The impact of Broad Based Black Economic Empowerment on the financial performance of companies listed on the JSE.

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ABSTRACT

This research is aimed at finding empirical evidence to support the relationship between Broad-based Black Economic Empowerment (BBBEE) compliance and the financial performance of South African companies on the JSE. An independent measure of the BEE score was obtained from the Empowerdex Top Empowerment Companies (TEC) ranking from 2004 to 2009. 14 sectors on the JSE were selected to ensure inclusion of all major industries in South Africa. A total of 209 companies were selected, and the multivariate exploratory technique of Cluster Analysis was used. The predictor variable of the company's BEE status was then compared to a number of financial performance indicators such as annual share price, price-to-book value ratio and the price-to-earnings ratio (i.e. the outcome variables). By standardising the variables of the BEE score and using Compound Annual Growth Rate (CAGR), the k-means Clustering method yielded four interpretable clusters with 15, 64, 95 and 35 companies respectively.

The finding indicate that only in the case of the cluster of companies that increased it's BEE score, were all three profitability measures significantly different and, according to the means, in the direction of higher profitability. However, there were no significant differences in the results to support the proposition that low-BEE scores of companies had a negative impact on their profitability and their firm's value over time.

DECLARATION

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

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1. CHAPTER 1 – INTRODUCTION TO THE RESEARCH

1.1 Introduction

One of the first mandates of the African National Congress after the 1994 election was to redress the inequalities created by apartheid in the political, social and economic sphere (Department of Trade and Industry, 2003).

Racial segregation has been South Africa's primary and defining characteristic with non-whites being seriously disadvantaged. This was because of structures in place that limited their economic and social opportunities which resulted in a vast majority remaining in the informal sector (Andrews, 2008). The laws of apartheid prevented black people from entering the business market resulting in almost all South African firms owned by white investors and managed by white managers. In 1990 black people occupied 3% of the corporate management positions (Gray and Karp, 1993) and in 1995 they owned only 1% of the total market value of the Johannesburg Stock Exchange (Cargill, 1999).

Black Economic Empowerment, or narrow-based BEE, came into existence in 1994 with the first democratically elected government (Fauconnier and Mathur-Helm, 2008). The establishment of the Broad-Based Black Economic Empowerment (BBBEE) Commission in 1999 and subsequent strategies and policies to increase black ownership and to accelerate black representation in management (Booysen, 2007) followed this.

The latter policy, however, now also requires firms to change their capital and control structures, their management structures, their activities involving enterprise development and the way firms engage with society more broadly (Andrews, 2008). These requirements are reflected in the Codes of Good Practice and the generic BEE scorecard used for assessing a firm's status (shown in Table One).

Table 1: The generic BEE scorecard

Elements	Weighting	Code series reference
Ownership	20 points	100
Management Control	10 points	200
Employment Equity	15 points	300
Skills Development	15 points	400
Preferential procurement	20 points	500
Enterprise Development	15 points	600
Socio-Economic Development initiatives	5 points	700

Source: DTI (2007)

Whereas during narrow-based BEE firms placed more emphasis on BEE ownership and management structures, the aim of this study is to determine whether Broad Based Black Economic Empowerment (BBBEE) also impacted the financial performance of firms listed on the JSE beyond BEE ownership and management structures.

1.2 Motivation for research

Over the past decade, there has been two phases of empowerment. In the first phase (1994-2000), empowerment was characterised by ownership deals. This took place while legislation was enacted to address issues of employment equity, labour rights and skills development without an over-arching model or framework (Ponte, Roberts and van Sittert, 2007).

During the first phase, transfers of ownership were facilitated by the introduction of special- purpose vehicles (SPVs). In this funding structure, financial institutions provided funding to black entrepreneurs, and they in turn, offered preference equity capital in the companies acquired as collateral to secure the loan. (Chabane, Goldstein and Roberts, 2006).

These deals relied on the share values outweighing the finance cost, and if this condition were not met over a specific period, typically the shares were transferred to the financial institution. As a result, more than half of black ownership on the JSE in the second half of the 1990s was created via SPVs (Chabane *et al.*, 2006). As there was a low level of initial black capital, these deals were highly geared, and new black owners were left highly indebted as a result of financial volatility of the equity markets in 1997. The Asian stock market crash of 1998 further exposed the weakness in this approach causing the number of BEE transactions to fall sharply (DTI, 2003). During this time, the narrow based approach to BEE was also

accused of benefiting small black elite who were strongly politically connected without aiding the masses who were most in need (Kovacevic, 2007).

In the second phase of BEE (since 2000), specific empowerment charters (i.e. the Petroleum and Liquid Fuels (P&LF) Charter 2000 followed by the Mining Charter in 2002) were accompanied by the Broad-Based BEE Act No. 53 of 2003 and associated codes, and by procurement legislation (Ponte *et al.*, 2007).

Both the P&LF and Mining Charters were given regulatory weight in the Mineral and Petroleum Development Act. This Act re-established the state's ownership of mineral rights and in turn enabled the granting of 'new order' licences to achieve BEE goals. Companies wanting to win approval for their mining applications began to compete with one another in order to achieve and exceed their BEE targets (Ponte *et al.*, 2007).

The Charters set out specific targets, for example, within 5 years, 15% of each mine's value should be owned by black empowerment groups and 40% of management is to be black. In ten years, black ownership should be a minimum of 26% of local assets and the mining industry must help raise a R100 billion fund to facilitate this (Chabane *et al.*, 2006).

The Financial Services Charter (FSC) came into effect on 1 January 2004. Similar to the Mining Charter, the FSC sets out specific targets and guidelines aimed at

achieving transformation in terms of racial equality. Targets include 25% black ownership by 2010, at least 25% black representation at all levels of management by 2005, and 50% procurement spending on BEE companies by 2008 (Chabane *et al.*, 2006).

The most contentious part of BEE relates to the transfer of 25 per cent ownership of companies. In 2004 some 240 BEE transactions with a value of more than R62 billion were concluded (BusinessMap, 2005). This was significantly more than the R40 billion worth of transactions concluded in 2003.

Since direct control could not usually be purchased, complex structures were required. For example, these involved loans, which would be, refunded over time by the dividends of the underlying shares, share option schemes and new shares, usually issued at a huge discount (Ward and Muller, 2008).

1.3 The current business problem

The current business problem is that BEE has suffered major setbacks in the past two years due to the global financial crisis. According to the leading BEE rating agency, Empowerdex, about R41 billion worth of potential deals were lost as a result of unfavourable trading conditions (Radebe, 2009). As a result, the recovery of the BEE deal market is unlikely to reach values of the past few years. For example, R66.2 billion worth of deals were concluded in 2007 compared to R13.3

billion in 2008. There is a strong belief amongst BEE experts that the slow down in BEE deals will benefit other elements of the BBBEE Scorecard, such as enterprise development, procurement and skills development (Radebe, 2009).

Empowerdex chairman Vuyo Jack said that more rigorous application of "the other elements" of the empowerment scorecard can be used effectively to deliver economic transformation. He said this when commenting on Thebe Investment Corporation losing almost 75% of their net asset worth after buying 15% of motor vehicle retailer Combined Motor Holdings in 2006. He also said that reliance should not be placed solely on the 25% empowerment ownership for transformation, otherwise it was unlikely to happen especially in light of the current global financial crisis (Mantshantsha, 2008).

Black empowerment expert William Janisch said that there are hundred of examples in every element of the empowerment scorecard where it has created new value for shareholders in very real and measurable ways. Unfortunately, those stories rarely make the news (Jekwa, 2008).

This problem was selected because too much emphasis was placed on BEE ownership structures in the past, which due to the nature of the funding structures, is proving to be less resilient in light of the current global financial crisis. However, evidence from the recent Empowerdex Top Empowerment Companies (TEC) 2009 survey suggest, that because some companies will find it difficult to conclude BEE

deals, this will drive them into higher performance in other aspects of the BBBEE scorecard.

This will include the critical areas for example, employment equity, skills development, enterprise development and preferential procurement. Despite the dramatic decline in the BEE deal market last year, the Empowerdex TEC shows a general improvement of the total BEE scores with a significant increase of companies that have achieved level 4 statuses. This status draws 100% recognition in preferential procurement (Radebe, 2009). This study will determine whether this improvement in the BEE score impacts financial performance over time.

1.4 The scope of the study

The scope of the study will be limited to JSE listed companies across 14 sectors covering all major industries including the mining, financial and construction sectors from 2003 to 2008. In light of the global financial crisis in 2008, many listed companies experienced extreme volatility in their share prices and reported earnings. This will be regarded as an extraneous event as the researcher has no control over such external variables.

The relevance of this topic to business in SA is that as long as companies are rewarded for their improved BBBEE status in the form of new contracts, financial

performance, in terms of profitability and firm value will be maintained or improves over time. In addition, creative and resourceful companies with a good understanding of the Codes of Good Practice can maintain and even improve their BEE status (Wu, 2009).

1.5 Research aim and objective

The aim of the intended research is to determine whether the BBBEE score (out of 100%) impacts the financial performance for companies listed on the JSE over time.

The two related research questions are as follows:

- Do BEE scores impact the profitability of South African companies over time?
- Do BEE scores impact the firm's valuations of South African companies over time?

1.6 Purpose of the research

The study made two main contributions to the literature.

First, it added to the limited body of research concerning financial performance in relation to the BBBEE scorecard.

Second, it highlighted that BEE ownership makes up only one component of the BBBEE scorecard and the other elements of the scorecard i.e. management control, employment equity, skills development, preferential procurement, enterprise development and socio-economic development are just as important in determining the impact of the financial performance for a firm over time.

2. CHAPTER 2 – LITERATURE REVIEW

The review of the literature involved an analysis of what empowerment means from a global and South African perspective. Here insights from the Malaysian New Economic Policy (NEP) were drawn and compared to current SA legalisation. The next stage reviewed current literature and drivers for BEE within a South African context. Finally, current literature regarding the quantitative basis to measure the impact of BEE on the financial performance of companies listed on the JSE was undertaken.

2.1 The Malaysian experience and lessons learned

Sartorius and Botha (2008) said that Malaysia's implementation of its NEP in 1970 was perhaps a closer representation of the South African situation. NEP was aimed to eliminate poverty and promote greater economic equality between the Malays (*Bumiputra)* and non-Malays within a period of 20 years (BusinessMap, 2000; FW de Klerk Foundation, 2005).

Sartorius and Botha (2008) concluded that the positive effects of the NEP were remarkable (Malay's share of corporate ownership rose from 2.4 per cent in 1970 to 27.2 percent in 1998. Employment rose 30.8 per cent to 48 per cent in 1987 and poverty fell from 49.3 per cent in 1970 to 22.4 per cent in 1987 (FW de Klerk Foundation, 2005), however, the NEP differed from BEE in two ways. First, the NEP was a comprehensive programme led by the Malaysian government, whereas BEE was a set of initiatives separately developed by various branches of

government and the private sector (BusinessMap, 2000). Second, the Malaysian government realised that the NEP focus on re-distribution of wealth from non-Malays to Malays would be unsustainable in a slow-growth economy (BusinessMap, 2000).

Hock Guan (2003), Sriskandarajah (2005), Hanna (2006) all argued that although the NEP was successful, it was not broad based and therefore, only benefited an elite highly politically connected few at the expense of the masses. Therefore, although overall poverty declined, the wealth disparity amongst the Malays has increased. Ethic quotas favouring Malays over non-Malays for admission into tertiary institutions resulted in non-Malays choosing to study at overseas institutions. This resulted in a lower standard of local education and a subsequent skills shortage. The policy created a "self-entitlement mentality" amongst the beneficiaries that they did not have to try too hard in order to do well. Finally, limited access for non-Malays to win lucrative government contracts resulted in frequent fronting amongst Malays and non-Malays. These are all important lessons for the long-term impact of BEE in a South African context.

