total	41088.747	48			
PRICE RETURN 2008-2010	Between Groups	16391.489	11	1490.135	3.223	.004
	Within Groups	17106.633	37	462.341		
	Total	33498.121	48			

6. DISCUSSION OF RESULTS

6.1. General Findings

The mean overall BEE score has increased from 60.85% to 74.84% over the review period (30 June 2007 to 30 June 2010) as seen from the frequency distributions in figures 1 and 2. The 14% increase in overall BEE score from 2009 to 2011 could be the result of the industry specific charters which require specifically the implementation of BBBEE principles. Both the mining charter and construction charter made provision for BBBEE tender requirements which was revised in 2009 and 2006 respectively. Table 2 indicated the significant increase of 24% in the preferential procurement category over the review period which reflects the BBBEE tender requirements in the mining and construction charters. The banking charter became effective in 2008 with great emphasis on BBBEE principles. The influence of the banking charter BBBEE requirements can be seen in the result of table 5 where the financial sector score the highest mean overall BEE score measure against the other eight sectors. Wallace (1999) indicated in her study that preferential government procurement initiatives are crucial for the upliftment and development of local communities. The state by Wallace (1999) together with the preferential procurement policies of government and the industry charters can explain this significant increase in preferential procurement.

Mordant and Muller (2003) suggested the construction of control portfolios when analysing the performance of listed companies. Market size effect, value effect and resource effect are market effects that influence the performance of shares. Table 15 shows the results for the BEE category and overall score by control portfolios. Both small and large resource companies have scored the lowest overall BEE score with scores 65% and 53% respectively. The low scoring of resource companies are in contrast with the discussion above with regards to the BEE compliance requirements as set by the mining charter.

The minimum overall BEE score was 47% in the portfolio of LGN companies which might be the result of the complex structure of these companies resulting in a slow process to change the BEE compliance structure. The maximum overall BEE score of 86% was in the portfolio of LVN companies which might be the result of the characteristics of the dynamics of value companies. The three best scoring portfolios were LVN, SGN and SVN with overall BEE scores 73%, 68% and 68% respectively which might also be contributes to the characteristics of the dynamics of small and value companies.

Table 2 indicates socio-economic development and enterprise development as the two highest scoring categories in 2011. High scores in these two categories are fairly easy to obtain in order to improve the overall BEE score of an organisation. Socio-economic development and enterprise development scores are obtained through contributing 1% and 3% of the net profit on the income

statement. Esser and Dekker (2008) suggested that “the South African Broad Based Black Economic Empowerment Act 53 of 2003, not only aims at correcting racial imbalances, but also strives to promote social investment and the empowerment of communities. By adhering to this act, directors will by implication consider the interests of the community and give effect to the triple-bottom line approach when managing a company”. The triple bottom line approach is the result of good corporate governance in South Africa. Companies listed on the JSE are required to implement King III principles. The statement by Esser and Dekker (2008) above indicate that the companies do apply King III principles and this could explain the increase in the socio-economic and enterprise development scores.

The ownership category was the third highest scoring in 2011 as per table 2. Jackson *et al.* (2005) and Sartorius and Botha (2008) reason that black empowerment deals can translate into increase business prospects and can benefit the firm through social and economic contacts to gain access to new markets or opportunities, especially in the public sector. The statement made is closely related to the BBBEE requirements of the charters as discussed above.

Management and employment equity is amongst the three lowest scoring categories in 2011 as per table 2 and might be the result of time it takes to change employment structures within an organisation. Although Cahan and Van

Staden (2009) view BEE practices as being critically important for South African companies because of the country's past and continuing racial inequalities, the skills shortage and limited black talent pool will prohibit organisations to improve scores in these two categories.

Skills development was the second lowest scoring category. Ponte *et al.* (2007) emphasised the importance of skills development due to industry restructuring that has seen firms shifting to more skilled jobs however indicated that legislation on skills development is not successful due to the lack of effective sanction.

The pairwise correlation matrix for the BEE categories, as shown in table 3, indicated moderate correlation between the BEE categories. The moderate correlation between management and employment equity results from the interrelationship between the two concepts. Similarly the moderate correlation between skills development, enterprise development and socio-economic development results from the interconnectedness between these three concepts. The moderate correlation between management, employment equity and preferential procurement cannot be explained because these management and employment equity is independent from preferential procurement. The absence of strong correlation between the BEE categories limits the double counting effect.

