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The long term effect of the Broad-Based Black Economic Empowerment policy on the firm performance of Johannesburg Stock Exchange-listed companies

by

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Abstract The Broad-Based Black Economic Empowerment (B-BBEE) scorecard provides South African firms with specific targets to comply to the empowerment of Black people. B-BBEE policy falls within the realm of Corporate Social Responsibility (CSR). This study adds to the scientific body of literature by investigating the long term relationship between B-BBEE policy and firm performance. The theoretical framework is based on literature of the broader field of CSR that suggests that firms engage in CSR to increase firm performance, and that the relationship between CSR and firm performance is subject to contextual dynamics of time and sector. The theoretical framework funnels CSR to the narrow field of B-BBEE policy and finds that B-BBEE policy compliance presents firms with costs and benefits which detract and add to firm performance which are dependent on time period and sector. Using quantitative analysis, this study test the relationship between B-BBEE policy and firm performance operationalized as B-BBEE rank and share price return on 1 to 5 years time horizons. The empirical results of this study confirms the findings from the theoretical framework. The long term relationship is found significantly negative on 2, 3, 4 years time horizon. B-BBEE policy amendments through time causes the negative relationship to be more pronounced. This study hints that B-BBEE compliance market access benefits for certain sectors in practise acts as a tax on firms to continue to do business with government entities. The findings of this study state that the incentives of firms to comply to B-BBEE are not sufficiently aligned with the purpose of B-BBEE and that research on the long term relationship between CSR and firm performance requires cognizance of contextual dynamics.

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Introduction

Under the South African Apartheid regime, the majority of the population, Black people, had unequal to no access to economic resources. The Apartheid oppression created large wealth inequalities which negatively impacts the South African society today. Within the South African context, firms engage in Corporate Social Responsibility (hereafter, CSR) through compliance to the Broad-Based Black Economic Empowerment (hereafter, B-BBEE) policy.

The CSR context states that the firm has a responsibility which extend past the myopic goal of profit generation (Aguinis and Glavas, 2012, p3). However, theory indicates that CSR itself can be pursued to improve firm performance (Aguilera et al., 2007, p845). The relationship between CSR and firm performance is becoming progressively popular within the academic field (Aguinis and Glavas, 2012, p3). Previous contributions to this field do not establish a conclusive relationship and indicate that specific time period and cross sectional dynamics affect the relationship between CSR and firm performance (Orlitzky et al., 2003, p404; Margolis et al., 2009, p7; Aguinis and Glavas, 2012, p940; Orlitzky et al., 2003, p404). Limited research has been performed on the effect of time horizon, despite the notion that engaging in CSR entails a long term positive effect on firm performance, and the notion that the relationship between CSR and firm performance is dependent on the time horizon selected (Revelli and Viviani, 2015, p1624; Eccles et al., 2012, p1; Margolis et al., 2009, p8). This study adds to the limited academic literature on the long term relationship between CSR and firm performance by examining the long term relationship between B-BBEE policy and firm performance.

Utilizing literature on CSR as the general theoretical framework, this thesis aims to establish the long term relationship between B-BBEE and firm performance. The relationship between B-BBEE policy and firm performance exhibits both time period dynamics and cross-sectional dynamics found in the literature on the relationship between CSR and firm performance framework. In 2013, Chief Director in charge of Black Economic Empowerment, Mesatywa noted that firms are "obsessed" with B-BBEE policy, and therefore the incentives of the policy was working well (Lowenberg, 2007, p184). However, academics find a negative relationship between a firm's compliance to the B-BBEE policy and its performance (van der Merwe and Ferreira, 2014, p545; Metha and Ward, 2016, p85).

The central aim of this thesis is to add clarity to the efficacy of the B-BBEE policy, as well as adding clarity to the general research on the long term relationship between CSR and firm performance by investigating the relationship between B-

BBEE policy and firm performance.

1.1 Research background

To address the wealth inequality, Nelson Mandela established a new movement of Black Economic Empowerment (hereafter, BEE). BEE went through several iterations by government institutions that allowed it to evolve from a relatively loose abstract notion of BEE to specific forced guidelines of the B-BBEE. These guidelines, called Codes of Good Practise, state specific targets that Johannesburg Stock Exchange (JSE) listed firms should comply with to be B-BBEE compliant. The weighted average score on each of the targets result in the aggregate B-BBEE score.

BEE, even prior to becoming government policy affected actions of South African firms. The international society banned South African firms from the international markets during the Apartheid era (Jackson et al., 2005, p3). Under pressure from the international ban, some South African firms started the first phase of BEE by selling shares to the Black influentials to gain goodwill by both the general public and the upcoming powerful Black elite. However, the transfer of shares only benefited a select group of previously oppressed freedom fighters turned well-connected politicians or business people (Mokgobinyane, 2007, p5; Ponte et al., 2007, p2). Seeking to broaden the group of beneficiaries, government installed Broad-Based Black Empowerment Act in 2003 (Tshetu, 2014, p16). The aim of this Act, as can be guessed from its name, was to provide the private sector with specific target to empower Black people in a broad spectrum of initiatives, rather than share transfer to a select group. In 2013, government introduced a more stringent set of targets. Although government entities are required to comply to B-BBEE policy, private firms are not (Arya and Bassi, 2011, p682). However, the B-BBEE policy does provide incentives for firms to comply, which specifically relate to firms operating in sectors with close relationship with government entities (Arya and Bassi, 2011, p682). In 2015, Thomas Piketty referred to lack of efficacy of the B-BBEE policy and stated that 60%-65% of South Africa's wealth was concentrated in the hands of the top 10% of the population (Allison, 2015). Despite the establishment of BEE and B-BBEE policy that was meant to address wealth inequalities, wealth inequality has persisted throughout these years. The persisting wealth inequality referred to by Piketty could indicate that the benefits presented to firms were not large enough to offset the costs to comply to B-BBEE policy.

1.2 B-BBEE in academia

Academic literature has tried to identify the relationship between B-BBEE policy and firm performance. Some researchers hypothesized that firms with higher B-BBEE scores should have higher firm performance than firms with lower B-BBEE scores (Mokgobinyane, 2007, p19). Herein, it is important to note that researchers have assigned different proxies of firm performance, such as profitability and share price returns of firms.

However, the body of research on B-BBEE and firm performance is not in consensus. Where van der Merwe and Ferreira (2014, p545) and Mehta and Ward (2016, p85) find a negative relationship, Acemoglu et al. (2007, p32) find a non signifi-

cant positive relationship and Mokgobinyane (2007, p3) finds a disperse set of non significant relationships between B-BBEE and firm performance.

Acemoglu et al. (2007, p34) note as a limitation to their investigation that a long time horizon may be required to capture the effects of B-BBEE score on firm performance. This notion is shared by other research as well (Mokgobinyane, 2007, p19; van der Merwe and Ferreira, 2014, p554). Indeed, these studies have restricted their analysis by running regression analyses which analysed the impact of B-BBEE score of some measure of firm performance over the next year and only researched specific time periods (for example, Acemoglu et al. only investigate the time period 2004-2006) (Acemoglu et al., 2007, p29; van der Merwe and Ferreira, 2014, p554). Finally, it is important to denote that the research indicate the cost and benefits of B-BBEE policy compliance, but are unable to distill specific cost and benefits.

1.3 Relevance of this master thesis

By uniquely obtaining B-BBEE aggregate scores from 2004 to 2018, this study adds to the existing body of research by analyzing the relationship over the entire available time period. From the wider CSR perspective, this study adds to fill the void in academic literature on the long term relationship between CSR and firm performance. Further, using CSR this study analyzes the effect of the changes in B-BBEE policy on firm performance therefore providing insights that were not earlier captured by scientific literature. In addition, it also explores the cost and benefits to indicate why there should be a causal relationship between B-BBEE policy and firm performance, but does not distill these costs and benefits to assign a specific driver of the causal relationship. Rather it analyzes the aggregate effect of B-BBEE policy compliance on firm performance. Finally, this study uniquely explores whether the incentives in B-BBEE policy cause the relationship between B-BBEE policy and firm performance to be different across sectors. Therefore, this study contributes clarity to academia on the relationship between B-BBEE policy and firm performance.

This information is not only valuable to the academic world, but could also find appreciation with South African policy makers. Understanding the long term relationship between B-BBEE policy and firm performance provides valuable information to policy makers to narrow wealth inequality in South Africa.