No literature was found regarding the impact of the NEP on the financial performance of companies listed on the Malaysian Stock Exchange further motivating the basis for this research.

2.2 BEE in South Africa

Masito (2007) drew interesting insights between the drivers for Afrikaner Economic Empowerment (AEE) and BEE. Both policies are similar in many respects and provide strong motivation for the existence of BEE in correcting the ills of the past.

Andrews (2008) argued whether BEE was a South African growth catalyst or not. He delved deeper into the economic structures that exist, the framework for BEE within that structure, the need for a broad-based approach to BEE; the link to the existing macro-economic polces (e.g. Asgisa) and finally the mechanism of the BEE scorecard in encouraging emerging entrepreneurs and financial growth.

Fauconnier and Mathur-Helm (2008) and Arya, Bassi and Phiyega (2008) both provided insights into how Exxaro Limited and ABSA Group Limited early on voluntarily developed and adopted into their business strategy the need for broad-based empowerment according to the Mining Charter and the FSC respectively.

Sartorius and Botha (2008), came to the conclusion after an intensive analysis of 62 companies listed on the JSE that;

- respondent companies transferred less than 25 percent equity to BEE partners;

- that a majority of firms appeared to support the social objectives of BEE;

- that external partners appeared to best promote shareholder wealth and

- that the primary source of funding for BEE equity transactions was third-party funding or the respondent companies themselves.

The theory stated that fewer than 25 percent of the top 185 empowerment companies transferred 25 per cent of equity, and it could, therefore be hypothesised that a second round of BEE ownership initiatives would have to be implemented in the future if companies wished to earn maximum points from the ownership weightings on the BEE Scorecard (Sartorius and Botha, 2008).

BEE legislation was promulgated into law in 2007 (DTI, 2007) and companies have ten years until 2017 in order to meet the requirements of the Broad Based Black Economic Act of 2003, including the transfer of 25 per cent of equity to black shareholders.

This policy extended beyond just ownership transfer and also required firms to change their capital and control structures, their management structures, their skills development initiatives, their procurement from suppliers regarding goods and services, their activities involving enterprise development and their social and community responsibility initiatives (Andrews, 2008). These requirements are reflected in the Codes of Good Practice and the generic BEE scorecard used for assessing a firm's status (shown in Table One).

The scorecard formed the basis of assessing a firm's BEE status when it required licences, concessions or authorisations (for example "new order" mining licences and concessions), bids to provide goods and services to government, wished to acquire state-owned enterprises or property, or tried to enter into public-private

partnerships (for example, the Gautrain project) (Andrews, 2008). It stood to reason that firms presently not engaged in these activities need to not comply with BEE requirements, thus making the policy more "carrot-based" than "stick-based". Examples of this would be firms in the retail, manufacturing and the property sectors.

There are no direct consequences in a legal sense if companies failed to comply; neither are there financial penalties or special taxes. However, because the scorecard was driven predominantly by the preferential procurement element from government, in a business sense, the BEE policy may have greater repercussions and influence (Andrews, 2008).

Based on the overall performance of a firm using the generic scorecard, it received one of the following BBBEE statuses (shown in Table Two).

Table 2: The level of contribution

B-BEE Status	Qualification	B-BBEE recognition level
Level One Contributor	≥100 points on the Generic Scorecard	135%
Level Two Contribution	≥85 but <100 points on the Generic Scorecard	125%
Level Three Contribution	≥75 but <85 on the Generic Scorecard	110%
Level Four Contribution	≥65 but <75 on the Generic Scorecard	100%
Level Five Contribution	≥55 but <65 on the Generic Scorecard	80%
Level Six Contribution	≥45 but <55 on the Generic	60%

	Scorecard	
Level Seven Contribution	≥40 but <45 on the Generic Scorecard	50%
Level Eight Contribution	≥30 but <40 on the Generic Scorecard	10%
Non-Compliant Contributor	<30 on the Generic Scorecard	0%

Source: DTI (2007)

It thus stood to reason, that provided the price and the quality between two suppliers were similar, the customer may choose to procure goods and services from the supplier with the higher level of contribution. This would have had the greatest impact in achieving their preferential procurement targets, especially if the customer was a supplier to government. This implied that companies could stand to gain or lose private sector business because of their BEE status, making BEE status a competitive tool and a new form of relational currency in the corporate sector (Andrew, 2008).

2.3 BEE and shareholder returns

In addressing the question as to whether BEE transactions created or destroyed wealth, Jackson, Alessandri and Black (2005) used event study methodology to calculate cumulative abnormal returns (CAR) associated with public announcements of BEE transactions. For determining whether specific types of BEE transactions did better or worse than others, they used the cross-sectional variation in the CAR associated with public announcements of BEE transactions.

Jackson *et al.* (2005) found that an equally-weighted portfolio of BEE firms outperformed the JSE market index by 30.76% over the year immediately after the BEE transaction announcement.

In addition, Jackson *et al.*, (2005) used univariate regression analysis on four independent variables to test whether certain transaction characteristics impacted the Cumulative Average Abnormal Return (CAR). These four variables are: STAKE, UNION, DISCOUNT and VALUE. STAKE was the percentage of equity in the BEE transaction acquired by the black shareholder representing the measure of corporate control. UNION was a dummy equal to one if the black empowerment group were union affiliated with the firm acquired. DISCOUNT was the percentage of the equity purchased in the BEE transactions and VALUE was the amount in millions of rands paid by the black empowerment shareholder for the equity acquired.

In their findings, Jackson *et al.* (2005) found that only the corporate control (STAKE) variable was significantly correlated with the BEE transaction CAR. Various research papers considered the short-term share price performance around the announcement date as the measure of the value created or destroyed by BEE transactions including Jackson *et al.* (2005).

Ward and Muller (2008) employed an event study methodology to exam the long-term impact on the share prices of 60 listed companies after BEE announcements regarding BEE ownership were made. The methodology applied was similar to

Mordant & Muller (2003) and Mutooni & Muller (2007) when I2 control portfolios of JSE company shares were created representing three cross sectional factors of:

- size, measured by a company's market capitalisation;

- a company was classified as either a growth or a value investment in terms of its price-to-book value ratio;

- And JSE sector groups distinguished in terms of resources or non-resources shares.

The research found that in the three days preceding the announcement, positive (although insignificant) returns are made; however these quickly dissipated. Over the next 240 days however, a positive cumulative abnormal return of around 15% was evident.

It was necessary to consider when conducting long-term studies the choice of benchmark against which abnormal returns are estimated. Previous studies used a market or single parameter CAPM as a benchmark which had been shown to be inadequate. This is because the CAPM failed to account for the expected returns on the basis of company size as well as growth versus value. (Fama and French, 1995, 1996 and 1998).

2.4 Motivation for the research design

Cahan and van Staden (2009) said that BEE performance and the disclosure of a Value Added Statement (VAS) were two strategic elements that South African companies used to establish their substantive legitimacy with labour. The study employed multivariate tests on the seven elements of the BEE scorecard as well as the total BEE score in determining the motivation for listed companies on the JSE to produce a VAS.

In addition, multivariate tests were undertaken between the BEE Score (BEESCORE) and five control variables; the number of analysts following the company at the end of the financial year (ANALYST), the demand of creditors (LEVGR), market value of equity to measure firm size (FIRMSIZE), the company's return on assets (ROA) and year-to-year growth in sales (SGROW). The results illustrate that the highest correlation is between BEESCORE and FIRMSIZE (Cahan and van Staden, 2009).

Van Rensburg (2001) identified a total of eleven style-effects, from a set of 23 candidate attributes of JSE industrial shares from 1983 to 1999. Using a "portfolio-based approach", these indicated grouping of anomalies that consisted of the presence of "value" (earnings yield, dividend yield, price to NAV, prior five year's earnings growth), "quality" (size, turnover, leverage, cashflow-to-debt) and "momentum" (past three, six and twelve month's return).

In a further studies, van Rensburg and Robertson (2003), took into consideration "resources" versus "non-resources" and identified six candidate factors (price-to-NAV, dividend yield, price-to-earnings, cash flow-to-price, price-to-profit and size) representing individually significant effects as filtered from a set of 24 fundamental and technical attributes. The multifactor results thereafter support a two-factor model with size and price-to-earnings as the explanatory variables. This also conforms to the characteristic factors of size and price-to-earnings as documented in van Rensburg (2001).

The closest related study of a scorecard and its impact on the financial performance of companies listed on the JSE are Abdo and Fisher (2007) when they designed and measured the impact of a governance disclosure scorecard. This scorecard, similar to a BBBEE scorecard, uses 7 categories of governance disclosure being; Board Effectiveness, Remuneration, Accounting & Auditing, Internal Audit, Risk Management, Sustainability and Ethics.

The results showed that there was a positive correlation between the average Governance Scores and the annual share price return with the highest positive correlation in the Sustainability category, particularly in the mining sector. BEE policies, initiatives and implementation, were one of the main reasons that attributed to this correlation over the measured period (Abdo and Fisher, 2007).

2.5 Conclusion

In developing a robust framework to build an effective argument as motivation for this study, the theory on linking Malaysia's NEP to the key drivers for BEE in SA provided a strong link for the continued existence for BEE policy and the lessons to be learnt from Malaysia (Sartorius and Botha, 2008; Hock Guan, 2003; Sriskandarajah, 2005; Hanna 2006).

The SA perspective illustrated that BEE is largely a business imperative with the government providing the conduit for implementation of economic policy and macro-economic growth (Masito, 2007; Andrews, 2008). This was clearly illustrated in the voluntary adaptation of a few industry sector Charters prior to the gazetting of BEE legislation (Fauconnier and Mathur-Helm, 2008; Arya et al., 2008).

The aim of the study was summed up by linking the literature on BEE policy development and implementation to the meaningful and sustainable growth of corporate profitability on JSE listed companies over time (Jackson et al., 2005 and Ward and Muller, 2008).

Cahan and van Staden (2009), van Rensburg and Robertson (2003) and Abdo and Fisher (2007), provided motivation on a research design that measured the impact of the total BEE Score against the financial performance of companies listed on the JSE.

There existed no evidence of literature linking BBBEE compliance to company performance. This was because most of the existing literature predominately concentrated on BEE ownership announcements and the subsequent long term impact on the share price, as opposed to the total BEE score.

3. CHAPTER 3 - RESEACH PROPOSITIONS

The scorecard formed the basis of assessing a firm's BEE status when it required licences, concessions or authorisations, bids to provide goods and services to the government or other private sector firms, wished to acquire state-owned enterprises or property, or tried to enter into public-private partnerships (Andrews, 2008).

Firm's that improved on the BEE score, in addition to be considered as socially responsible, also received favourable media attention such as the Empowerdex TEC.

This in turn allowed the firm to gain access to new markets or opportunities, especially in the public sector. These increased activities could have had a positive impact on the firm's future cash flows, financial performance and the company's share price (Jackson *et al*., 2005).

The following propositions were considered in this study:

- P_1 – High BEE scores of South African companies have a positive impact on their profitability and their firm's value over time.

- P_2 – Low BEE scores of South African companies have a negative impact on their profitability and their firm's value over time.

4. CHAPTER 4 – RESEARCH METHODOLOGY

4.1 The research method

This design was quantitative in nature because the study sought empirical evidence to support the notion that good BEE compliance would result in direct financial benefit to shareholders.