6.2. Financial Performance

The scatterplots in figures 3,4 and 5 indicate the relationship between the mean overall BEE score and the three financial performance measures annual return, MTBV (Market-to-book-value) and P/E ratio for the period under review. All three scatterplots reveals a positive trend line indicating that a higher overall BEE score leads to greater financial performance. The Pearson correlation matrix in table 4 however indicates the positive relationship between the overall BEE score and the financial measures is weak. This implies that proposition *P1* holds however the result is statistically insignificant.

Jackson *et al.* (2005) confirms the notion that investors reward firms that participate in empowerment deals. In contrast Ponte et al. (2007) indicated that business has cast BEE as a "risk" which threatens investor confidence. The contradictory statements might be representative of the investor market. In other words spread of investors that see BEE compliance as a positive and the investors that see BEE compliance as a negative might be equally weighted. This will partly explain the weak correlation.

The Pearson correlation matrix in table 4 paints a different picture for the correlation between the BEE categories and financial performance measures. Both positive and negative correlations are found between the individual BEE

categories and the financial measures. The results for the correlation between the individual BEE categories and the financial performance measures can be interpreted as being inconsistent. The inconsistency in the correlations between the individual BEE categories and the financial performance measures reject propositions P2, P3 and P5 to P8 which states that a higher rating for the individual components will lead to greater financial performance. Proposition P4 states that a greater rating in employment equity will result in greater financial performance and according to the results in table 4 it is indicated that there was a positive correlation between the employment equity score and all the financial performance measures. Esser and Dekker (2008) suggested that “concerns have been raised that BBBEE will put an unnecessary burden on companies”. This would imply that companies with greater BBBEE compliance will not spend the necessary effort on business activities and therefore would experience the lower financial performance.

6.2.1. Financial Performance by Sector

Abdo and Fisher (2007) argue in order to isolate the effects of industry dynamics and competitiveness on financial performance the sample companies must sorted into the nine main JSE sectors. Table 6 shows the results for the comparison between the annual return as financial performance measure and the sector index return. The portfolio of companies in the basic materials, health

care, consumer services and financials sectors outperformed the sector indices. The possible explanation for this might be linked to the high scoring ownership scores for these sectors as seen in table 5. Jackson *et al.* (2005) stated that many of the black empowerment groups represent influential consortia of unions, powerful business persons and former politicians and activists, through alignment to these groups firms are exposed to new business which can have a positive effect on future cash flows potentially realising positive influence on the firm's stock price. This statement is substantiated by the ownership data in table 5 as discussed above. Furthermore table 4 reports a positive correlation coefficient between ownership score and annual return.

The portfolio of companies in the industrials and technology sectors has shown the greatest underperformance with regards to annual return when measured against the sector index returns as shown in table 6. There is no evidence in the BEE score data in table 5 or the correlation between financial performance measures in table 4 that substantial explain this relationship. Technology sector had the second highest overall BEE score and therefore indicates that the higher BEE score does not translate into greater annual return performance.

The k-means classification method was utilised to produce a high overall BEE scoring cluster and a low overall BEE scoring cluster. If proposition *P1* (companies with a higher level BEE rating will produce greater financial results) hold then the high BEE scoring cluster should outperform the low BEE scoring

cluster. Table 6b shows the results for annual return by sector in the high and low clusters. On average the companies in the low BEE scoring cluster has outperformed the companies in the high BEE scoring cluster in the related sectors. This indicates that proposition *P1* does not hold true however the confidence of this statement might be questioned due inadequate sizes of the clusters.

To further investigate whether propositions *P1* and *P1b* holds the annual returns for the sector portfolios and sector indices were calculated for a 3 year period before the global recession triggered in August 2008 and 2 year period during the global recession. The periods of assessment was chosen as 30 June 2005 to 30 Jun 2008 and 30 June 2008 to 30 June 2010. The calculated annual returns per sector are shown in table 7. On average the portfolio of companies over all the sectors outperformed the sector index returns by 2.30% in the period 30 June 2005 to 30 June 2008 prior to the global recession triggered in August 2008. The greatest outperformers were the portfolio of companies in the basic materials, health care, consumer services and financials sectors. The portfolio of companies over all sectors underperformed on average 2.99% less than the sector indices over the period 30 June 2008 to 30 June 2010. The sample companies that form the unit of analysis are amongst the top 100 performers with regards to BEE scores for the period 30 June 2007 to 30 June 2010. By definition these companies have a higher BEE rating than the other JSE listed companies. The evidence discussed above does not support

proposition *P1* that companies with higher BEE ratings will have greater financial performance. Neither does proposition *P1b* hold for there was no significant proof that companies with higher BEE ratings did better during the recession than companies with lower BEE ratings. It is assumed that the annual return performance for the period 30 June 2005 to 30 June 2008 was due to the buoyant economic environment during the stated period rather than a result of the companies' BEE compliance initiatives.