1.4 Research question and structure of this master thesis

This research aims to identify the long term relationship of B-BBEE policy and firm performance through quantitative analysis chiefly by way of linear regression. To investigate this relationship proxies are used for the two variables. B-BBEE policy, is measured as the B-BBEE rank of a firm in the Empowerdex top 100. The Empowerdex top 100 sources the top 100 B-BBEE policy compliant firms from firm listed on the Johannesburg stock exchange. The B-BBEE rank is a measurement of compliance to the B-BBEE policy, the higher the B-BBEE rank the better a firm complies to the B-BBEE policy. In this study share price return, obtained through Thomson Reuters Datastream, is used as a proxy for firm performance. It is expected that a intrusive policy such as B-BBEE requires a long time horizon to

investigate the true effect the policy has on firm performance. Prior research used annual share price returns to investigate long term relationship. This study test the impact of B-BBEE rank on 1, 2, 3, 4 and 5 year share price return using linear regression on observations from 2004 to 2018.

This thesis will aim to answer the following main research question: "What is the long term relationship between the Broad-Based Black Economic Empowerment policy and firm performance of Johannesburg Stock Exchange-listed companies?". To arrive at an answer for the main research question the following three sub research questions were posed: "What was the long term relationship between Broad-Based Black Economic Empowerment policy and firm performance of the Johannesburg Stock Exchange-listed companies over the period 2004 - 2018?", "What was the long term relationship between B-BBEE policy and firm performance among the three B-BBEE policy periods?" and "Did firms operating in a sector with a higher incentive to comply to the B-BBEE policy have higher firm performance?".

The structure of this thesis is subservient to the goal of answering the main research question. This study is structured as a hourglass. The chapters Contextualization and Theory build the theoretical framework from the relationship between CSR and firm performance narrowed to theory on B-BBEE policy and firm performance, which is even further narrowed down in the Theory chapter to generate hypotheses. The third chapter, Methodology, covers the methodology this thesis will adopt to answer the research question from a quantitative deductive standpoint. This consists of the justification of the research method and selection of data. The Empirical Results is the narrowest point in the hourglass structure, providing the results of the systematic, quantitative analysis, testing each hypothesis with robustness checks and reconciling the results with previous research. The Conclusion chapter then broadens the findings of the Empirical Results to make general statements on the relationship between B-BBEE policy and firm performance to answer the research question. The Conclusion chapter further broadens this study, by stating the impact of the findings for the wider discussion on the relationship between CSR and firm performance.

2

Contextualization

Academic literature indicates that the relationship between CSR and firm performance is subject to contextual factors (Revelli and Viviani, 2015, p1624; Eccles et al., 2012, p1; Margolis et al., 2009, p8). The long term relationship between B-BBEE policy and firm performance requires understanding of the evolution of the B-BBEE policy through time. This chapter presents the reader with that evolution, which uncovers the dynamics between South African government's and South African firms as it pertains to ultimate goal of B-BBEE policy, Black Economic Empowerment.

2.1 The evolution of B-BBEE policy

The relationship between the South African government and firms on Black Economic Empowerment are deep rooted, predating the installation of the B-BBEE Act in 2003. Therefore this section is divided into the pre B-BBEE policy era and the B-BBEE policy era.

2.1.1 Pre B-BBEE policy era

The B-BBEE policy evolved from BEE and restrictions during Apartheid. During Apartheid era, the Bantu Education Act of 1953 lowered the standard of education of Black people compared to White people, ultimately resulting in a disparity in per capita income. In 1970 per capita income of Black people was 3,133 South African Rand (hereafter, ZAR) and 45,751 ZAR for White people (Lindsay, 2016, p104-105).

The international society condemned the unjustifiable policies of South African firms toward Black people by blocking South African (White) firms from entering the international capital markets (Jackson et al., 2005, p3). In 1985, resulting from anti-Apartheid civil pressure within the United States, Chase Manhattan (later merged into JP Morgan Chase, one of the largest banks in the United States) stopped providing short term funding (loans) to South African firms, which triggered a wholesale funding stop from international financial institutions to the South African firms (Rodman, 1994, p324). South African firms, feeling the brunt of the international boycott, had no option but to adjust and began to cater to the international demands. In 1993 Sanlam a White owned financial services firm sold 10% of its shares to well connected Black politicians (Acemoglu et al., 2007, p6). These initiatives

could be seen as the first form of Black Economic Empowerment (Acemoglu et al., 2007, p6).

The African National Congress (hereafter, ANC) did not prepare targeted policies for firms to empower Black people when it assumed power, therefore (White) firms remained in power to control their implementation of BEE (Lindsay, 2016, p131). Led by these firms, BEE mostly manifested in BEE transactions. The transaction entailed the sale of shares of White firms to the Black elite. The mechanics of the sale of shares reveal that firms used share transfer to prolongate their position. To describe these mechanics, consider a fictitious firm called Shopwrong. Typically, BEE transactions were structured as follows; capital deficient Black influential people (like union leaders or ANC politicians) borrowed from Shopwrong to finance their purchase of the shares from Shopwrong, at a 15-40% discount to prevailing market price of Shopwrong (Acemoglu et al., 2007, p5). In order to service the interest payments, the Black influential people used dividends from Shopwrong to pay Shopwrong. An estimated 231 transfer deals were closed until 1998, resulting in a significant growth from 1% of capital ownership in 1995 by Black people to an increase of 10% ownership in 1998 (Acemoglu et al., 2007, p5-6). A Black elite was created which had interests aligned with White firms, and the establishment of this elite, by the White firms, created a positive image for White firms (Metha and Ward, 2016, p86). Most scholars uniformly agree that the BEE transactions did not eliminate wealth inequality. Lindsay (2016, p3) notes that BEE, from a political perspective, had become a "slippery catch phrase" for various ideological persuasions for politicians. Tsehtu (2014, p15), from the perspective of the White firms, concludes that the corporate sector did not pursue BEE in all earnest, but from a self preservative motivation, evidenced by White firms only selling non-key assets to the Black elite. This implies that the Black person is not empowered but rather placed as a 'front cover' to show, a practise later defined as "fronting" (Jackson et al., 2005, p9-10). Mokgobinyane (2007, p18) observes that even the non-key asset ownership of the Black elite, reduced over time from 10% to 4.3% in 1998. Forced selling of shares by Black elite, as the Asian Crisis in 1998 wrecked havoc in the global markets and eroded profits of South African firms and reduced dividend payouts. These dividends, as mentioned earlier, were crucial to service the interest payments which financed the BEE transactions for the Black elite. However, even prior to 1998 government realized that the informal corporate sector led BEE policy did not fundamentally alter distribution of wealth, rather wealth remained non inclusive for all South Africans (Jackson et al., 2005, p8).

2.1.2 B-BBEE policy era

The persisting wealth inequalities heralded the second phase of BEE, which is the time period this study investigates, the phase in which BEE policies were formalized into B-BBEE (Acemoglu et al., 2007, p7). In 2003, the B-BBEE Act 53 came into effect. This Act presented broad objectives which encompassed a vision for Black empowerment, exceeding the mere transfer of equity ownership. Exemplary of government's intention for the B-BBEE policy, the advisory organ for BEE, the BEE Commission called for an "unapologetic and interventionist" policy (Lindsay, 2016, p168). The B-BBEE policy also established the BEE Advisory Council (Government Gazette, 2004, p7). The BEE Advisory Council made recommendations to the South

African cabinet on specific targets to be set in the Code of Good Practise. The Code of Good practise was a document which included specific targets for firms to comply to, to be considered compliant to the B-BBEE policy. Anticipating government intervention, firms, just as Sanlam in 1993, started self imposing targets prior to the recommendations (Acemoglu et al., 2007, p9). This placed them in position to negotiate with the BEE Advisory Council (Acemoglu et al., 2007, p9). The set of specific targets from the Codes of Good Practise were bundled into a balanced scorecard, called the B-BBEE scorecard. The higher the aggregate B-BBEE score, the more a firm complied to the B-BBEE policy. Below an overview of the 2004 B-BBEE scorecard.