Both Jackson *et al.* (2005) and Ward and Muller (2008) used event study methodology to calculate cumulative abnormal returns (CAR) associated with public announcements of BEE transactions. Both these studies ignored the impact of the other 6 BEE categories on the BBBEE scorecard and were therefore, not appropriate for this study.

Cahan and van Staden (2009) used descriptive statistics and the industry breakdown for 186 South African companies to measure the impact of BEE performance and disclosure of a Value Added Statement (VAS) as two strategic elements to establish their substantive legitimacy with labour. Although the study employed multivariate tests on the seven elements of the BEE scorecard as well as the total BEE score in determining the motivation for listed companies on the JSE to produce a VAS, it was only based on the BEE ratings as at 2004 and therefore was not considered a time series study.

As no literature could be found linking BBBEE compliance to company performance, empirically, the Abdo and Fisher (2007) study which measured the

impact of corporate governance disclosure on financial performance, represented the closest resemblance to a factual scorecard scoring methodology template that could be likened to a BBBEE scorecard. Both the corporate governance disclosure and the BBBEE scorecards encompass seven categories of measurement criteria that roll up to a total percentage score. This provides for a comparable measure for companies listed on the JSE securities exchange. Another motivating link was that sustainability reporting, which forms an, important segment in the corporate governance scorecard, has since 2005, been largely driven by the implementation of BEE policies and initiatives, especially in the mining sectors (Abdo and Fisher, 2007).

The data used to create and analyse the portfolios were quantitative data obtained from secondary sources.

According to Zikmund (2003) quasi-experimental designs do not allow the researcher to have full control over all variables that can influence the study which was the case in this instance as there were a number of extraneous variables that the researcher will not be able to control when conducting the experiment. An example of an extraneous variable was the sub-prime financial crisis in 2008.

Zikmund (2003) states that a time series design be used when the experiment is conducted over long periods of time so that researchers can tell between temporary and permanent changes in the dependant variables. For the purpose of this study, the author was trying to evaluate the impact of BEE compliance to the financial performance of companies selected over the 6 years.

The empirical analysis for this study was calculated on an annual basis for the period 1 January 2003 to 31 December 2008. This frequency was selected because the first Empowerdex TEC Survey was released in 2004 based predominately on publicly available information from a company's annual financial report as at 31 December 2003 (Empowerdex, 2004).

4.2 The BBBEE scorecard

BEE compliance is difficult to measure because of its subjectivity and intangibility with several key issues, for example, compliance with BEE policies are not compulsory, legally enforceable, legally punishable, and South African companies can choose to respond in some, none, or all of the seven specified areas identified in Table 1 (Cahan and van Staden, 2009).

An independent rating of BEE performance compiled by Empowerdex, a leading economic empowerment rating agency in South Africa, from 2004 to 2009 was adopted for this study. Empowerdex is an independent economic empowerment rating agency founded by Vuyo Jack and Chia-Chao Wu. They became involved in the sphere of BEE research with the release of South Africa's first empowerment-based survey in 2004. Empowerdex is funded through subscriptions and claims to have no political agenda other than to reveal progress towards BBBEE in South Africa (Cahan and van Staden, 2009).

Their methodology is available on their website. It includes among others, using information available publicly, in addition to information supplied by companies on request, to establish standards and benchmarks (Empowerdex, 2004). Empowerdex then uses the information to calculate a total BEE score (out of 100%) based on the seven subcategories. The companies are then ranked according to their BEE score.

The subcategories indicate progress in advancing the interest of black (African, Coloured and Indian) people in the following areas: ownership, management control, employment equity, skills development, preferential procurement, enterprise development and socio-economic development. A total percentage score was then attained for each of the seven subcategories, by taking the companies score and dividing it by the maximum score attainable for that subcategory.

Table 3 provides an example of one category in the scorecard. Management Control, which has 2 disclosure factors and 5 sub-categories, has a maximum score of 10 points with 1 bonus point for meeting the target of 40% Black Independent Non-Executive Board Members. Therefore the score for this company of 7 points will contribute into a 7% score towards the final BEE score.

Table 3: BEE Scorecard extract – category 2, Management Control

Element	Category	Indicator	Weighting Points	Compliance Target	Actual Compliance Score of Firm	Actual Score of Firm
Management Control Code 200 **Total Points = 10**	Board Participation	Exercisable Voting Rights of black board members	3	50%	**100%**	3
		Black Executive Directors	2	50%	**25%**	1
	Top Management Bonus Point	Black Senior Top Management	3	40%	**100%**	3
		Black Other Top Management	2	40%	**0%**	0
		Black Independent Non-Executive Board Members	1	40%	**0%**	0
Total Points Scored						**7 out of 10 = 7% towards the final BEE score**

Table 3 shows an extract from the BEE Scorecard template. The Management Control element is assessed through 2 independent disclosure factors with five sub-categories; each scored according to firm's level of actual compliance. Achieving a level of compliance higher than the target can only score the maximum score in that sub-category and a lower compliance score is pro-rated. In the example above, the company scored 7 out of 10 for this category – a score of 7% towards the final BEE score.

Only information disclosed to the public was considered.

By applying this factual and widely accepted scoring methodology template to companies in South Africa, objective and quantifiable data was obtained. The resultant research provides for a comparable measure of BEE compliance for companies listed on the JSE in percentage format.

In addition, BEE ratings are not easily exaggerated or falsified and the ratings are determined by an independent rating organisation based on publicly available information. Therefore, to get a high rating, the company must be taking real actions as companies cannot "manage" the ratings figure in the way that they can "manage" their earnings. These are not purely cosmetic or symbolic measures but rather a business imperative to which everyone is in harmony with and totally committed. (Jack, 2007 and Cahan and van Staden, 2009).

4.3 Measuring financial performance

The first financial performance measure used was annual average share price returns. Using the closing share prices obtained from McGregor BFA for the period 31 December 2003 to 31 December 2008, the actual closing share price for the 6 year period was derived for each of the sample companies selected (Abdo and Fisher, 2007). This was then translated into the Compound Annual Growth Rate (CAGR) for the period under review.

The second financial performance measure related to firm value. Using the methodology applied by Abdo and Fisher (2007), however, applying CAGR over the measured period, the market-to-book value (MTBV), also known as the price-to-book ratio (P:B), was used as an indicator of firm value. The P:B ratio was calculated by taking the market capitalisation of the company and dividing it by the book value of equity (i.e. total assets minus total liabilities) according to the balance sheet. A value of less than 1 may imply that the firm has not been successful in creating value for the shareholders. However a P:B value greater than 1 may imply significant creation of value (Firer, Ross, Westerfield and Jordan, 2004).

The third measure considered was the price/earnings (P:E) ratio once again, using CAGR over the measured period. The P:E ratio is the share price divided by

earnings per share (EPS). P:E ratio measures the amount investors are prepared to pay per rand of current earnings, therefore, higher P:Es generally imply that the firm demonstrates excellent prospects for future growth. There is a general consensus that firms with high growth rates and lower perceived risk levels trade at high P:E ratios and conversely, firms with low growth rates and higher perceived risk levels, trade at low P:E ratios. (Abdo and Fisher, 2007).

4.4 Population, sample and unit of analysis

4.4.1 Population

The population for this study comprised all shares listed on the JSE. The population excludes the shares that were listed on the AltX because the Empowerdex TEC only included the ratings of shares of companies listed on the main board of the JSE. It will be interesting to include the ratings of companies of the AltX when the market has matured.

4.4.2 Sample selection

As mentioned earlier, the scope of the study will be limited to JSE listed companies across 14 sectors covering all major industries including the mining, financial and construction sectors over the period 1 January 2003 to 31 December 2008. It was important to consider that both the mining and financial sectors voluntarily developed industry specific Charters in light of the pending BEE legislature in 2003

(Chabane *et al.,2006 and* Ponte *et al.*, 2007). Therefore, the release of BEE ratings in 2004 to 2009 would reflect the progress of first movers and early adopters.

In the 6 year period under review, it was expected that a company's BEE performance would reflect the company's long-term efforts in the BEE area as companies reviewed and implemented the BEE policies and guidelines from government.

In order to provide for a cross-section of companies on the JSE and to mitigate selection bias, 14 sectors covering the following major industries on the JSE were selected. All companies within each of the 14 sectors were chosen for analysis. This methodology allows for an exploration of the relationship between BEE scores and share returns or firm value within each of these categories similar to Abdo and Fisher (2007).

Porter (1998) argues that the industry dynamics and the clusters in which they operate, directly affect the competitiveness and profitability of companies. Therefore, by assessing the impact of BEE scores within the 14 industry sectors, there was to some extent, an elimination of the effect of industry competitiveness or dynamics from the analysis (Abdo and Fisher, 2007).

Companies within each of the sectors were eliminated from the sample if they did not feature on at least two consecutive TEC rankings and if they had been de-listed during the measured period. The remaining 209 companies from the 14 sectors

formed the sample and were scored for BEE compliance using the BEE scorecard for the period 2003 to 2008.

4.4.3 Unit of analysis

The unit of analysis was listed companies on the JSE with a BEE score of at least 1 out of 100.

4.4.4 Sampling method

As per Zikmund (2003, p. 389) the sampling method proposed for this study was cluster sampling which is "an economically efficient sampling technique in which the primary sampling unit is not the individual element in the population but a larger cluster of elements. Cluster sampling is classified as a probability sampling technique either because of the random selection of clusters or because of the random selection of elements within each cluster". Therefore every company in the population had an equal and known non-zero probability of being selected which complied with the probability sampling definition. Stratified random sampling was used because the sample portfolios were constructed based on the level of BEE compliance disclosed by each company.

Zikmund (2003, p. 389) further states that "a cluster should be as heterogeneous as the population itself (a mirror image of the population) therefore a problem may arise with cluster sampling if the characteristics and attitudes of the elements within the cluster are too similar. To an extent this problem can be mitigated by

constructing clusters that are composed of diverse elements and by selecting a large number of sampled clusters". Four clusters relating to the BEE score was selected for the purposes of this study.

4.5 Data collection, portfolio analysis and data management

4.5.1 Data collection

The data used for this study were obtained from secondary sources and was not considered primary data because the data were not gathered for the purpose of this study as per Zikmund (2003).

The financial ratios (earnings-to-price and price-to-book), based on audited full year financial data, and closing share price data were obtained from the McGregor Bureau of Financial Analysis (McGregor BFA). In addition, the standardised financial statements function was used when collecting the data so that the financial ratios and growth variables for each company was calculated in the same way.

4.5.2 Portfolio analysis

For the purposes of this study, the multivariate technique of Cluster Analysis was chosen. This was because the sample size represented a highly internally homogenous group where the members are similar to one another (listed

companies on the JSE), yet highly externally heterogenous (differing widely in terms of sectors, BEE score and financial profitability) (Zikmund, 2003).

The most commonly used non-hierarchical clustering approach is the *k*-means algorithm. It was chosen for this study because it is widely available in software packages and easy to use. However, some of the limitations associated with this commonly used clustering method are the lack of a clearly defined criterion which often results in suboptimal partitions and the difficulty in defining the boundaries of the partitions (Li, 2006). This was mitigated somewhat in this study by clearly defining the criterion, especially in the selection of the sample, by constructing clusters that are composed of diverse elements and by selecting a large number (four as opposed to the norm of two for the *k*-means algorithm method) of sampled clusters.