Abdo and Fisher (2007) used MTBV (Market-to-book-value) as a proxy for firm value. Table 8 shows the MTBV for the indices and the portfolio of companies associated with the sectors. Basic materials, oil and gas and telecommunication sectors were the only sectors where the portfolio of companies did not create more firm value than the sector indices. However on average the portfolio of companies has created more value than the reported sector indices. The positive correlation coefficient between overall BEE rating and MTBV in table 4 might be a predictor of the results seen in table 8 where the portfolio of companies created more value than the average of the specific sectors.

Once again the firm value analysis was done by clustering the portfolio of companies per sector into the high and low portfolio as discussed previously. The results are shown in table 8b. The portfolio of companies in the high cluster in consumer services and financials sectors outperformed the sector indices whereas the portfolio of companies in the low cluster in industrials,

consumer goods and consumer services sectors outperformed the sector indices. The results indicate that the low cluster on average created more value than the high cluster portfolio of companies however the missing data due to the small data sample might reveal a different result. No concrete deduction can be made from the data presented.

6.2.1.1 Statistical Significance of the Sector Results

The one-way ANOVA test results to confirm the statistical significant difference in the means of the financial performance measures segmented by JSE sectors is shown in table 9. The results indicate that there was no statistical significant difference in the means of the financial measures for the period 30 June 2007 to 30 June 2010. This indicates that there was no sector that significantly outperformed any other sector during the period 30 June 2007 to 30 June 2010 on any of the financial performance measures (P/E ratio, MTBV and Annual Return). Considering that portfolio of companies for the sectors are made up from the best BEE rated companies on the JSE the only logical deduction that can be made from the results is that there was no significant difference in the sector performances.

The one-way ANOVA test results to confirm the statistical significant difference in the means of the financial performance measures segmented by JSE sectors

and low/high cluster is shown in table 13. The results indicate that there was no statistical significant difference in the means of the financial measures for the period 30 June 2007 to 30 June 2010. This implies that there was no significant difference in financial performance between the portfolio of companies in the high cluster and low cluster. Proposition *P1* therefore does not hold because statistically companies with higher BEE ratings did not have greater financial performance than companies with lower BEE ratings. Neither does proposition *P1b* hold

6.2.2. Financial Performance by Control Portfolio

Mordant and Muller (2003) suggest the construction of control portfolios when analysing the performance of listed companies. Market size effect, value effect and resource effect are market effects that influence the performance of shares. The market effects are compensated for by implementing the control portfolios as shown in table 14.

The BEE category and overall scores by control portfolio is shown in table 15. Both small and large resource companies have scored the lowest overall BEE score with scores 65% and 53% respectively, this however contrasts with the requirement from the mining charter with regards to BBBEE compliance. The three best scoring portfolios were LVN, SGN and SVN with overall BEE scores

73%, 68% and 68% respectively. The overall BEE score for all the companies are between 53% and 73% with an average of 66% indicating that the control portfolios are fairly balanced in terms of BEE scoring. If proposition *P1* holds then the control portfolios with a greater BEE scores should perform better than the control portfolios with lower BEE scores in terms of the financial performance measures. This was tested and the results are discussed in the next section.

6.2.2.1 Statistical Significance of the Control Portfolio Results

The one-way ANOVA test was conducted to determine the statistical significant difference in the means of financial performance measures for the different control portfolios. The results shown in table 16 indicate that there was statistical significant difference in the means of annual return as performance measure for the period 30 June 2007 to 30 June 2010. The Tukey HSD post hoc test however did not disclose between which control groups the significant difference was.

The one-way ANOVA for the control portfolios by high and low cluster is shown in table 20. There were no statistical significant differences between the means of the financial performance measures for the period 30 June 2007 to 30 June 2010. This proves that proposition *P1* does not hold because the portfolio of

companies in the control portfolios clustered in the high BEE scoring cluster did not significantly outperform the portfolio of companies in the control portfolios clustered in the low BEE scoring cluster.

6.3. Research Questions and Propositions

Proposition *P1* was the only proposition that had results indicating a positive correlation between the level of BEE rating and the financial performance measures. The correlations however was statistical insignificant thus the proposition *P1* does not hold.

Propositions *P1b* up to *P8* do not hold due to the lack of statistical significant evidence.

There was no significant results indicating that the level of compliance influence the financial performance measure. The answers to the two research questions stated below based on the results of the study are “No” in both cases.

Q1: Does the level of BEE compliance have an effect on the financial performance of companies on the JSE?

Q2: Does the level of BEE compliance shield companies from macro-economic effect like a global economic recession?