Table 2.1: B-BBEE Codes of good practise 2004

Element	Weight	Most Notable Targets
Ownership	20%	25% of firm's shares owned by Black people , 10% of firm's shares owned by Black women
Management Control	10%	40% of management structures should be Black people
Employment Equity	15%	Employ a majority of Black people in various roles and positions
Skills Development	15%	At least 3% of total payroll spend on developing skills of Black employees
Preferential Procurement	20%	Buy at least most of the raw materials and other products and services from BEE-compliant companies
Enterprise Development	15%	Encourage companies to invest in developing small businesses that are Black-owned
Socio-Economic Development	5%	Spend at least 1% of profits on socio-economic programmes and organisations on Black beneficiaries

Source: South African Department of Trade and Industry, 2007

The B-BBEE scorecard clearly shows the intention to shift away from ownership as "the" instrument for Black Economic Empowerment to elements such as Preferential Procurement, Employment Equity and Enterprise Development. The above mentioned target were set for the Generic codes which sets targets for unspecified sector. Recognizing the economic importance of certain sectors, and after further negotiation with firms from several industries, specific targets were set for a specific sectors. For example, the mining sector had to adhere to different targets for ownership. The draft version from the Council indicated 51% Black ownership by 2010 for the mining sector, this news panicked investors resulting in share price crashes of mining firms (Acemoglu et al., 2007, p9). Reports on the ownership target increase commented on the possible impact of international funding, should such an intrusive target be imposed, drawing parallels to the suggested ownership target and similar policy actions in India, which led to the exit of Coca-Cola and IBM in India (Empowerdex, 2005, p5; Tshetu, 2014, p22) . Eventually the mining sector negotiated and targets were moderated to 26% Black ownership in 2012, whereas the Financial sector committed itself to 10% direct Black ownership by 2010 (Acemoglu et al., 2007, p9). Regardless of the targets, private sector firms were not obliged to comply to B-BBEE policy (Arya and Bassi, 2011, p682). In 2006, at least 20% of firms still did not comply to B-BBEE, nor had any plans to do so, indicating apprehensiveness of firm to adopt the policy (Tshetu, 2014, p23).

The Codes of Good Practise of 2004, which included the B-BBEE scorecard, were "gazetted", meaning officially linked to the B-BBEE policy in 2007 (Tshetu, 2014, p16). This Code of Good Practise identified sectors based targets, as well as the previous Generic codes for firms outside the sectors for which specific targets were set. Furthermore, the 2007 Code of Good Practise differentiated between the size of firms using three size categories: Generic Enterprises, Qualifying Small Enterprises and Exempted micro-enterprises (Mokgobinyane, 2007, p38). The differentiation distincts the extent to which a firm should comply to all the codes to be B-BBEE verified (Mokgobinyane, 2007, p38). It is important to take note that governmental and public entities were obliged to be B-BBEE compliant, however for private firms it was not obligatory rather voluntary (Arya and Bassi, 2011, p682). However, direct and indirect incentives were established to promote compliance for private firms (Arya and Bassi, 2011, p682). These incentives centered around preferential procurement. Government and other public entities were to consider the B-BBEE compliance status of their suppliers and co-suppliers. Therefore, B-BBEE compliance of firms could result in higher revenue through government project contracts.

The 2013 amended Code of Good Practise tightened targets and obliged public entities to incorporate B-BBEE score. Below the amended B-BBEE scorecard.

Table 2.2: B-BBEE Codes of good practise 2013

Element	Weight	Most Notable Targets
Ownership	25%	25% of firm's shares owned by Black people
Management Control	15%	50% of management structures should be Black people
Skills Development	20%	At least 6% of total payroll spend on developing skills of Black employees
Enterprise Development & Supplier Development	40%	25% of cost of sales ex. labor costs and depreciation must be spent in South Africa. 50% of job created must be for Black people
Socio-Economic Development	5%	Spend at least 1% of profits on socio-economic programmes and organisations on Black beneficiaries

Source: South African Department of Trade and Industry, 2015

The changes in the respective weights display the increasing realisation to emphasize the South African internal market. This relates to the Enterprise Development & Supplier Development, which was assigned the largest weight in the 2013 Codes, 40%, whereas the comparable Preferential Procurement in the 2007 Codes was assigned a 20% weight in the total B-BBEE score. This indicates that the measure to force Broad Based Black Economic Empowerment to tackle wealth inequality was seen best tackled by forcing private and public sector to interact with firms that also actively engage in B-BBEE. More importantly, public entities were now obliged to apply B-BBEE targets, rather than just taking into consideration B-BBEE scores when selecting suppliers (Mokgobinyane, 2007, p36). The amendments also targeted "fronting", or the placement of Black people in management position without any mandate and the sole goal to broadcast adherence to B-BBEE norms by criminalizing fronting (Mokgobinyane, 2007, p36). Finally, the number

of elements comprising the B-BBEE aggregate score was trimmed from seven to five (Acemoglu et al., 2007, p8,p36). These amendments suggest that government intervention to force Black empowerment increased.

2.2 Summary and conclusion

The empowerment of Black people by firms appears to be mostly defensive strategy, with the aim to minimize impact of Black Economic Empowerment. In the pre B-BBEE policy era, international funding boycott, moved firms to reverse some of their exclusionary practises. Anticipating the end of Apartheid, firms such as Sanlam sought to appease the incoming ANC government by selling shares to Black people. This strategy, selling shares to a select, influential, group of Black people whilst retaining power continued well into the 2000s. Persisting wealth inequality prompted government to increase intervention. The B-BBEE Act of 2003 introduced the B-BBEE scorecard which posed specific targets for firms to adhere to in order to be considered B-BBEE compliant. The scorecard expanded from the myopic sale of shares, to a broad based initiative that included amongst others management control and supplier selection. As time progressed, the targets set in the B-BBEE scorecard, albeit after strong negotiation with firms, increased.

The strategy firms adopted towards Black Economic Empowerment hints towards a negative relationship B-BBEE policy between and firm performance. If Black empowerment were to increase firm performance, one could expect that firms would adopt a more progressive strategy. Government on the other hand, appeared to force firms into a more progressive stance, however remained cautious not to overstep itself and damage international relations. This further strengthens the earlier speculation that B-BBEE policy detracts firm performance. Regardless of the nature of the relationship, the increasing intervention of the B-BBEE policy should indicate an increasingly pronounced impact of B-BBEE policy on firm performance.

3

Theory

Famed investor Charlie Munger once stated "Show me the incentive, I'll show you the outcome" (Toshkov, 2016). To understand the defensive strategy of firms towards empowerment, incentives have to be analyzed. In this context that means cost and benefit to the firm to comply with the B-BBEE policy. This chapter outlines a theoretical framework to understand the causal relationship between B-BBEE policy and firm performance. To establish this, this chapter approaches a top down approach. First, the general relationship between CSR and firm performance is discussed. CSR and motivations to engage in CSR are analysed. CSR and motivations to engage in CSR, revealing self interest as the connection between CSR and firm performance. One of the dynamics that influence the relationship between CSR and firm performance is the decision of which variable to use for firm performance. Other dynamics, time period and cross sectional dynamics are also revealed. This study then applies this theoretical framework to the relationship between B-BBEE policy and firm performance. Next, models to measure the relationship are discussed, sourced from previous research on the relationship. How the relationship is measured, could impact the nature and the strength of the relationship. Together, the broad theoretical framework based on CSR applied to B-BBEE policy and firm performance, contextual information presented from the Contextualization, understanding of firm performance as profitability, the conceptual analysis of cost and benefits of B-BBEE policy for firms, and findings from previous research on the relationship form hypotheses at the end of this chapter.

3.1 CSR and firm performance

CSR is defined as "context-specific organizational actions and policies that take into account stakeholders' expectations and the triple bottom line of economic, social, and environmental performance" (Aguinis and Glavas, 2012, p3). Whether a firm should take into consideration social and environmental factors is highly debated (Aguilera et al., 2007, p836). Davis (1960, p58) argues in favor and states that a firm has responsibilities to "nurture and develop human values". Davis (1960, p59) argues this from a moral standpoint, according to him power and responsibility move hand in hand. On the other hand, Friedman (2007, p1) argues, the idea that a firm has social responsibilities is void, as a firm is not an actual individual and therefore only has one artificial responsibility. What a manager of a firm considers social responsible, is not necessarily considered social responsibility by the individual

shareholders, but these shareholders do have to bear the costs (Friedman, 2007, p4). Friedman (2007, p6) makes reference about the responsibility of the firm "there is one and only one social responsibility of business-to use its resources and engage in activities designed to increase its profits". Therefore, for the sake of efficiency, social responsibility should remain in the hands of individuals rather than firms.

Other scholars note that the social responsibility and the pursuit of profit are not necessarily divorced. Aguilera et al. (2007, p837) propose three broad motivations for firms to engage in CSR; Relational, Moral and Instrumental. The Relational motive entails engaging in CSR to sustain relationships with suppliers, employees and other stakeholders (Aguilera et al., 2007, p845). The Moral motive, which Davis alludes to and Friedman vehemently denied, deals with the moral responsibility of the firm to take care of the wider society (Aguilera et al., 2007, p846; Davis, 1960, p1). The Instrumental motivation deals with self interest, more specifically financial interest, which motivates firms to engage in CSR and combines the pursuit of profit with social responsibility (Aguilera et al., 2007, p845). This study focuses on the relationship between a CSR measure, B-BBEE policy, and a measure of financial interest, firm performance, therefore the Instrumental motivation is the main motivation of interest.