For this study, the predictor variable of the company's BEE status was operationalised by the Total BEE scorecard scores, and the components thereof, measured over the 2004-2009 period. The outcome variable of company profitability was operationalised by the three variables of Closing Share Prices, Price-to-Book (P:B) and Price-to-Earnings (P:E), all measured over the 2004-2009 period. Thus the Compound Annual Growth Rate (CAGR) for the Total BEE scorecard rating (TOTAL CAGR) was calculated for each company.

The CAGR is the year-over-year growth rate of an investment over a measured period of time. This can be written as follows (Eakins, 1998):

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$$CAGR = \left(\frac{\text{Ending Value}}{\text{Beginning Value}}\right)^{\left(\frac{1}{\text{\# of years}}\right)} - 1$$

The companies in each cluster were then ranked according to its industry sectors. This was to determine if the companys' BEE scores in particular industry sectors had an impact on its profitability and its firm's value over time.

4.5.3 Data management

During the construction of the clusters and the sample selection process, various data integrity problems arose:

- Companies with missing data were excluded from the clusters and sample;

- Companies not ranked as per the Empowerdex TEC Survey were excluded from the sample;

- Companies within each of the sectors were eliminated from the sample if they did not feature for at least two consecutive Empowerdex TEC rankings over the measured period in order to calculate the CAGR;

- Companies were excluded from the data if they had been de-listed during the measured period.

4.6 Data validity, reliability and sensitivity

The independent rating of the BEE performance from 2004 to 2009 was obtained from Empowerdex, a leading economic empowerment rating agency in South Africa. Empowerdex published in the Financial Mail on an annual basis the Empowerdex TEC which ranks the top 200 most empowered companies on the JSE since 2005. In 2004 however, only 185 companies qualified to be ranked. This is a highly respected and widely read publication both in the private sector and government circles and can therefore be considered to be valid and reliable for the purposes of this study.

As noted above, the financial ratios (earnings-to-price and price-to-book), based on audited full year financial data, and closing share price data were obtained from the McGregor Bureau of Financial Analysis (McGregor BFA). In addition, the standardised financial statements function was used when collecting the data so that the financial ratios and growth variables for each company was calculated in the same way.

The data from Empowerdex and McGregor BFA were consolidated into Excel where after the sample according to the selection criterion was selected and used to conduct the analysis for this study.

Although the researcher undertook every effort to ensure the validity, reliability and sensitivity of the data, there were numerous outliers as evidenced and discussed in Chapter 5.

4.7 Limitations

The limitations of this study are detailed in the sub sections below.

4.7.1 Time

The first limitation was the short time period reviewed for this study which was 1 January 2003 to 31 December 2008. A 6 year time analysis may be considered short for this type of study, and once more data are available in the future, further work can be carried out.

4.7.2 Selection biases

This research was limited to a cross section of companies and industry sectors on the JSE and although this bias was mitigated to some extent by the selection of 209 companies across 14 sectors, not all sectors could demonstrate a sufficient number of companies to warrant a significant sample.

This was because more companies in some sectors were able to demonstrate high-BEE progress compared to companies in other sectors over time. Examples

of such sectors were the financial and the resources sectors because these sectors voluntarily developed industry-specific Charters in light of the pending BEE legislature in 2003 (Chabane et al.,2006 and Ponte et al., 2007).

It would therefore stand to reason that the release of BEE ratings in 2004 to 2009 would reflect the progress of first movers and early adopters and hence these companies appearing often on the Empowerdex TEC. This bias should be mitigated over time as more companies across the different sectors begin to adopt and implement BEE progress into their strategy.

4.7.3 Survivorship biases

This research excluded from the data companies that were de-listed during the measurement period. Gilbert and Strugnell (2008) found that the effects of survivorship bias were present and material in their study although it did not necessarily affect the final results of the mean reversion when compared to earlier studies. It will be interesting in future studies to run the data without survivorship bias, however that will entail conducting the study in the unlisted private sector which may bring other challenges, for example, unlisted companies may not be willing to disclose their level of BEE compliance nor their financial performance over time.

4.7.4 The issue of endogeneity

It was difficult to eliminate this from the study and there were therefore limitations on the conclusions drawn on the casual relationship between BEE compliance and financial performance.

4.7.5 The level of BEE compliance reported by companies

As mentioned in 4.2 above, South African companies can choose to respond in some, none, or all of the seven categories in BBBEE scorecard identified in Table 1 (Cahan and van Staden, 2009). Therefore, the level of BEE compliance reported by companies in their annual report or on their website may not reflect the level of BEE compliance achieved by that company.

4.7.6 Financial indicators

The measurement of financial performance used in this study has a broad limitation as a multitude of other indicators could be used as in other studies as identified in van Rensburg and Robertson (2003).

4.7.7 Sample size

BEE ratings are a measure of relative, not absolute, BEE progress. Therefore, companies with a higher rating are doing better when compared to other South African companies. It does not suggest that companies are perfect or the ideal employer. Further, given South Africa's apartheid past where black people were discriminated against, it is expected that most companies would be starting from a low base with regards to their BEE practices and policies. Therefore, on average, it is expected that South African companies would rate lowly in the initial BEE ratings thus impacting on the sample size as reflected in the Empowerdex TEC survey since 2004 (Cahan and van Staden, 2009).

5. CHAPTER 5 – RESULTS

The unit of analysis was listed companies on the JSE with a BEE score of at least 1 out of 100.

The primary research questions of the study were whether companies' BEE scores had an impact on their profitability and their firm's value over time. In order to answer these questions, the predictor variable of the company's BEE status was operationalised by the Total BEE scorecard scores, and the components thereof, measured over the 2004-2009 period. The outcome variable of company profitability was operationalised by the three variables of Closing Share Prices, Price-to-Book (P:B) and Price-to-Earnings (P:E), all measured over the 2004-2009 period.

There were 209 companies considered in the analysis. The proportional representation of the sectors of these companies is presented in **Table 4**, and the corresponding graphical representation is presented in **Figure 1**.

Table 4: Representation of the sectors of the 209 companies considered:

Frequencies and percentage breakdown (n=209)

	Sector frequency	Sector %
Basic Industrials	23	11%
Financial Services	36	17%
Food & Beverage	13	6%
General Industrials	18	9%
Health Care	6	3%
Hotels & Leisure	9	4%
ICT	18	9%
Manufacturing	3	1%
Media	5	2%
Property	10	5%
Resources	35	17%
Retail	16	8%
Services	11	5%
Transport	6	3%
Total	**209**	**100%**
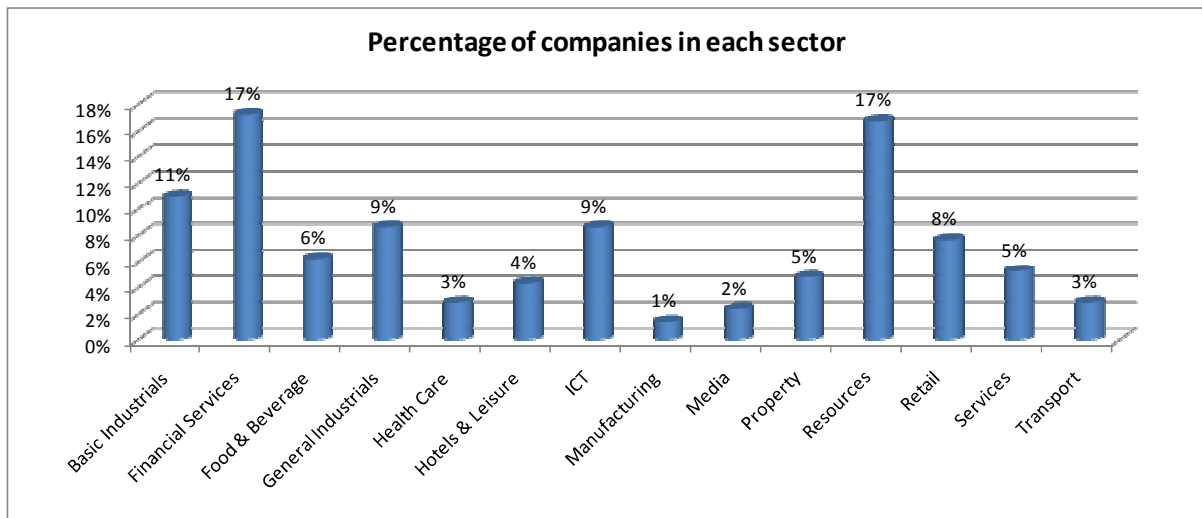
Figure 1: Percentage representation of sectors of the companies in the study (n=209)

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Descriptive statistics of the predictor and outcome variables

The descriptive statistics of the predictor and outcome variables are presented in **Table 5**. The high skewness and lack of normality are apparent for the distributions of the variables Total CAGR, Closing Price_1, P:B_1, Closing Price_2 and P:E_2. The asymmetry of the distributions is reflected graphically in **APPENDIX A.**

Table 5: Descriptive statistics of the predictor and outcome variables

	N	Mean	Median	Minimum	Maximum	Lower	Upper	Std.Dev.	Skewness
TOTAL _1	209	19.68	14.92	0.01	74.07	7.20	27.30	16.42	1.23
TOTAL _2	209	33.76	31.87	0.00	88.71	8.50	56.06	25.93	0.24
TOTAL CAGR	209	50.86	0.13	-1.00	6534.99	-0.07	0.33	530.40	10.94
Closing Price_1	209	2983.13	940.00	0.01	58000.00	290.00	2800.00	6597.86	5.45
P:B_1	209	2.34	1.65	-181.35	120.60	0.87	3.08	21.41	-3.78
P:E_1	209	7.26	8.29	-287.33	321.75	4.98	11.24	35.05	0.39
Closing Price_2	209	3563.67	1320.00	0.00	51760.00	280.00	4199.00	6381.78	4.55
P:B_2	209	3.10	2.11	-268.66	273.10	1.09	4.09	41.04	0.50
P:E_2	209	26.78	9.12	-935.00	4491.07	6.16	13.38	318.58	13.22

In spite of the clear asymmetry and lack of normality of several of the distributions of profitability measures, it was decided to proceed with parametric analyses of these variables as the Central Limit Theorem states that the sampling distributions of statistics may be considered to be normally distributed as long as the sample size used is large (greater than 30) (Zikmund, 2003). The decision was made

however, to check the results of these parametric analyses via non parametric analyses as well.

5.1 Testing of the propositions

In order to test the propositions of the study, that:

- P_1 – High BEE scores of South African companies have a positive impact on their profitability and their firm's value over time.

- P_2 – Low BEE scores of South African companies have a negative impact on their profitability and their firm's value over time.

The 2009 or latest available rating per company was correlated with the corresponding company's closing share price as at 31 December 2008, its P:B and its P:A respectively. These correlations and their significance levels are presented in the scatter plots of the relations in **Figure 2**. The correlations are also summarised in **Table 6**.