7. CONCLUSION

The ANC government has implemented various mechanisms to promote inclusivity of all economic citizens over the past 15 years. The main objectives of all the policies was to promote economic transformation in order to enable meaningful participation of black people in the economy and to change the racial composition of ownership and management structures of existing and new enterprises. BBBEE is one of these initiatives that address the issues of ownership and management.

The 49 JSE companies with top BEE scoring for the last three consecutive were analysed. The companies were assessed during two periods. The first period, 30 June 2007 to 30 June 2010, was the main period for the review. The second period was from 30 June 2005 to 30 June 2010. This period was split into two periods from 30 June 2005 to 30 June 2008 and 30 June 2008 to 30 June 2010. This was done to isolate the date the global economic recession was trigger (August 2008). The relationship between the companies' BBBEE scores and financial performance measures was assessed over the two review periods. The financial measures were MTBV, P/E ratio and Annual Return (CAGR). MTBV and P/E ratio

Companies were clustered into high BEE scoring portfolios and low BEE scoring portfolios. Furthermore were the companies grouped into JSE sectors and by size, value and resources market effects.

Against all expectations the results has shown no significant correlations between either individual BEE category ratings or overall BEE ratings and the financial performance measures of the companies. Even when the tests were done on the clusters and groups the results shown no significant correlations. The test was repeated for the period before the economic recession and the period during the economic recession and again no significant correlations between BEE rating level and financial performance measures were encountered. The results also revealed that on average the sector indices outperformed the companies in the high BEE scoring cluster with regards to the financial performance measures.

The analysis nor confirms or denies that BBBEE score is an indicator or predictor of company performance. The sample size has been identified as a limitation to reach statistical significant results.

In light of the literature presented in this report it would be expected that companies with greater BBBEE compliance scores would be rewarded.

Finally, it is proposed that organisation not make any deductions from the findings from study with regards to their BBBEE performance. The results must be seen in context of the limitations of the study.

7.1. Recommendations to Stakeholders

The results of this study have not shown a substantial correlation between BBBEE score and financial performance measure. The results should however be seen in context of the limitations of this study.

Esser and Dekker (2008) suggested that “concerns have been raised that BBBEE will put an unnecessary burden on companies”. Management of companies should not follow this line of reasoning. The value of BBBEE for South Africa as a whole is yet to be realised.

Government should however be more attentive to the negative publicity that surrounds BBBEE-like initiatives. (Sartorius and Botha, 2008; Jackson, Alessandri and Black, 2005; Ponte, Roberts and Sittert, 2007) reported that there is growing criticism of BEE that has only benefited the politically connected elite. Perceptions like that stated by the above author would prohibit BBBEE-like initiatives to reach the goals it was designed for.

7.2. Recommendations for Future Research

The current study has not shown significant evidence of correlation between the level of BBBEE compliance and the financial performance measurements. The shortcomings that have been identified are:

- Sample selection
- Sample size
- Clustering
- Period of review
- Performance measures

The shortcomings with regards to the sample selection method implemented in this study can be overcome by analysing the entire population in a comprehensive study. The entire population will constitute all the companies listed on the JSE. In this study the companies that entered or exited the JSE during the review period was left out of the working sample. To overcome this future researchers can rebalance the portfolio of companies in short increments, say every three months.

The small sample of 49 companies did not prove to be sufficient for this type of study. As mentioned, it is suggested that this study be repeated using the entire JSE company population.

The small sample contributed to the problem of not being able to perform certain statistical test when the sample was clustered. The clustering methods are widely used in these types of studies but it is suggested that more research be done on the market effects.

The period of review was also a constraint in this study. The effects of the charters passed in the last decade to promote inclusivity of all the economic citizens of South Africa is yet to come into full swing. It is suggested that the period of review is extended to a much greater period than three to five years.

The identified shortcoming of the performance measures were that the measures used in this study reflect financial performance of a company from a shareholder's perspective. It is suggested that the study be repeated to incorporate profitability and efficiency measures that are more relevant to the companies' internal performance and dynamics.

A final suggestion for future research is to analyse both JSE listed and private sector companies that are not listed. A comparative study might reflect interesting results. The limitation with analysing private sector companies is to find a representative sample. Furthermore the availability of data to perform the study will pose a challenge.

REFERENCES

Abdo, A., & Fisher, G. (2007). The impact of corporate governance disclosure on financial performance of companies listed on the JSE. *Investment Analyst Journal*, 66, 43-56.

Andrews, M. (2008). *Is black economic empowerment a South African growth catalyst?* (Or Could It Be…). HKS Working paper No RWP08-003. Available from http://ssrn.com/abstract=1266797.