Regarding the Instrumental motivation, the relationship between CSR and firm performance has been a topic of interest in the academic world, with academic interest progressively increasing (Aguinis and Glavas, 2012, p3). Academics argue that engaging in CSR increases long term competitiveness through increasing a firm's reputation and because firms engaging in CSR will raise expectations of profitability for investors [(Aguilera et al., 2007, p845). Vasquez et al. (2017, p376) argue that firms engaging in CSR advertise their good practices and as a result induce consumers goodwill leading to firm support. The expectations of profitability will be raised because CSR demands a sustainable long term relationships with employees, which creates better employee performance, and increase in quality of research and development, which lead to less waste (Aguilera et al., 2007, p845; Margolis et al., 2009, p8). Eccles et al. (2012, p1) confirm the long term orientation of firms engaging in CSR. To cultivate a trusted relationship with employees or suppliers that creates value requires trust build over time (Margolis et al., 2009, p8). On the other hand, other research considers the significance of CSR costs that negatively impact firm performance. For example, Eccles et al. (2012, p3) consider that CSR could negatively impact firm performance as wage costs could increase. McWilliams and Siegel (2001, p125) found that where supply of firms engaging in CSR exceeded demand of firms engaging in CSR, then a negative relationship was found.

However, generally speaking, research on the relationship between CSR and firm performance has showed diverse outcomes, ranging from negative, neutral and positive (Orlitzky et al., 2003, p404; Margolis et al., 2009, p7; Dixon-Fowler et al., 2013, p354). Part of the reason of the diverse outcome could be that the relationship between CSR and firm performance entails different dimensions worth considering. Dixon-Fowler et al. (2013, p354), indeed mention that the academic research on the relationship between CSR and firm performance fails to find a stable general relationship as several contextual factors affect the relationship. Therefore, according to Dixon-Fowler et al. (2013, p355-356), the academic world should focus on CSR within context of proactive or reactive stance towards CSR, whether the relationship is tested on large or small firms, the firm performance measure used, and sector

for which the relationship is tested. Revelli and Viviani (2015, p162) add to this finding by noting that the relationship between CSR and firm performance, one, two or three year firm performance, could differ based on selection of time horizon (one, two or three year). Other research confirmed that the relationship between CSR and firm performance was dependent on the sector in which the firm operates. For example the connection of CSR to firm performance was found stronger in industries more closer to its stakeholders (Aguinis and Glavas, 2012, p940). Ioannou and Serafeim (2015, p1053) found time dynamics to affect the relationship between CSR and firm performance in so far that in the early 1990s CSR led to negative firm performance and that CSR in later periods led to positive firm performance. Finally, the diversity in outcomes on the relationship between CSR and firm performance could also be driven by the use of a variety of variables for firm performance, ranging from internal measures to external measures (Orlitzky et al., 2003, p404).

3.1.1 Summary and conclusion

This section discussed the base of the theoretical framework, initiating from the abstract notion of CSR. CSR is described as a wide array of responsibilities a firm could have. Whether a firm actually does have these wide set of responsibilities is contested, as for example Friedman (2007, p6) states that the only responsibility a firm has is to generate profit. Theory indicate three possible reasons why a firm could chose to engage CSR; Relational, Moral and Instrumental (2007, p837). This study focuses on the Instrumental, the self-interest motivation to participate in CSR to increase of firm performance. Theory argues that reputation because of CSR and increased long term profitability prospects due to long term efficiency gains are the reasons why CSR could increase firm performance (Vázquez-Burguete et al., 2017, p376; Aguilera et al., 2007, p845; Margolis et al., 2009, p8). It is important to note that the long term efficiency gains require relationship building and therefore the fruit of CSR takes a long time to harvest (Margolis et al., 2009, p8). Empirical results on the relationship between CSR and firm performance differ due to the time periods used in the several studies, indicating time period dynamics, and difference in the relationship between CSR and firm performance per sector, indicating cross-sectional effects (Ioannou and Serafeim, 2015, p1053; Aguinis and Glavas, 2012, p940). Finally, the empirical results vary due to different variables used to measure firm performance (Orlitzky et al., 2003, p404).

3.2 Defining firm performance

As indicated above, different proxies for firm performance will yield different relationship between CSR and firm performance. Therefore, as it pertains to this study, to understand the relationship between B-BBEE policy and firm performance, a proxy needs to be adopted for firm performance. The concept of firm performance is broad, it could refer to, amongst others, profitability, growth, productivity, efficiency and competitiveness (Taouab and Issor, 2019, p96). Traditionally, firm performance was defined by firm type. For-profit firms focused, quite evidently, on profit measures as the measure of firm performance. Contrary, non-profit firms targeted a broader spectrum of objectives, such as customer satisfaction, as measurements for firm performance (Taouab and Issor, 2019, p96,p102). Non-profit entities were for

example government sponsored entities which were mainly focused on service delivery. For example, a nationalized power utility was mostly focused on providing power to a nation at minimum costs. However, in general these non-profit firms were loss making and thus inefficient. This was particularly well reflected by the capitulation of the Soviet Union, which led to mass privatization in the late 1980s. In South Africa, the end of Apartheid heralded a wave of privatization. These waves of privatizations proved that business continuity measures, such as profitability, regardless of firm type should not be ignored as firm performance. Traditional for profit firms, on the other hand, were also under pressure. The pressure for these firms arose from social pressure as response to the myopic focus on profitability by for profit firms. Recall from the Contextualization chapter that Chase Manhattan, under civil pressure from within the United States, stopped providing funding to South Africa (Rodman, 1994, p324). Firms were reminded that their firm performance expanded beyond profit objectives. However, this also proves that a firm ignoring their broader responsibility will eventually find its profitability diminishing. Therefore, ultimately profitability is the appropriate measure for firm performance.

Profitability itself can be operationalized through various measurements. For example, net income, is the bottom line profit that firms report on predetermined dates over different time horizons (annually, quarterly or semiannually). Clark et al. (2015, p11) argue that social responsibility, should result in higher net income, whether it be through increased efficiency or increased demand. Put straightforward, a firm that operates socially responsible with regards to all stakeholders will be more popular with consumers, which will increase revenue and ultimately result in higher net profit for the firm. As such, demand for the firm's business model should increase, creating a universe of firms that caters to all stakeholders. Alternatively, a firm that operates socially responsible would, for example, use less resources to create finished products and therefore have less raw material costs and higher profit. Mokgobinyane (2007, p49) used firm profitability measures such as net profit margin, return and equity to measure the relationship between B-BBEE compliance and firm performance. Mokgobinyane (2007, p7) states that the advantage of using these proxies is that they are, unlike the proxy share price performance, isolated from general market movements. Acemoglu et al. (2007, p29) tests the impact of B-BBEE aggregate score on profitability as well, using net profit margin as the dependent variable. However, measures such as profitability can be manipulated through non-cash movements. For example, a firm could change depreciation scheme by increasing asset life, which would not reflect any improvement of the firm's underlying business but the firm would incur lower depreciation costs and thus higher profitability. Both the studies of Acemoglu et al. and Mokgobinyane do not control for such accounting gimmicks.

Alternatively, share price performance is a reflection of profitability which should correct for accounting gimmicks. Firms with higher profitability have been observed to attract more investment flows which drive share price performance (Mokgobinyane, 2007, p59). Investment flows can be viewed as a reflection not of current profitability of the firm, but projected future profitability of the firm. Conventional investment decisions typically are based on discounted future cash flows. The forward looking character of investment flows should allow it to smoothen capital expenditures, such as B-BBEE related costs. Capital expenditures however could have ad hoc impact on backward looking profitability measures such as net profit

margin and return on equity. Investment flows also impact the cost of funding of a firm. For example, according to research, credit ratings are lower for firms that have superior sustainability scores lowering the cost of debt (Clark et al., 2015, p24). Credit ratings are obtained by independent credit agencies that examine the creditworthiness of a firm, the better the credit rating the lower interest rate a firm has to pay. Argued from an alternative vantage point, institutional investors such as pension funds are increasingly obliged by regulators and governments to incorporate measures of CSR into their investment decision-making process, will drive up share price. Within the realm of this study, the South African sovereign wealth fund Public Investment Corporation, must invest in B-BBEE compliant firms (Acemoglu et al., 2007, p27). This increases the share price of B-BBEE compliant firms which strengthens the firm. A firm could for example leverage the share price inflation to raise money from the public equity markets which would allow the firm to achieve economies of scale. The majority of previous research written on the impact of B-BBEE on firm performance used share price return as the proxy variable for firm performance (Jackson et al., 2005, p14;Acemoglu et al., 2007, p29; Metha and Ward, 2016, p549; van der Merwe and Ferreira, 2014, p551).