Scatterplot of Closing Price_2 against TOTAL _2
Closing Price_2 = 3175.6769+11.4913*x

TOTAL _2:Closing Price_2:   r = 0.0467, p = 0.5021

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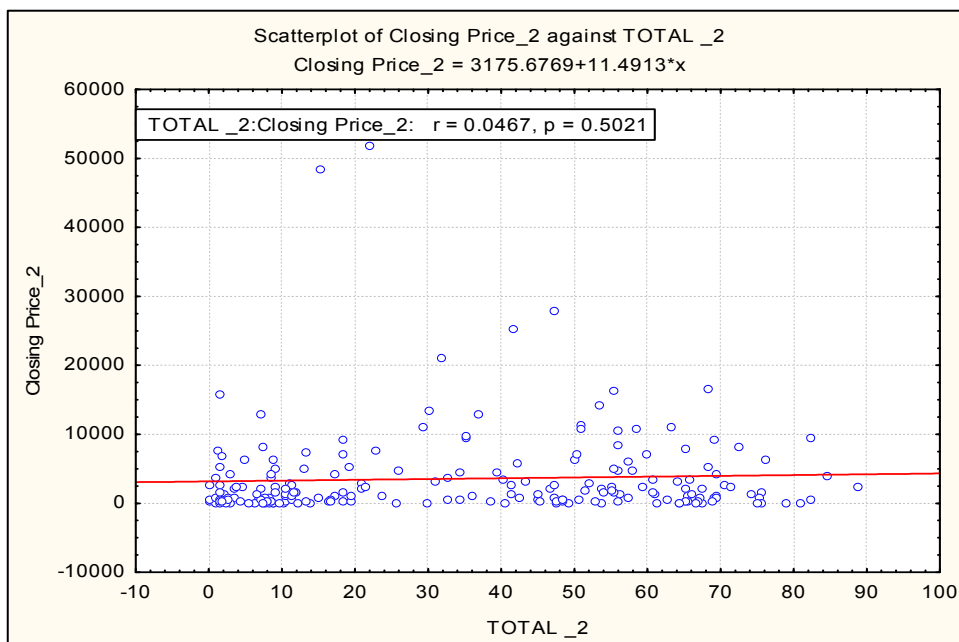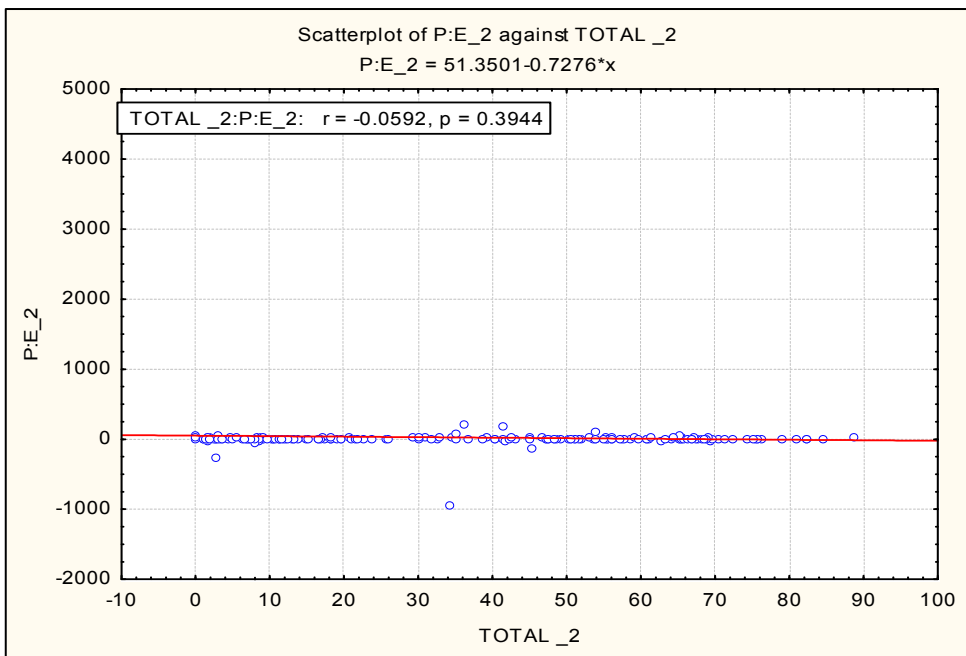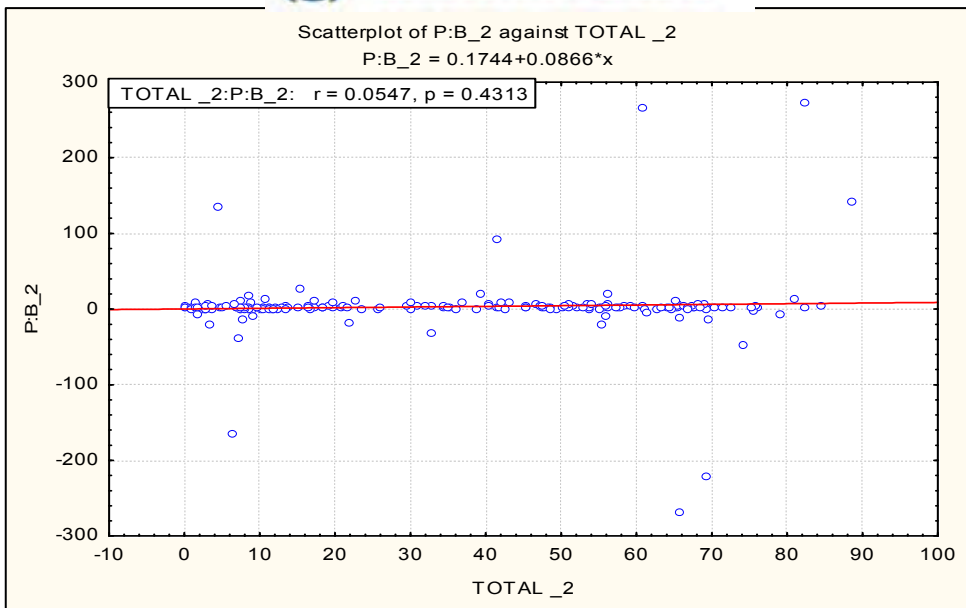
Figure 2: Scatterplots of the relations between latest company BEE scorecard ratings and three measures of profitability (n=209)

Table 6: Pearson product moment correlation coefficients of company BEE ratings vs three measures of profitability (n=209)

	2008 Closing Share Price	2008 P:B	2008 P:E
2009 Total BEE scorecard rating	r = 0.0467 (p>0.05)	r = 0.0547 (p>0.05)	r = -0.0592 (p>0.05)

Based on both the scatter plots and the non significant Pearson correlations, it is evident that there was no significant linear relation between company BEE ratings and any of the three measures of profitability.

In light of this finding, it was decided to take into account the earlier (2004) BEE scorecard rating (TOTAL_1) and the change in the rating over the 2004 – 2009 rating, in addition to the latest BEE scorecard rating (TOTAL_2), in predicting company profitability. Thus the Compound Annual Growth Rate (CAGR) for the Total BEE scorecard rating (TOTAL CAGR) was calculated for each company.

The descriptive statistics for this variable is presented in **Table 4**. Moreover, the multivariate exploratory technique of Cluster Analysis that according to Zikmund (2003) is an analysis that classifies individual or objects into a small number of mutually exclusive groups, ensuring that there are much likeness within groups and as much difference among groups as possible, was used to cluster companies with similar starting, ending and CAGR BEE scorecard ratings.

The k-means Clustering algorithm was computed using Statsoft's Statistica 9 Software. In this way, clusters of companies similar in terms of their starting, ending and CAGR BEE scorecard ratings formed clusters, such that the within cluster BEE variability was less than the variability of BEE scores between clusters.

As the scales of the starting, ending and CAGR BEE scorecard rating variables were very different from each other, the variables were standardised in order to assign equal importance or weight to each of the three clustering variables. Standardising a variable yields a unit free measure by subtracting the mean and dividing by the standard deviation of the distribution for each score. Positive values are greater than the mean of the company values, and negative values are greater than the mean of the company values.

The K-means Clustering method yielded four interpretable clusters, with 15, 64, 95 and 35 companies respectively. The means of the standardized variables are presented in **Table 7** for the four clusters. The means of each clustering variable is colour-coded according to the green, orange and red colours across the clusters in order to compare the means across the clusters. The robot-style colour coding was employed to indicate relatively high values in green, medium values in orange and low values in red. Accordingly, the clusters are named to reflect their relative means on standardised initial, final and CAGR BEE scorecard ratings.

Table 7: Standardised means per cluster of initial, final and CAGR BEE scorecard ratings

4 cluster solution	Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE
n	15	64	95	35
St_TOTAL _1	1.156	-0.228	-0.634	1.644
St_TOTAL _2	-0.685	0.882	-0.890	1.096
St_TOTAL CAGR	-0.096	0.217	-0.096	-0.096

5.2 Sector analysis of the clusters

The clusters were further analysed to reflect the sectors of the company cluster members (**Table 8**)

Table 8: Frequencies of sectors of companies within each cluster

SECTOR	Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE	Row total
Basic Industrials	1	9	11	2	23
Financial Services	1	15	13	7	36
Food & Beverage	0	3	7	3	13
General Industrials	3	3	11	1	18
Health Care	1	2	1	2	6
Hotels & Leisure	0	2	3	4	9
ICT	1	4	6	7	18
Manufacturing	0	2	1	0	3
Media	0	3	2	0	5
Property	1	2	7	0	10
Resources	6	6	19	4	35
Retail	0	6	9	1	16
Services	0	3	4	4	11
Transport	1	4	1	0	6
Total	**15**	**64**	**95**	**35**	**209**

The sectors were consolidated as shown in **Table 9**, so that the distribution of sectors within each cluster could be compared statistically via the chi square test statistic.

Table 9: Frequencies of consolidated sectors of companies within each cluster

SECTOR	Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE	Row total
Basic Industrials	1	9	11	2	23
Financial Services	1	15	13	7	36
General Industrials	3	3	11	1	18
ICT	1	4	6	7	18
Resources	6	6	19	4	35

The resultant Chi square test statistic showed a significant difference between the sector distribution of the four clusters ($\chi2 = 23.1041$; df=12; $p<0.05$).

In order to interpret the sector distributions within each cluster sector percentages are presented of companies within each cluster in **Table 10**. Furthermore, the cluster percentages are presented within each sector in **Table 11**. Once again, the robot-style colour coding is employed to indicate relatively high values in green, medium values in orange and low values in red.

Table 10: Percentages of sectors within each cluster

Within CLUSTER %	Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE	Row total
Basic Industrials	8%	24%	18%	10%	18%
Financial Services	8%	41%	22%	33%	28%
General Industrials	25%	8%	18%	5%	14%
ICT	8%	11%	10%	33%	14%
Resources	50%	16%	32%	19%	27%

Table 11: Percentages of the four clusters within each sector

Within SECTOR %	Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE	Row total
Basic Industrials	4%	39%	48%	9%	100%
Financial Services	3%	42%	36%	19%	100%
General Industrials	17%	17%	61%	6%	100%
ICT	6%	22%	33%	39%	100%
Resources	17%	17%	54%	11%	100%

According to **Table 7**, the clusters maybe described as follows; the two positive clusters are the "**cluster slightly low to High BEE**" and the "**cluster high stayed almost high BEE**" each showing a high improvement and no decline but a slight improvement in the BEE score respectively.

The two negative clusters are the "**cluster high to low BEE**" and the "**cluster low to very low BEE**" each showing a rapid decline and no improvement but a slight decline in the BEE score respectively.

The sector analysis was grouped using the same methodology as in **Table 7** with the results reflected in **Tables 8, 9, 10** and **11** respectively.

The cluster members are presented in **Appendix B**.

5.3 Comparing the clusters on the profitability outcome variables

The means of the initial (2004), latest (2009) and CAGR measures of profitability are presented in **Table 12** for the clusters. The corresponding standard deviations are presented in **Appendix C**.

The cluster means are then compared via 1-way Analysis of Variance on the final profitability measures to ascertain whether companies clustered according to earlier and recent BEE status and the change in BEE status have different profitability outcomes (**Table 13**). For completeness, both the initial and recent measures of Closing share price, P:B and P:E are compared in the table.