Cahan, S.F., & Van Staden, C.J. (2009). Black economic empowerment, legitimacy and the value added statement: evidence from post-apartheid South Africa. *Accounting and Finance*, 49, 37-58.

Chabane, N., Goldstein, A., & Roberts, S. (2006). The changing face and strategies of big business in South Africa: more than a decade of political democracy. *Industrial and Corporate Change*, (15)3, 549-577. doi:l 0.1093/ icc/dtl011

Department of Trade and Industry. (2004). *Broad-Based Black Economic Empowerment Act, No. 53 of 2003 (as amended in 2004).* http://www.dti.gov.za accessed 15 February 2011.

Department of Trade and Industry. (2003). *South Africa's economic*

transformation: A Strategy for Broad-based Black Economic Empowerment. http://www.dti.gov.za accessed 15 February 2011.

Empowerdex. (2011). http://www.empowerdex.co.za accessed 15 February 2011.

Engdahl, C., & Hauki, H. (2001). *Black Economic Empowerment: An introduction for non-South African businesses* (Master's thesis, Gothenburg University). Retrieved from http://0-citeseerx.ist.psu.edu.innopac.up.ac.za/

Esser, I., & Dekker, A. (2008). The Dynamics of Corporate Governance in South Africa: Broad Based Black Economic Empowerment and the Enhancement of Good Corporate Governance Principles. *Journal of International Law and Technology,* (3)3, 157-169.

Fig, D. (2005). Manufacturing amnesia: Corporate Social Responsibility in South Africa. *International Affairs*, (81)3, 599-617.

Gray, M. (2006). The progress of social development in South Africa. *International Journal of Social Welfare,* (15)1, S53-S64. doi:l 0.1111/j.1468-2397.2006.00445.x

Hamann, R., Agbazue, T., Kapelus, P., & Hein, A. (2005). Universalizing Corporate Social Responsibility? South African Challenges to the International Organization for Standardization's New Social Responsibility Standard. *Business and Society Review,* (110)1 ,1–19.

Hoffman, E.A. (2009). A wolf in sheep's clothing: Discrimination against the majority undermines equality, while continuing to benefit few under the guise of Black Economic Empowerment. *Syracuse Journal of International Law & Commerce*, 36, 87-115.

I-Net Bridge. (2011). http://www.inet.co.za accessed 15 February 2011.

Jackson, W.E., Alessandri, T.M., & Black, S.S., (2005). The Price of Corporate Social Responsibility: The Case of Black Economic Empowerment Transactions in South Africa. *Federal Reserve Bank of Atlanta.* Working paper series, 2005-29.

JSE Monthly Bulletin. (2011). *JSEBuletin Excel Add-In*. Supplied by M. Ward. Gordon Institute of Business Science.

Maumbe, K.C., & Van Wyk, L. (2011). Addressing the Skills Shortage Problem of the South African Tourism and Hospitality Industry: An Evaluation of the Effectiveness of the 2007/2008 SA Host Training Program in the

Western Cape Province. *Urban forum*, 22, 363-377. doi:l 0.1007/s12132-011-9115-z

Mazibuko, N.E., & Boshoff, C. (2003). Employee perceptions of share ownership schemes: An empirical study. *South African Journal of Business Management*, (34)2, 31-44.

McGregor BFA. (2011). http://www.mcgregorbfa.com accessed 15 February 2011.

Mordant, N, & Muller, C. (2003). Profitability of directors' share dealings on the JSE. *Investment Analyst Journal*, 57, 17-31.

Ponte, S., Roberts, S., & Van Sittert, L. (2007). 'Black Economic Empowerment', Business and the State in South Africa. *Development and Change*, (38)5, 933-955.

Sartorius, K., & Botha, G. (2008). Black economic empowerment initiatives: a Johannesburg Stock Exchange perspective. *Development Southern Africa.* (25)4. doi:l 0.1080/03768350802318530

Southall, R. (2004). The ANC and black capitalism in South Africa. *Review of*

African Political Economy, (31)100, 313-328**.** doi:l 0.1080/030562404200 0262310

Southall, R. (2006). Ten propositions about black economic empowerment in South Africa. *Review of African Political Economy,* (34)111, 67-84. doi:l 0.1080/03056240701340365

Wallace, S.L. (1999). Minority Procurement: Beyond Affirmative Action to Economic Empowerment. *The Review of Black Political Economy*, (27)1, 73-98.

Ward, M., & Muller, C. (2010). The long-term share price reaction to Black Economic Empowerment announcements on the JSE. *Investment Analysts Journal*, 71, 27-36.