3.2.1 Summary and conclusion

This section reviewed several proxies for firm performance. It found that the responsibility of firms exceed profitability, but that in essence all the responsibilities are reflected in profitability. The larger responsibility of firms is encapsulated in profitability measures, as firms that do not consider their broader responsibility could be punished by diminished profitability. Thus, profitability is a good proxy for firm performance.

Profitability as it relates to previous research on the relationship between B-BBEE policy and firm performance, is operationalized through accounting measures of profitability or share price return. The advantage of accounting measures of profitability is that it isolates profitability from external noise. However, accounting measures such as net profit margin and return on equity can be manipulated, thereby becoming an ill reflection of profitability. Share price return do not suffer from these manipulations. Further share price returns capture future profitability discounted to current market price. Share price returns also capture investment flows of institutional investors that appreciate a firm's compliance to B-BBEE. Therefore, this study, as well as most previous research, conclude that share price returns are the most appropriate operationalisation of firm profitability.

3.3 B-BBEE policy and firm performance

A firm committed to B-BBEE, according to van der Merwe and Ferreira (2014, p547) , is exhibiting a form of CSR. The reluctance of firms to wholeheartedly embrace the goal of Black Economic Empowerment generally and B-BBEE policy specifically, suggests that costs to comply B-BBEE policy could be substantial.

Alessandri et al. (2005, p9) explain that firm reputation increases through positive media coverage because of a firm's engagement with B-BBEE. The paper by Mehta and Ward (2019, p58,p65) explains firms that display good behavior on the basis of B-BBEE signal good management and therefore gains trust of investors.

This relates to the reputational effect as described in the CSR and firm performance section in this chapter. In the context of this study, South African firms can signal to society that it is being socially responsible by selling a portion of its shares to Black people or placing a Black person as manager to empower Black disadvantaged groups (Jackson et al., 2005, p9). Local retailers purchasing and selling consumer goods in rural Black townships, acknowledge suppliers reputation through media or other advertising forms, and as a result opt to purchase supplies from the firm deemed as doing good in society (Jackson et al., 2005, p9). From a consumer's perspective, the disenfranchised Black people are the group of people in South Africa with a higher propensity to spend. The majority of Black people, living on low costs in rural areas, have a relative higher portion of disposable income (Jackson et al., 2005, p9). Rural dwellers are the ones most affected by wealth inequality. As result, their consumer behavior could express their values regarding empowerment in their consumption pattern (Vázquez-Burguete et al., 2017, p378). In this cases B-BBEE compliance would positively impact firm performance.

B-BBEE policy incentivizes firms directly and indirectly to comply with the policy. Directly, compliant firms can benefit through accessing business deals with government entities (South African Government, 2019). B-BBEE compliant firms are eligible for government tenders which carry large value range between 1 to 10 million ZAR (South African Government, 2019). Indirectly, a the entire supply chain in the sector may also be affected by compliance, under the B-BBEE element preferential procurement (a B-BBEE element) regulation which entails, any firm supplying goods or services to the government or other public entities must ensure that the supplies are purchased from B-BBEE compliant firms (van der Merwe and Ferreira, 2014, p546; Allison, 2015; Trade and Industry Portfolio Committee, 2000, p9). This is also known as the trickle down effect, were the rest of the firm's down a supply chain are persuaded and pressured to comply if they intended to do business together horizontally (Department of Trade and Industry; van der Merwe and Ferreira, 2014, p546) . This indicates that even firms that do not directly deal with government entities could increase firm performance by complying to the B-BBEE policy. Nonetheless, the market access benefit of B-BBEE policy is constrained by sector. For example, research notes that large firms operating in non government facing sectors (such as those in tourism sector) do not find it necessary to comply with B-BBEE because they do not rely on government contracts, as their revenue is generated by servicing the general public (Mokgobinyane, 2007, p35). This suggests that B-BBEE compliance would positively impact firm performance of firms operating in particular (government-related) sectors. This relates to the finding in CSR and firm performance research where certain sectors in which a close relationship between stakeholder, such as the government as customer, increased the relationship between CSR and firm performance (Aguinis and Glavas, 2012, p940). On the other hand, compliance B-BBEE could also be viewed as a prerequisite of continuing business. In this sense, for these sector for which B-BBEE compliance provides access to government related business, B-BBEE compliance could be viewed as increasing costs to continue to operate. Consider a firm that has a long standing relationship with government entities, as government increases the targets, the firm has to incur the cost relating to B-BBEE compliance, just to maintain the relationship. Thus, the perceived benefit of market access through B-BBEE compliance could also just pose a cost. This notion is confirmed by Lindsay (2016, p187), who argues that

firms viewed B-BBEE policy as a form of taxation.

Finally, B-BBEE compliance could also benefit firm performance through productivity gains. This relates to the elimination of rent seeking behaviour within the management of firms through management control targets set in the B-BBEE policy. Economic rent seeking essentially entailed that privileged White people positioned themselves in managerial position wherein their added value to the economic process was microscopic at best. Rather, privileged White People reaped the benefits from their Black subordinates hard work that did add significant value to the economic process but Black subordinates did not reap much of the benefits of their work. Renting seeking is described to be unproductive because it destroy value by depleting valuable resources (Tollison, 2011, p74). If Black people who are more qualified are hired then productivity increases resulting better firm performance (Acemoglu et al., 2007, p20). In this case B-BBEE policy would increase firm performance.

Contrary, there are also aspects of B-BBEE compliance for firms which could decrease firm performance. For example, compliance by share transfer did in particular cases decrease firm performance. Tshetu (2014, p22) states that share transfers from firms to Black people sold at premium to market prices were viewed as risky and as result share price of these firms would collapse. A firm's value would only be destroyed by allowing such transactions with partners that had no capital (Tshetu, 2014, p28). This was one of the reasons how fronting was recognized and became a criminal offence (Mokgobinyane, 2007, p18). Recall from the section pre B-BBEE policy era that fronting was the practise of instead of empowering Black people, using Black people as a 'front cover' to misleadingly portray compliance to Black Economic Empowerment (Jackson et al., 2005, p9-10). The BEE Commission has the authority to investigate fronting practices. In fact, firms found guilty of fronting were made liable to pay fines or imprisonment (Warikandwa and Osode, 2017, p20). If firms complying to B-BBEE policy by selling shares is perceived as fronting or disingenuous then compliance of firms to B-BBEE policy could decrease firm performance.

Even if firms were not perceived disingenuous in their pursuit of B-BBEE compliance, costs of B-BBEE policy compliance remain. For example, BEE transactions which were executed against discount of market price diluted existing shareholders value and therefore contracted firm performance. Furthermore, recall from the section B-BBEE policy era that the targets for B-BBEE compliance set in the 2013 Code of Good practise should pose significant costs to firms. At least 6% of total payroll should be spend on developing skills for Black employees, 25% of cost of sales ex. labor costs and depreciation must be spent in South Africa and at most 1% of profit spent on socio-economic programs. These targets increase the cost of doing business for firms therefore compliance to B-BBEE policy could decrease firm performance.

Despite the positive side B-BBEE production effect there are also negative productivity effect. BEE transfer of shares for ownership had only benefited few well connected politicians and as a result created a unproductive wealthy group of Black people that disregarded the poor people (Tshetu, 2014, p76; Lindsay, 2016, p301). Rather than eliminating rent seeking behaviour, this indicated that rent seeking behaviour was sustained. Black managers are perceived to be less educated and unable to manage a firm because of their educational background, thereby creating a risk factor for investors (Jackson et al., 2005, p10). In these cases compliance of firms

to B-BBEE policy could decrease firm performance.

3.3.1 Conclusion and limitation

This section provided a conceptual overview of costs and benefits related to B-BBEE compliance for firms, rather than identify which exact cost or benefits dominate. Nonetheless, share price movement as result of B-BBEE share transfer indicate that at minimum B-BBEE policy does affect firm performance (with share price as a proxy for firm performance). Alternatively, direct benefits to firms to comply include access to government contracts. This also proves that firm performance is affected by B-BBEE policy compliance. Further, this section indicates that compliance to B-BBEE policy also affects efficiency through productivity effects, thereby solidifying the notion that B-BBEE policy should impact firm performance.

The nature of this relationship is not clear at this point of the study as compliance to B-BBEE constitutes a tradeoff between benefits and significant costs which increase or decrease profitability. However, exploring the direct benefits and costs of B-BBEE policy does hint that the relationship between B-BBEE policy and firm performance differs across sectors.