Table 12: Means of initial (2004), latest (2009) and CAGR measures of profitability per cluster

	Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE	Row total	All Groups
	Means					
Closing Price_1	3022.13	3090.38	3131.40	2367.86	2983.13	6597.86
P:B_1	2.58	4.58	2.11	-1.25	2.34	21.41
P:E_1	11.13	6.71	4.43	14.26	7.26	35.05
Closing Price_2	3296.53	3543.63	3517.73	3839.54	3563.67	6381.78
P:B_2	2.50	7.41	1.28	0.41	3.10	41.04
P:E_2	-48.83	12.20	53.16	14.26	26.78	318.58
Closing Price CAGR	0.53	3045.34	0.06	0.00	932.61	13481.44
P:B CAGR CAGR	0.03	18.40	2.79	30.52	12.02	80.21
P:E CAGR CAGR	-3.65	48.40	14.61	131.27	43.18	277.19

Table 13: 1-way ANOVA comparing profitability outcome variables of the four clusters of companies

	SS clusters	df	MS clusters	SS error	df	MS error	F	p
Closing Price_1	16096999	3	5365666	9038497108	205	44090230	0.1217	0.9472
P:B_1	778	3	259	94532	205	461	0.5626	0.6403
P:E_1	2724	3	908	252780	205	1233	0.7362	0.5315
Closing Price_2	3960378	3	1320126	8467276398	205	41303787	0.0320	0.9923
P:B_2	1762	3	587	348642	205	1701	0.3453	0.7926
P:E_2	170956	3	56985	20940116	205	102147	0.5579	0.6434
Closing Price CAGR	411761392	3	137253797	37392079477	205	182400388	0.7525	0.5221
P:B CAGR CAGR	24845	3	8282	1313340	205	6407	1.2927	0.2780
P:E CAGR CAGR	383753	3	127918	15597679	205	76086	1.6812	0.1722

The results of the ANOVA show no significant differences between the clusters on any of the initial, most recent, and changes in the three profitability measures ($p>0.05$). However, in view of the clear asymmetry and lack of normality previously shown in the distributions of several of the profitability outcome variables, the Kruskal-Wallis nonparametric equivalent of the parametric 1-way ANOVA test was computed on the ranks of the variables (**Table 14**). Once again, there were no significant differences between the clusters on any of the initial, most recent, and changes in the three profitability measures ($p>0.05$).

Table 14: Kruskal-Wallis non parametric comparisons of the profitability outcome variables of the four clusters of companies

	Kruskal-Wallis H test statistic	p
Closing Price_1	1.996	0.5732
P:B_1	2.466	0.4815
P:E_1	2.771	0.4282
Closing Price_2	2.301	0.5123
P:B_2	2.92	0.4041
P:E_2	4.151	0.2456
Closing Price CAGR	0.399	0.9404
P:B CAGR CAGR	2.001	0.5723
P:E CAGR CAGR	1.294	0.7305

5.4 Comparing the profitability outcome variables within the clusters

Although there were no significant differences between the clusters on the profitability measures, it was possible that the profitability measures may have changed (i.e., from initial to most recent Closing share price, P:B and P:E) for some or all of the clusters. Thus a series of two related-group comparisons were computed using related groups t tests (**Table 15**) and the Wilcoxon non parametric equivalent for each cluster (**Table 16**). According to the parametric t test results, there was only one significant difference: Closing Price 1 vs 2 for the "Cluster high stayed almost high BEE" where the closing price increased.

However, only in the case of the cluster of companies that increased its BEE score, "Cluster slightly low to high BEE", were all three profitability measures significantly different and, according to the means, in the direction of higher profitability.

Table 15: T test comparisons of changes in profitability measures within the clusters of companies

	Cluster high to low BEE						
	Mean 2004	Mean 2009	N	Diff.	t	df	p
P:B 1 vs 2	2.580	2.505	15	0.075	0.103	14	0.9194
P:E 1 vs 2	11.134	-48.826	15	59.960	0.936	14	0.3650
Closing Price 1 vs 2	3022.134	3296.533	15	-274.399	-0.521	14	0.6106
	Cluster slightly low to high BEE						
P:B 1 vs 2	4.577	7.409	64	-2.832	-0.940	63	0.3507
P:E 1 vs 2	6.710	12.201	64	-5.490	-1.145	63	0.2564
Closing Price 1 vs 2	3090.375	3543.625	64	-453.250	-0.624	63	0.5352
	Cluster low to very low BEE						
P:B 1 vs 2	2.115	1.282	95	0.833	0.258	94	0.7972
P:E 1 vs 2	4.428	53.162	95	-48.735	-1.027	94	0.3071
Closing Price 1 vs 2	3131.400	3517.726	95	-386.326	-0.538	94	0.5917
	Cluster high stayed almost high BEE						
P:B 1 vs 2	-1.255	0.406	35	-1.661	-0.100	34	0.9206
P:E 1 vs 2	14.264	14.260	35	0.004	0.000	34	0.9997
Closing Price 1 vs 2	2367.858	3839.543	35	-1471.685	-3.365	34	0.0019

Table 16: Wilcoxon non parametric comparisons of changes in profitability measures within the clusters of companies

	Cluster high to low BEE			Cluster slightly low to high BEE			Cluster low to very low BEE			Cluster high stayed almost high BEE		
	T	Z	p-value	T	Z	p-value	T	Z	p-value	T	Z	p-value
P:B 1 vs 2	52.0	0.4544	0.6496	710.0000	2.2069	0.0273	2118.0	0.6013	0.5476	214.0	1.6543	0.0981
P:E 1 vs 2	59.0	0.0568	0.9547	731.0000	2.0664	0.0388	1832.0	1.6629	0.0963	195.0	1.9655	0.0494
Closing Price 1 vs 2	58.0	0.1136	0.9096	635.0000	2.5536	0.0107	1423.5	3.0507	0.0023	122.0	3.1612	0.0016

6. Chapter 6 – Discussion of Results

6.1 The research questions

Although there are very little empirical studies and literature linking BEE compliance to company performance, the general assumption is that as long as companies are rewarded for their improved BBBEE status in the form of new contracts, the financial performance, in terms of profitability and firm value will be maintained or improves over time (Wu, 2009).

Andrew (2008) also argued that companies could acquire or lose public and private sector business because of their BEE status thus making BEE status a competitive business tool and a new form of relational currency in the corporate sector.

This cumulated in the primary research questions of the study, which were whether companies' BEE scores had an impact on their profitability and their firm's value over time.

Table 4 reflected the representation of the 209 companies across the 14 sectors. It is interesting to note in **Figure 1** that the three sectors representing the greatest sector percentages were Basic Industrials (made up mainly of construction shares) 11%, Resources (made up mainly of mining shares) 17% and Financial Services 11%.

Both the resources and the financial sectors chose to voluntarily develop industry-specific Charters in light of pending BEE legislation in 2003 (Chabane et al., 2006

and Ponte *et al*., 2007). The basic industrials sector closely followed with the Construction Charter in 2006, once it became evident that South Africa needed to upgrade the infrastructure and build new stadiums in response to winning the 2010 World Cup bid (DTI, 2007).

It can therefore be concluded that the results in Table 4 and Table 1 clearly reflected the progress of first movers and early adopters.

The descriptive statistics of the predictor and the outcome variables is presented in **Table 5.** The high skewness and lack of normality apparent for the distributions of the variables Total CAGR, Closing Price_1, P:B_1, Closing Price_2 and P:E_2 is presented in **Appendix A**.

Due to the clear asymmetry and lack of normality of several of the distributions of profitability measures, it was decided to check the results using both parametric and non parametric analyses.

The high skewness is probably attributable to the sample selection, as it was expected that most companies would be starting from a low base with regards to their BEE practices and policies.

Therefore, on average, it was expected that South African companies would rate lowly in the initial BEE ratings in 2004 but highly in the latter years. This would impact on the variability of the data when calculating the total CAGR of both the predictor variable (i.e. company BEE status) and the outcome variables of

company profitability (i.e. Closing Share Prices, P:B and P:E) (Cahan and van Staden, 2009).

The normality of the distributions of the probability measures should be restored once more companies across the sectors became BEE compliant over time.

6.2 Testing of the propositions

Figure 2 and **Table 6** confirms that there was no significant relationship between the company 2009 BEE ratings and any of the three measures of profitability as at 31 December 2008.

BEE legislation was promulgated into law in 2007 (DTI, 2007) and companies have ten years until 2007 in order to meet the requirements of BBBEE Act of 2003. This forced companies who had adopted a "wait and see" stance to BEE to suddenly spring into action into understanding and implementing BEE policies. In addition, BEE ratings are a measure of relative, not absolute, BEE progress. Therefore companies with a higher rating are doing better when compared to other South African companies (Cahan and van Staden, 2009).

It can therefore be concluded from the results that there was no significant relationship between the BEE score and profitability in 2008 because companies had started to implement BEE progress in the latter half of 2007 following the promulgation of the BBBEE Act of 2003. Another reason for no significant

relationship was the sub-prime financial crisis in 2008 which may have significantly skewed the three measures of profitability in that year.

Table 7 indicates using Cluster Analysis that over time, that the cluster of companies with "**slightly low to high BEE**" represented 64 or 31% of the sample of 209 companies.

Andrew (2008) stated that firms could gain or lose private sector business because of their BEE status, making BEE status a competitive business tool and a new form of relational currency in the corporate sector.

It can thus be concluded from the results that most companies in this cluster had adopted progress of BEE into their corporate strategy for sustainable growth.

However, the "**cluster low to very low BEE**" made up 95 or 46% of the sample of 209 companies.

This was contradictory to Andrew (2008) and other BEE experts including Wu (2009). Insights into the possible reasons why a large portion of companies made up this cluster will be discussed during the sector analysis of the cluster.

Only 35 or 17% of the companies fell into the "**cluster high stayed almost high BEE**". This cluster together with the "**cluster slightly low to high BEE**" represented the positive clusters and together accounted for 47% of the total sample. In addition, only 15 or 7% of the sample of companies fell into "**cluster high to low BEE**" indicative of the fact that once companies had adopted BEE

progress, it was less possible to loss their status, however more so probable to improve and maintain their BEE status.

6.2.1 Sector analysis of the clusters

Table 8 and Table 9 showed the frequencies of the sectors of companies within each cluster.

The "**cluster slightly low to high BEE**" was largely made up of the financial sector (15 or 23% of the sample of 64 companies), the basic industrial sector (9 or 14% of the sample) and the resources sector (6 or 9% of the sample).

Chabane *et al.*, 2006 and Ponte *et al.*, 2007 mentioned the adaptation of sector charters specifically by the financial and the mining sectors in the second phase of BEE since 2000.

It can therefore be concluded that by voluntarily developing sector charters, these sectors represented the early adopters of BEE progress by understanding and implementing BEE policies as a first mover advantage. This progress was reflected in the improved BEE scores over time in comparison to the other sectors who adopted a "wait and see approach" to BEE legislation.

Interestingly, the "**cluster low to very low BEE**", was made up mainly of the resources sector (19 or 29% of the sample of 95), the financial sector (13 or 14% of the sample), basic industrial and general industries (11 or 12% of the sample).

Radebe (2009) reported that due to the global financial crisis and the resulting unfavorable trading conditions that the BEE deal market was unlikely to recover to the annual values of the past few years.

It can be concluded that the results support the assumptions that the South African industries hardest affected by the financial crisis and the global recession are the mining, financial and construction industries. As there are costs attached to BEE progress (Jack, 2007), it therefore stands to reason that companies would find it difficult to sustain or improve their BEE status when their financial survival was in doubt.