This section is limited as it does not identify which cost or benefit dominates, this is outside the scope of this study. Further, it is difficult to distil the driving cause of the relationship between B-BBEE policy and firm performance due to overlap. For example, the sale of shares to comply with B-BBEE could indicate social responsibility resulting in favourable share price reaction, it could imply that a firm would become eligible for government contracts and therefore favourable share price reaction, or it could imply a corporate reorganization which would eliminate unproductive employees and therefore create a favourable share price reaction. Therefore, rather than focusing on the driving cause of the relationship, it is more appropriate to focus on the nature of the relationship between B-BBEE policy and firm performance.

3.4 Previous research

Previous research also just focuses on the nature of the relationship and avoid specific drivers of the relationship between B-BBEE policy and firm performance (van der Merwe and Ferreira, 2014, p549; Metha and Ward, 2016, p86; Mokgobinyane, 2007, p45). Exemplary for this is the study by van der Merwe and Ferreira (2014, p549) wherein they state that B-BBEE compliance involves cost and benefits relating to social responsibility and market access, but the authors merely state that when benefits exceed costs, then a positive relationship exists between B-BBEE compliance and firm performance, avoiding whether costs and benefits to be either social responsibility or market access drive the relationship.

Van der Merwe and Ferreira test the effect of B-BBEE aggregate score on share price return. Van der Merwe and Ferreira (2014, p550) selected thoroughly tested control variables that impact share price return, complimented by a sector dummy vector. These control variables were sourced from the famous three factor Fama and French model. This widely adopted three factor model of Fama and French captures most of the average share price return (Fama and French, 1997, p1998; Fama and French, 2003, p39; van der Merwe and Ferreira, 2014, p549). The Fama and French

model state that share price return is a function of risk free rate, sensitivity of a firm's share to market risk premium, size and value. The market risk premium is based upon the traditional CAPM model, the seminal model developed by Markovitz that states that the return of a share of a firm equals the risk relative to the market premium (Fama and French, 2003, p26). The market premium essentially captures the co-movement of a firm to market movement. The size factor relates to the market capitalization of a firm. This is simply the market price of a firm on a stock exchange multiplied by the shares outstanding of the firm. The larger the market capitalization the larger the size of a firm. Fama and French (2003, p38) find that smaller firms tend to outperform larger firms. The value factor relates to the book to market ratio of a firm. The book to market ratio is equal to the book value (also known as the shareholders equity value) as stated on the balance sheet, divided by the market capitalization of the firm. Fama and French (1997, p1975) state that the market undervalues distressed, high book to market ratio firms, and therefore these firms tend to outperform low book to market ratio firms. Van der Merwe and Ferreira (2014, p550) omit the market risk premium and add the earnings to price ratio. It is not clear why van der Merwe and Ferreira omit the market risk premium variable. However, Fama and French (1997, p1997) do find that the earnings to price ratio holds explanatory value for share price return. After establishing a model with the appropriate control variables van der Merwe and Ferreira (2014, p550-551) examine their model from 2005 to 2011, capturing 905 observations . The B-BBEE aggregate scores were retrieved from Empowerdex (van der Merwe and Ferreira, 2014, p550). Van der Merwe and Ferreira (2014, p550) note that the Empowerdex data is released annually in April. To incorporate time for the market to incorporate this information, van der Merwe and Ferreira measure share price return from August to August. Using these specifications, van der Merwe and Ferreira (2014, p552) find a significant negative relationship between B-BBEE aggregate score and share price return. However, van der Merwe and Ferreira (2014, p555) note that their study could be subject to a bias due to the time period as Codes of good practise were revised in 2013 and suggest that research should be done towards the long term effects of B-BBEE compliance as van der Merwe and Ferreira only use one year forward share price returns.

Mehta and Ward study the long term effect of the B-BBEE aggregate score on share price return in a different manner. Rather than performing a regression analysis, Mehta and Ward (2016, p90) compose 4 portfolios, where the top portfolio consists of the top 25% B-BBEE scoring firms. Put straightforward, each quarter the portfolios were rebalanced to account for changes in B-BBEE score as well as changes in the sample size (Metha and Ward, 2016, p90). Mehta and Ward then create a range of normality by bootstrapping which creates a top and bottom range of average share price return for the entire sample. The share price return of the top 25% B-BBEE is then plotted against this range of normality and if the share price returns exceed the top line of the range of normality then the relationship between B-BBEE policy and firm performance would be deemed significantly positive. The time period Mehta and Ward (2016, p89,p94) covered was 2009 - 2015, covering 160 firms. B-BBEE aggregate scores were sourced directly, or through Mpowered Business Solution (Metha and Ward, 2016, p89). Mehta and Ward (2016, p95) find a negative relationship between B-BBEE aggregate score and share price return. The portfolio with the top 25% B-BBEE scoring firms, performed the worst. However,

what is noteworthy is that Mehta and Ward did not create the portfolios sector neutral. This means that the portfolio with the top 25% B-BBEE scoring firms could consist of firms all operating in a sector facing share price return decline. By not controlling for sector, Mehta and Ward were vulnerable to capturing sector effects as well as the effect of B-BBEE on share price return.

Mokgobinyane (2007, p46) uses the B-BBEE aggregate score as the treatment variable, with control variables size, leverage, liquidity and sector. These variables were then tested with different dependent variables, revenue, net profit margin and return on equity (Mokgobinyane, 2007, p48-49). These three regression models are then tested separately for three years, namely 2007, 2010 and 2013 (Mokgobinyane, 2007, p53). Mokgobinyane (2007, p52) uses the B-BBEE aggregate score of the year prior (i.e. the B-BBEE aggregate score of 2006 for the 2007 analysis) to measure whether the score impacted the dependent variable in the subsequent year to measure the causal effect of the B-BBEE aggregate score. Furthermore, Mokgobinyane (2007, p57) compares his sample with B-BBEE aggregate scores, sampled from the B-BBEE aggregate score of the top 100 B-BBEE scoring firms published by Empowerdex, to a sample group of firms listed on the Johannesburg Stock Exchange that are not included in the top 100. Mokgobinyane (2007, p53) finds a disperse set of values for the B-BBEE score coefficients for the various models, none of which displaying a significant relationship between B-BBEE score and the different firm performance measurements. Data availability limits the ability to generalize the findings of Mokgobinyane. Using only three specific years, the study makes itself vulnerable to selection bias. This is underlined by the fact that the new Code of Good Practise released in 2013 was not included in Mokgobinyane's research. Furthermore, Mokgobinyane sector control variables were different for the different years. For example for 2010 and 2013 sector classifications basic materials, consumer services, financial and industrial were used. For 2007, however, technical, industrial, financial, basic materials, consumer services, consumer goods and health care sector classification were used. This could indicate sample size bias, i.e. the 2007 dataset was more dispersed compared to the 2010 and 2013 dataset. Mokgobinyane's selection for revenue as a measurement of firm performance is debatable, as mentioned the measures Mokgobinyane used are susceptible to accounting gimmicks.

Acemoglu et al. (2007, p29) test the impact of B-BBEE aggregate score on profitability as well, using net profit margin as the dependent variable. By conceptualizing the relationship between B-BBEE aggregate score and profitability, Acemoglu et al. simplify the selection of control variables. Acemoglu et al. (2007, p26) argue that the efficacy of B-BBEE aggregate score depends on the cost and benefits of a firm on being B-BBEE compliant. Therefore, control variables include fraction of shares held by the South African Public Investment Corporation and sector with sector charters (Acemoglu et al., 2007, p27). Acemoglu et al. (2007, p29) rely on Empowerdex for B-BBEE aggregate score. The Acemoglu et al. (2007, p29) paper test the impact of B-BBEE score on net profit margin for the period 2004-2006, yielding 159 observations. Acemoglu et al. (2007, p32) find positive, but not significant, relationship between B-BBEE aggregate score and net profit margin. The sample size is rather small, focusing only on the 2004-2006 time period. This makes it difficult to generalize this study's finding on the relationship between B-BBEE aggregate score and net profit margin. Also, although intuitively it makes sense to focus on drivers of B-BBEE cost and benefits to select control variables to

prevent omitted variable bias, even this approach is not devoid of omitted variable bias. Considering the impact that the foreign funding stop had on the Apartheid regime, perhaps a wider definition should have been adopted. This paper , however, only controls for shares held by one institutional investor, the South African Public Investment Commission.