A resultant Chi square test statistic showed a significant difference between the sector distributions of the four clusters. **Table 10** and **Table 11** reflected this difference and the five sectors, with the exception of the ICT sector, were all mentioned in the previous analysis above.

In **Table 10**, it was the financial sector that denominated the two positive clusters, "**slightly low to high BEE**" and "**high stayed almost high BEE**" with 41% and 33% respectively.

The possible reason for this result, in addition to the adaptation of the FSC, was the fact that the financial sector needed to tender for lucrative government business in banking, insurance and pension fund management services. In stands to reason that in order to be competitive in winning these tenders, financial sector companies have to ensure high levels of BEE progress.

Interestingly, the basic industrial sector made up 24% of the cluster "**slightly low to high BEE**". This improvement in the BEE score can be attributed, in addition to the Construction Charter, to the competitive bids by the construction companies in this sector to win tenders relating to the public infrastructure expansion programme of government, including construction of the 2010 World Cup stadiums and roads.

The resources sector made up 50% and 32% respectively of the two negative clusters, "**cluster high to low BEE**" and "**cluster low to very low BEE**". This decline in the BEE score already mentioned, related to the global financial crisis and the subsequent global recession in 2008.

As this sector is governed by the Mining Charter and an ongoing improvement of the BEE status by the applicant company over time, it will be interesting to observe how many of these companies will be able to retain their "new order" mining licences when they come up for review in the future (Ponte *et al*., 2007).

Table 11 confirmed that the financial sector collectively made up 61% of the two positive clusters, whereas basic industrials and resources collectively made up the bulk of the two negative clusters with 52% and 71% respectively. The reasons for both these observations are mentioned above.

It was interesting to observe that the ICT sector made up 61% collectively of the two positive clusters (be it only 22% in the "**cluster slightly low to high BEE**"). This was confirmation that the ICT sector, which was driven by the ICT Charter, was finding it exceedingly difficult in the past to win government and private sector

ICT contracts without adopting BEE progress in their business strategy. Hence the observed pattern of improvement in the BEE status of these companies.

6.2.2 Comparing the clusters on the probability outcome variables

In **Table 12, Table 13** and **Appendix C**, the results of the ANOVA show no differences between the clusters on any of the initial, most recent, and changes in the three profitability measures (p>0.05). In view of the clear asymmetry and lack of normality previously shown in the distributions of several of the profitability outcome variables, the Kruskal-Wallis nonparametric equivalent of the parametric 1-way ANOVA test was computed on the ranks of the variables (**Table 14**).

Once again, there were no significant differences between the clusters on any of the initial, most recent, and changes in the three profitability measures (p>0.05).

The possible reason is that the profitability measures may have changed (i.e. from the initial to most recent closing share price, P:B and P:E) for some or all of the clusters. The global sub-prime crisis in 2008 may attribute to the extreme volatility in the profitability measures.

6.2.3 Comparing the profitability outcome variables within the clusters

Table 15, according to the parametric t test results, showed only one significant difference: Closing Price 1 vs 2 for the "**Cluster high stayed almost high BEE**" where the closing price increased. Both Jackson *et al.* (2005) and Ward and Muller (2008), reported that BEE firms outperformed the JSE market index by 30.76%

over the one year period and 15% over the next 240 days respectively, immediately after the BEE transaction announcement.

Although this study was designed specifically to measure the impact of the BEE score on the financial profitability of firms on the JSE as opposed to only BEE ownership transactions, this result supported the studies of both Jackson *et al.*(2005) and Ward and Muller (2008) who predominately used daily share price returns in their research design and methodology.

In addition, most of the companies in this cluster "**high stayed almost high BEE**", announced BEE ownership transactions.

Table 16, showed that only in the cluster of companies that increased its BEE score, "**Cluster slightly low to high BEE**", were all three profitability measures significantly different and, according to the means, in the direction of higher profitability.

In determining the impact of the reported corporate governance disclosure on the financial performance of companies on the JSE, Abdo and Fisher (2007) found that high portfolios within each sector outperformed the sector index in each case, indicating above average returns over the time period. In the same way, low portfolios all underperformed the sector index.

Although this result did not directly support Abdo and Fisher (2007) as they compared high and low G-Score portfolios to the sector index and this study did not. It was concluded that the results in Table 16 supported the proposition:

- P_1 – High BEE scores of South African companies have a positive impact on their profitability and their firm's value over time.

There was no significant difference in **Table 16** to support the proposition that

- P_2 – Low BEE scores of South African companies have a negative impact on their profitability and their firm's value over time.

What can explain this disparity? One possible explanation is that investors do not yet consider the level of BEE progress of a company relevant when deciding whether to invest in that company share or not, therefore positively impacting the future earnings expectation (P:E) of the company and the share price.

Another possible reason is that it will take time before there are sufficient BEE companies in the market for the government to choose from, when allocating their preferential procurement spend. With the backlog in service and infrastructure development and deliverables, government have not choice at this stage but to engage the services and products of less BEE compliant companies. This directly impacts the P:B of that company in a positive direction, even though that company may have a low BEE score. Examples of this are the construction companies whom government had to engage with in order to fulfil on the 2010 World Cup and infrastructure deadlines. These companies will however become increasing under

pressure to improve on their BEE status in order to tender for infrastructure projects after 2010.

6.3 Conclusion

Although there are interesting patterns of information that emerged, overall the data did not speak directly to the research question or the propositions, except the proposition:

- P_1 – High BEE scores of South African companies have a positive impact on their profitability and their firm's value over time.

The data appeared to be highly asymmetry with a lack of normality of several of the distributions of profitability measures prompting non-parametric testing, even though the sample size was greater that 30.

The sector analysis confirmed that the companies in the sectors most frequently featured were those sectors that were considered to be the early adopters and first movers regarding the implementation of BEE initiatives (i.e. financial, resources and basic industrials).

The results also confirmed that the sub-prime crisis and subsequent global recession hampered BEE progress.

Lastly, there was no significant difference in **Table 16** to support the proposition that

- P_2 – Low BEE scores of South African companies have a negative impact on their profitability and their firm's value over time.

Lastly, the evidence suggested that the implementation of BEE initiatives although discussed and debated since 2000, still had a long way to go in order to be considered a successful macroeconomic initiative by the government.

7. Chapter 7 – Conclusion

Jack (2007) best summed it up when he said that from his experience that White people's emotions are generally reflected in the different stages of experience of loss or change when it came to BEE initiatives.

The first stage that companies or owners go through when they encounter BEE is denial which was reflected in those companies in the data who adopted a "wait and see" stance. As Jack (2007, p.1) states, "the typical thinking at this stage is: "We do not provide goods or services to the government, who is the major proponent of BEE. Therefore we do not have to worry about BEE. It is far removed from us."

They also believe that they do not belong in the sectors in which BEE is a priority with government and that therefore exempt those companies in those sectors from BEE participation (Jack, 2007). This was evidenced in the data in **Table 4** in the following sectors; Manufacturing 1%, Media 2%, Health Care 3%, Transport 3%, Hotel & Leisure 4%, Property 5%, Services 5% and Retail 8%.

The second stage according to Jack (2007) is anger. This happens when companies realise that there are no shortcuts to BEE. The affected companies most often feel resentment and rage with the belief that BEE is reverse discrimination and unfairly forced onto white owned businesses.

The third stage is bargaining. This is when companies begin to ask questions about what needs to be done in order to score the maximum points on the scorecard with the least effort or cost. According the Jack (2007) this is the stage when depression sets in because most the strategies and plans adopted, lack substance.

The final stage is acceptance and this occurs when the company finally understands the objectives of BEE and starts to embrace the concept. These companies begin to understand that BEE is no longer an option, but a business imperative that commits everyone. It is at this stage that the implementation of BEE initiatives can be astounding (Jack, 2007).

7.1 So what?

The results in this research demonstrated that most companies in most sectors on the JSE are between the denial and the anger stage. The only companies that had progressed to the acceptance stage are those companies in sectors whom had voluntarily adopted sector charters in light of pending BEE legislature in 2003 (Chabane *et al.*, 2006 and Ponte *et al.*, 2007) i.e. the financial, resources and basic industrials sectors (DTI, 2007). This is also confirmed in **Table 4**.

In addition, the data unveiled that most of the companies in the other sectors had not yet embraced the business imperative nor experienced the financial

repercussions of not adopting BEE initiatives into their growth strategy. The reasons for this were discussed in the Chapter 6.

Perhaps, the data also confirmed that there still exists the general assumption in the market that BEE progress is still explicitly tied to BEE ownerships transactions and remarkably little to that of the other Codes of Good Practice that make up the BBBEE scorecard.

On the other hand, Jack (2007) confirmed that there was a cost attached to BEE initiatives and therefore the sub-prime crisis and the resulting global recession had forced many companies, especially in the financial and resources sectors, to put BEE initiatives on hold pending the financial recovery in the global markets in the next 18 months. This was perhaps also the reason why the profitability variables in this study were so largely skewed.

7.2 Recommendations

South Africa needs to learn from the Malaysian NEP which was implemented to eliminate poverty, and promote greater economic equality between the Malays and non-Malays within a 20 year period.

There are two distinct differences in the Malaysian NEP and the South African BEE programme. Firstly, the NEP was a comprehensive programme led by the Malaysian government whereas BEE was a set of initiatives separately developed

by various branches of government and the private sector. The second difference was that the Malaysian government realised that the NEP focus on re-distribution of wealth from Non-Malays would be unsustainable in a slow-growth economy (BusinessMap, 2000; FW de Klerk Foundation, 2005).

From this, the clear recommendation is that the SA government needs to make the implementation of BEE initiatives more "stick-based" than the current "carrot-based" approach. This is contrary to Andrew (2008) who mentioned that the current BEE policy is more "carrot-based" than "stick-based". This is because companies in the sectors outside direct government procurement spend (i.e. financial, resources and basic industrials); do not see the immediate need or urgency to implement BEE initiatives.

However that behaviour may change, should government decide to implement specific financial penalties to companies that choose not to, or are slow to implement BEE initiatives.

Also, the NEP was initially implemented over a 20 year period in the 1970s and still in existence today. It thus stands to reason that the ten year period set by the South African government in order to meet the requirements of the BBBEE Act of 2003 by 2017, may be short-sighted and needed to be extended out until at least 2027 (DTI, 2007). In addition, it was clearly reflected in the data that a low-BEE

score of South African companies did not necessarily negatively impact on their profitability and their firm's value over time.

A further recommendation would be for the government to introduce policies that enabled and promoted Black entrepreneurship in the economy. In this way, Black people need not to aspire to own part of a White owned company, but rather create ventures that can compete with existing conglomerates through creativity and innovation.

This would ensure that the government would than have a larger market of Black owned businesses in order to direct their procurement spend whilst guaranteed superior quality, delivery and service.

In addition, this would immediately ignite most companies across all sectors to improve, not only their BEE compliance, but also on their competitiveness through ongoing upgrades and innovation (Porter, 1998).

This will also ensure that the government rapidly grows the economy meeting the second difference of the NEP initiative in Malaysia (BusinessMap, 2000).

The last recommendation to support the preceding one would be for the BBBEE scorecard to change the weight of direct Black ownership (Table 1) from the current 20 points to 15 points and in order to balance the scorecard, the current Enterprise Development weight from 15 points to 20 points. In this way, existing companies would be less motivated to conduct BEE ownership transactions and more motivated to support and fund new enterprises.

7.3 Future research ideas

This research should be conducted in the future, perhaps within the next 5 years in order to ensure normality in the results, with consideration to the following:

- To examine which of the 7 elements of the BBBEE scorecard are most highly associated with financial performance and to explore, if any, the reasons for these relationships?

- Similar to Abdo and Fisher (2007), to group the companies into their respective sector on the JSE based on their average BEE score (grouped as high or low) for the period under review. Thereafter to compare the average return of the high and low company portfolios to the average return of the sector index and ALSI40 index over the same time period.

- To conduct this research on unlisted companies in the private sector over a period of time.

- To measure the impact of the Sector Charters in driving the implementation of BEE initiatives and the subsequent impact on the financial profitability and the firm's value over time.

Finally, it will be advisable in the future for shareholders to include a fair measure of BEE compliance risk with traditional profitability, sustainability and valuation

metrics, as BEE compliance would offer a new dimension in shareholder value once BEE initiatives becomes more of a business strategy to drive competitiveness over time.

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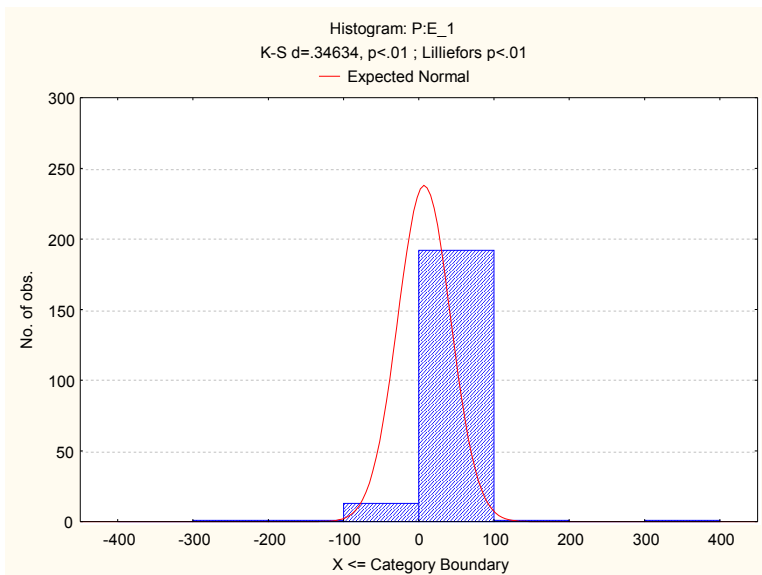
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APPENDIX A – Descriptive statistics of the predictor and the outcome variables

Histogram: P:B_1
K-S d=.38971, p<.01 ; Lilliefors p<.01
— Expected Normal

Histogram: P:E_1
K-S d=.34634, p<.01 ; Lilliefors p<.01
— Expected Normal

Histogram: P:B_2
K-S d=.38378, p<.01 ; Lilliefors p<.01
—— Expected Normal

Histogram: P:E_2
K-S d=.45328, p<.01 ; Lilliefors p<.01
—— Expected Normal

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Histogram: P:B CAGR CAGR
K-S d=.50300, p<.01 ; Lilliefors p<.01
— Expected Normal

Histogram: P:E CAGR CAGR
K-S d=.51424, p<.01 ; Lilliefors p<.01
— Expected Normal

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Box & Whisker Plot

□ Mean = 0.3892
□ Mean±SD
= (-0.1689, 0.9473)
⊥ Mean±1.96*SD
= (-0.7047, 1.4831)

Box & Whisker Plot

□ Mean
□ Mean±SD
⊥ Mean±1.96*SD

APPENDIX B – The Cluster Members

Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE
n=15	n=64	n=95	n=35
African Oxygen Limited	Distrib. and Warehousing Network Ltd	Masonite (Africa) Ltd	Wilson Bayly Holmes - Ovcon Ltd
Afrocentric Investment Corp Limited	Group Five Ltd	ELB Group Ltd	Raubex Group Ltd
Argent Industrial Ltd	Murray and Roberts Holdings Limited	Buildmax Ltd	Nedbank Ltd
Control Instruments	Omnia Holdings Ltd	Metair Investments Ltd	Alexander Forbes
Jasco Electronics Holdings Ltd	Astrapak Ltd	Afrimat Ltd	Old Mutual plc
African Oxygen Limited	Stefanutti & Bressan Ltd	Basil Read Holdings Limited	Metropolitan Holdings Ltd
Datacentrix Holdings Ltd	Protech Khuthele Holdings Ltd	A E C I Limited	Absa Group Limited
Capital Property Fund Ltd	Pretoria Portland Cement Company Ltd	Wilson Bayly Holmes-Ovcon Limited	Coronation Fund Managers Ltd
Mvelaphanda Resources Limited	Aveng Ltd	Ceramic Industries Limited	Sanlam Ltd
African Rainbow Minerals Ltd	Investec	York Timber	Tiger Brands Ltd
Northam Platinum Ltd	Glenrand MIB Ltd	AG Industries	Illovo Sugar Ltd
Palabora Mining Company Ltd	Brimstone Investment Corporation Ltd	New Africa Investment Limited	Tongaat Hulett Limited
Gold Fields Limited	FirstRand Ltd	Invicta	Sekunjalo Investments Ltd
Harmony Gold Mining Company Ltd	Liberty Group Ltd	Cape Empowerment Trust Ltd	Cipla Medpro South Africa Limited
Grindrod Ltd	Cadiz Holdings Ltd	Peregrine Holdings Ltd	Medi-Clinic Corporation Ltd
	Barnard Jacobs Mellet Holdings Ltd	Makalani Holdings Ltd	Sun International Ltd
	Discovery Holdings Ltd	Capitec Bank Holdings Ltd	Phumelela Gaming and Leisure Ltd
	Standard Bank Group Ltd	BRAIT S.A.	Paracon Holdings Ltd
	Hosken Consolidated Investments Ltd	Sabvest Ltd	Telkom SA Ltd
	Santam Ltd	Clientele Life Assurance Company Ltd	Gijima Ast Group Limited
	Purple Capital Ltd	PSG Group Ltd	Blue Label Telecoms Ltd
	RMB Holdings Ltd	Mercantile Bank Holdings Ltd	Dimension Data Holdings Ltd
	African Bank Investments Limited	Decillion Ltd	Business Connexion Group Ltd
	Mutual & Federal Insurance Company Ltd	Real Africa Holdings Ltd	MTN Group Ltd
	AFGRI LIMITED	Sovereign Food Investments Ltd	Exxaro Resources Ltd
	Oceana Group Ltd	Crookes Brothers Ltd	Kumba Iron Ore Ltd
	SABMiller	Distell Group Ltd	Hulamin Ltd
	Nampak Ltd	AVI Limited	Merafe Resources*
	Allied Electronics	Astral Foods Ltd	The Spar Group Ltd
	Bell Equipment Ltd	AVI LIMITED	Kelly Group Ltd
	Netcare Ltd	Rainbow Chicken Ltd	Adcorp Holdings Limited
	Aspen Pharmacare	KAP International Holdings Ltd	Advtech Limited
	Gold Reef Resorts Ltd	Hudaco Industries Limited	The Bidvest Group Limited
	The Don Group Limited	Howden Africa Holdings Ltd	The Don Group
	EOH Holdings Ltd	Kairos Industrial Holdings Ltd	City Lodge Hotels Ltd
	Spescom Ltd	Barloworld Ltd	
	Datatec Ltd	ARB Holdings	
	Faritec Holdings Ltd	Bowler Metcalf	
	Seardel Investment Corporation Ltd	DigiCore Holdings Ltd	
	Steinhoff International Holdings Ltd	Reunert Limited	
	Kagiso Media Ltd	Transpaco Ltd	
	Naspers Ltd	Remgro Ltd	
	Avusa Ltd	Set Point Technology Holdings Ltd	
	Acucap Properties Ltd	Cullinan Holdings Ltd	
	Growthpoint Properties Ltd	ConvergeNet Holdings Ltd	
	DRD Gold Limited	UCS Group Ltd	
	Trans Hex Group Ltd	Square One Solutions Group Ltd	
	Anglogold Ashanti Limited	Mustek Ltd	

Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE
	BHP Billiton	Pinnacle Technology Holdings Ltd	
	Petmin Limited	Allied Technologies	
	Sasol Limited	Nu-World Holdings Ltd	
	Cashbuild Ltd	African Media Entertainment Limited	
	Truworths International Ltd	Money Web Holdings Limited	
	Massmart Holdings Limited	Hospitality Property Fund Limited	
	Clicks Group Limited	Pangbourne Properties Ltd	
	Foschini Limited	Hyprop Investments Ltd	
	Woolworths Holdings Ltd	Vukile Property Fund Limited	
	Metrofile Holdings Limited	Emira Property Fund	
	Mvelaphanda Group Ltd	SA Corporate Real Estate Fund	
	Primeserv Group Ltd	Resilient Property Income Fund Ltd	
	Imperial Holdings Ltd	Metorex Limited	
	Super Group Ltd	Aquarius Platinum	
	Cargo Carriers Ltd	Simmer and Jack Mines Limited	
	Dorbyl Ltd	SAPPI LIMITED	
		Lonmin plc	
		Anglo Platinum Limited	
		Assore Ltd	
		Highveld Steel and Vanadium Corporation Ltd	
		Anglo American plc	
		York Timber	
		Sentula Mining Ltd	
		THABEX LIMITED	
		Pamodzi Gold Ltd	
		Sallies Ltd	
		Wesizwe Platinum Ltd	
		Central Rand Gold Ltd	
		Impala Platinum Holdings Ltd	
		Witwatersrand Consolidated Gold Resources Ltd	
		Randgold	
		Lewis Group Ltd	
		Pick N Pay Stores Limited	
		Combined Motor Holdings Ltd	
		JD Group Ltd	
		Italtile Ltd	
		Verimark Holdings Ltd	
		Rex Trueform Clothing Company Ltd	
		Mr Price Group Ltd	
		Shoprite Holdings Ltd	
		Micromega Holdings Ltd	
		Excellerate Holdings Limited	
		Command Holdings Ltd	
		Iliad Africa Ltd	
		Value Group	
		Spur Corporation Ltd	
		Comair Limited	

APPENDIX C - Standard deviations for the profitability outcome variables

	Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE	Row total	Cluster high to low BEE	Cluster slightly low to high BEE	Cluster low to very low BEE	Cluster high stayed almost high BEE	All Grps
			Means					Standard deviations		
Closing Price_1	3022.13	3090.38	3131.40	2367.86	2983.13	3633.81	6458.57	7932.79	3021.34	6597.86
P:B_1	2.58	4.58	2.11	-1.25	2.34	2.04	17.28	22.60	28.53	21.41
P:E_1	11.13	6.71	4.43	14.26	7.26	17.79	25.88	32.73	55.69	35.05
Closing Price_2	3296.53	3543.63	3517.73	3839.54	3563.67	3898.52	5460.80	7786.91	4459.08	6381.78
P:B_2	2.50	7.41	1.28	0.41	3.10	4.10	35.63	23.35	79.92	41.04
P:E_2	-48.83	12.20	53.16	14.26	26.78	245.75	38.53	461.12	19.98	318.58
Closing Price CAGR	0.53	3045.34	0.06	0.00	932.61	1.99	24362.37	0.42	0.37	13481.44
P:B CAGR CAGR	0.03	18.40	2.79	30.52	12.02	0.47	104.95	19.98	130.82	80.21
P:E CAGR CAGR	-3.65	48.40	14.61	131.27	43.18	13.47	273.55	96.97	542.25	277.19