3.4.1 Summary and conclusion

This section evaluated previous research on the relationship between B-BBEE policy and firm performance. The van der Merwe and Ferreira model used a proven set of control variables based on the Fama and French model, whereas other studies either used accounting measures or lacked control variables to reach a general conclusion on the relationship between B-BBEE policy and firm performance. This study finds that previous research hints towards a negative relationship, therefore the more a firm complied to B-BBEE the lower their firm performance. Previous research was found limited by time horizon, measuring only specific years and measuring the effect of B-BBEE policy on a one year basis. The aim of the policy is long term, therefore it is more appropriate to measure the relationship of B-BBEE policy on firm performance using time horizons longer than a year. Previous studies on focusing on specific years, for example 2005 - 2011, are vulnerable to bias to this particular set of years.

3.5 Summary and hypotheses

To answer the research question "What is the long term relationship between B-BBEE policy and firm performance?", a theoretical framework is required to provide a comprehensive answer. This chapter initiated with the relationship between CSR and firm performance. B-BBEE policy can be identified as a form of CSR, therefore initiating with a more generalistic variable such as CSR provided an excellent starting point. CSR is described as a wide array of responsibilities a firm arguably has. The reasons why a firm could assume these responsibilities are Relational, Moral and Instrumental. Instrumental entails the motivation of self interest, or engaging in CSR to increase firm performance. Theory indicates that CSR could increase firm performance due to beneficial reputation and efficiency gains of trust based long term relationships. The latter reason emphasizes that the gains due to CSR demand a long term perspective. Empirical analysis between CSR and firm performance show varying results. Dynamics, such as time period over which the relationship between CSR and firm performance is measured and cross sectional dynamics such as sector bias affect the outcome of the analysis on the relationship between CSR and firm performance. Further the definition of firm performance differs. Analysing firm performance proxies, this study notes that a firm's responsibility extends past mere profit generation. However, all responsibilities, profit generation as well as being a social responsible entity, are captured through the profitability of a firm. Therefore this study equates firm performance to profitability of firms. Profitability is best operationalized through share price return.

Profitability of firms, as a reflection of the wide spectrum of responsibilities, touches upon the effects that B-BBEE policy compliance has on a firm. B-BBEE policy affects profitability negatively through costs incurred to comply to B-BBEE

and beneficially through either efficiency gains or revenue expansion related to B-BBEE. In other words, B-BBEE policy is related to firm performance because B-BEE policy involve cost and benefits which affect firm performance. For example, the costs of B-BBEE policy in terms of ownership targets deal with shares of the firms sold to Black people at discount to market prices, diluting shareholders and lowering share price return. Alternatively, B-BBEE policy requires other expenditures as well, such as skill development. This chapter did not identify which specific cost or benefit dominates the relationship between B-BBEE policy and firm performance. Due to overlap of specific costs and benefits, this study, as well as most previous research, prefers to focus on the aggregate of the cost and benefit associated with B-BBEE policy compliance on firm performance.

As mentioned, the relationship between CSR and firm performance has been diverse. With regards to the relationship between B-BBEE policy, the apprehensive strategy firms adopted towards Black Economic Empowerment hints towards a negative relationship B-BBEE policy between and firm performance in general. The majority of previous research utilized linear regressions to investigate the relationship between B-BBEE policy and firm performance. The lionshare of research found negative relationship, indicating that the aggregate of cost and benefits of B-BBEE policy compliance detracted from firm performance. These studies investigated particular years in time. For example, van der Merwe and Ferreira examine their model from 2005 to 2011, Mokgobinyane used 2007, 2010 and 2013 and Acemoglu et al. tested the relationship between 2004 and 2006, and Mehta and Ward tested 2009 to 2015 (van der Merwe and Ferreira, 2014, p550;Mokgobinyane, 2007, p53; Acemoglu et al., 2007, p29; Metha and Ward, 2016, p94). With the exception of Acemoglu et al., all research indicated a negative relationship between B-BBEE policy and firm performance. This leads to the indication that on overall, the relationship between B-BBEE policy and firm performance would be negative. The following (falsifiable) hypothesis is formulated:

Null Hypothesis 1 *The relationship between B-BBEE policy and firm performance between 2004 and 2018 was positive*

The analysis of CSR on firm performance indicates time period dynamics. In the case of the B-BBEE policy, the Contextualization chapter revealed an increasingly stringent B-BBEE policy. This leads to the indication that the aggregate effect of B-BBEE policy compliance differs across time. Specifically, because the policy became more interventionist it is expected that the relationship between B-BBEE policy and firm performance became more pronounced. The following (falsifiable) hypothesis is formulated:

Null Hypothesis 2 *The intensity of the relationship between B-BBEE policy and firm performance is uniform through time*

The analysis of the relationship between CSR and firm performance indicates cross-sectional dynamics. Further, analysis of the benefits of B-BBEE policy does indicate that firms operating in sectors interacting with government could enhance revenue as government entities must select B-BBEE compliant business partners. This indicates that there is not only a time dimension, but also a cross sectional dimension. Therefore to provide a comprehensive answer to the research question, one must explore whether the long term relationship between B-BBEE policy and firm performance varies per sector. The following (falsifiable) hypothesis is formulated:

Null Hypothesis 3 *The relationship between B-BBEE policy and firm performance is uniform across sectors*

4

Methodology

This chapter builds upon the insights collected in the previous chapters. Based on these findings, this study shall undertake empirical research. The concepts and techniques used to undertake the empirical research shall be discussed here.

4.1 Research design

This study aims to investigate the long term relationship between the B-BBEE policy and firm performance. The research question and theoretical framework discussed in the previous chapter guide the operationalization which this chapter introduces to perform empirical analysis in the following chapter. This section follows this logical sequence by first revising the main research and sub research question. Thereafter the research method is presented.

4.1.1 Research questions

The main research question posed in the Introduction chapter is: "What is the long term relationship between the Broad-Based Black Economic Empowerment policy on firm performance of Johannesburg Stock Exchange-listed companies?". The research question indicates a generalized research. This is analyzed through quantitative analysis seated from the theoretical framework.

To answer this research question several sub questions arise. The long term impact can be for example tested over the entire time period from 2004 to 2018. This creates the research subquestion: "What was the long term relationship between Broad-Based Black Economic Empowerment policy and firm performance of the Johannesburg Stock Exchange-listed companies over the period 2004 - 2018?". This sub question closely resembles the research question. However, this sub research question does not answer the main research question in terms of dynamics of the long term relationship between B-BBEE policy and firm performance.

One of these dynamics, mentioned in the theoretical framework is time. Theory concluded that B-BBEE policy intervention increased and therefore the potency of the relationship between B-BBEE policy and firm performance should increase over time. This relates to the sub research question "What was the long term relationship between B-BBEE policy and firm performance among the three B-BBEE policy periods?". The Contextualization notes that the B-BBEE policy altered in 2004,

2007 and 2013. Thus the time period 2004 to 2018 could be subdivided into the periods 2004 - 2007, 2007 - 2013, and 2013 to 2018.

Another dynamic required to fully answer the main research question is the cross-sectional dynamics. The theory notes that the aggregate cost and benefit for firms to comply to the B-BBEE policy might differ across sectors. This relates to the sub research question: "Did the relationship between B-BBEE policy and firm performance differ across sectors?".

4.2 Research method

This study quantitatively test the hypotheses using an ordinary least squares regression analysis. Most of the prior research on the long term relationship between B-BBEE aggregate score and share price return have deployed ordinary least squares regression analysis and no indication was presented of non-linearity of the findings. There are 2 models tested. Model 1, the FF model, resembles the Fama and French model:

$$\begin{aligned} R_{it} = R_{ft} + \beta BBBEE_{it} + \beta[E(R_{Mt}) - R_{ft}] + \\ \beta_{iBMIndex} BMIndex_t + \beta_{iSIZEIndex} SIZEIndex_t + \beta SECTOR_{it} + \epsilon_{it} \end{aligned} \tag{4.1}$$

where R_{it} is the share price return of observation i at time t, R_{ft} is the risk free return at time t, $\beta BBBEE_{it}$ is the B-BBEE rank for observation i at time t, $\beta[E(R_{Mt}) - R_{ft}]$ is the (beta) coefficient of observation i for the market return at time t over the risk free return at time t, $\beta_{iBMIndex} BMIndex_t$ is the (beta) coefficient of observation i for index of high minus low book to market value at time t, $\beta_{iSIZEIndex} SIZEIndex_t$ is the (beta) coefficient of observation i for the index of high minus low market capitalization at time t, $\beta SECTOR_{it}$ are the coefficients of observation i for the vector of sector dummy variables at time t and ϵ_{it} is the error term for observation i at time t.

This model follows the original FF model by measuring the BM and SIZE factors as indices of high minus low book to market indices and high minus low market capitalization firms. It is important to note that the FF model does not incorporate a constant, which is conventional in regression models. This is because the Fama and French assumes that capital markets are efficient and therefore all share price return is captured by the variables proposed (Quantilia, 2017).

Model 2, the MF model is defined similarly to the model defined by Merwe and Ferreira:

$$\begin{aligned} R_{it} = \alpha_0 + \beta BBBEE_{it} + \beta BMRatio_{it} + \beta SIZERatio_{it} \\ + \beta EPRatio_{it} + \beta SECTOR_{it} + \epsilon_{it} \end{aligned} \tag{4.2}$$

where R_{it} is the share price return of observation i at time t, α_0 is the constant, $\beta BBBEE_{it}$ is the B-BBEE rank for observation i at time t, $\beta BMRatio_{it}$ is the (beta) coefficient of observation i of book to market value of observation i at time t, $\beta SIZERatio_{it}$ is the (beta) coefficient of observation i to market capitalization of observation i at time t, $\beta EPRatio_{it}$ is the (beta) coefficient of observation i to the earnings to price ratio of observation i at time t, $\beta SECTOR_{it}$ are the coefficients of observation i for the vector of sector dummy variables at time t and ϵ_{it} is the error term for observation i at time t. This model closely follows the methodology of van der Merwe and Ferreira.

Testing both the FF model and MF model adds to the robustness of the empirical analysis. Model 1, based upon the FF model could yield more observations. As only the beta coefficient to the index is required, more observations can be included. In model 2, based upon the MF model the book to market of a firm at a particular time is used. However, when the book to market of a firm is unavailable, then this firm at a particular time is discarded. On the other hand, replicating the model of van der Merwe and Ferreira offers comparability. The models are used to test all the sub research questions.

Apart from the two models, a bootstrap simulation is ran to investigate the relationship between B-BBEE policy and firm performance in general and per sector. The advantage of running a bootstrap simulation is that this simulation does not require Gaussian assumptions. This adds to robustness of this study's empirical analysis. To run the bootstrap simulation, B-BBEE observations are randomly resampled in a particular year. Then, the median is calculated. This resampling is done 10,000 times for this particular year, resulting in a top 95% median and bottom 5% of the generated medians. This exercise is repeated for each of the years. These confidence intervals are not subject to normal distribution assumptions. The average performance of the top and bottom 30% B-BBEE compliant firms for each year is then compared against the confidence intervals. A significant positive relationship is established when the top or bottom 30% B-BBEE outperforms the top 95%. This method resembles the bootstrap methodology used by Mehta and Ward. The selection for 30% as the cut of for top and bottom B-BBEE was inspired by the cut off Fama and French used for the calculation of the Fama and French factors.

4.2.1 Replicability

The models were coded using Python. The repository with code is available through github at `https://github.com/OmegalGangapersad/MasterThesis`. This study argues that composing models in an universally popular open source coding language such as Python, and making this code available for inspection by any individual through github increases the transparency and replicability of this study.

4.2.2 Defining long term

The body of research discussed in the section "Previous research" uses a time horizon of one year to investigate the long term effect of B-BBEE on firm performance. Van der Merwe and Ferreira (2014, p554) note that using a time horizon of one year is not sufficient to capture the efficacy of the policy. This research adds to the body of research by investigating the relationship between B-BBEE rank and share price return, one, two, three, four and five years forward. The long history of B-BBEE enables this research to perform these analyses.

4.3 Variables and data collection

This section defines the variables mentioned in the research method and provides justification for selecting these variables. Finally, this section will disclose how the the data on these variables were collected.

4.3.1 Dependent variable - share price return

This study argues that firm profitability is the best suited measurement for firm performance. Firm profitability is operationalized through share price return. Share price returns capture future profitability discounted to current market price. Further, share price returns are able to appreciate investment flows of institutional investors that appreciate a firm's compliance to B-BBEE. This study, as well as most previous research, finds share price returns the most appropriate operationalisation of firm profitability.

Share price return is defined as the daily return calculated as natural log return. The returns are calculated from August to August, as proposed by van der Merwe and Ferreira (van der Merwe and Ferreira, 2014, p550). Considering that B-BBEE score (mentioned in the next paragraph) are released in April, the four month lag allows the market to incorporate the information of B-BBEE scores. This data is obtained through Thomson Reuters Datastream. As discussed in the section defining long term the time horizon over which this return is calculated is one, two, three, four and five years.

4.3.2 Treatment variable - B-BBEE rank

The B-BBEE policy is measured through a firm's compliance with the policy. The variable that is used to measure firm compliance to B-BBEE policy is B-BBEE aggregate score. However, rather than simply adopting this variable, this study translates set of B-BBEE aggregate scores per firm in each year to ranks, thus using B-BBEE ranks as the operationalization of B-BBEE policy. The aim of this study is not to identify granularity of B-BBEE aggregate score, but to understand the long term relationship between B-BBEE policy and firm performance.

The source of the B-BBEE data from 2016 to 2018 was retrieved directly from Empowerdex through the website of their holding company, Intellidex. Colin Anthony, GM of Intellidex Investment Media, provided B-BBEE scores 2011 to 2015. Finally, van der Merwe supplied B-BBEE scores in excel from 2005 to 2011. The source of van der Merwe was also from Empowerdex, therefore the creator of the scores was consistent, namely Empowerdex. As visualized in the below figure, the availability of BBBEE rank varied significantly by year. The B-BBEE ranks were retrieved through the Empowerdex Top 100 JSE Most Empowered Companies, as mentioned in the methodology. Interestingly, it appears that the Empowerdex Top 100 in pre 2010 mostly exceeded 100 firms. From 2010 onwards, the number of observations with a B-BBEE rank dropped to below 100 firms. The reason for the drop below 100 firms, instead of equal to 100 firms as one would expect from a top 100, is that firms for which no price was available (price was retrieved from Thomson Reuters Datastream) were excluded. This resulted in an average of 5 firms being excluded, therefore an average of 95 firms available each year. Notably, in 2017 the number of firms dropped to 62. The B-BBEE rank for 2017 were retrieved from the Intellidex website. It appears that the amended codes were made obligatory by 2017, yielding in the drop of observations in 2017. The variability of observations required adjustments to prevent outcomes biased to the pre 2010 period. Put straightforward, as most observations were from pre 2010 this analysis would be moreso a reflection of the pre 2010 period, rather than the entire 2004 - 2018 period. Therefore, the number of observations for B-BBEE rank was capped at 60,

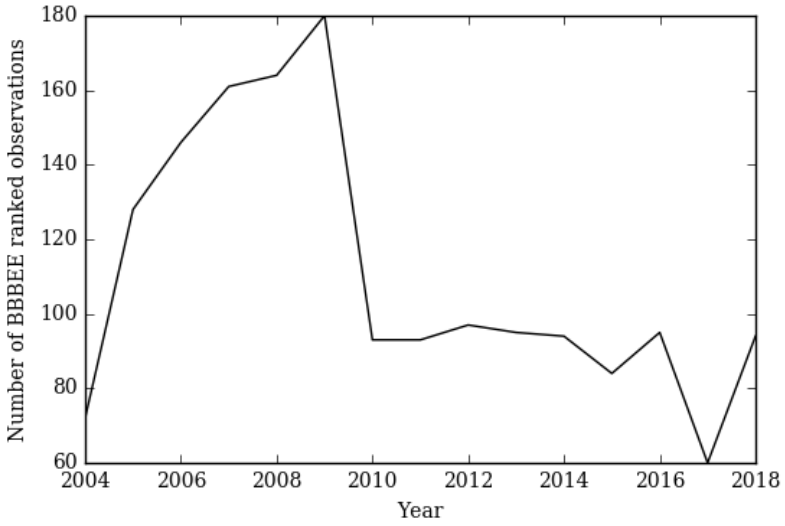

Figure 4.1: Available B-BBEE rank observations per year

to create a uniform distribution of observations through time. In the use of the models, the B-BBEE rank was flipped, therefore rank 60 was the best ranking firm in terms of compliance to B-BBEE policy. This was done to improve readability of the regression results. In this case a negative coefficient for B-BBEE rank on share price returns indicates that the better the B-BBEE policy compliance of a firm, the worse the share price return.

4.3.3 Control variables

The risk free rate is defined as the yield on the 10 years South African Government bond. The yields of the 10 years South African Government bond is obtained through Thomson Reuters Datastream. The value factor is the book value per share as stated in Thomson Reuters Datastream. The book value per share equals the book market to market capitalization ratio. The size factor is the market capitalization factor and obtained through Thomson Reuters Datastream. The earnings to price ratio equals the earnings yield, which is defined as the earnings divided by the closing price of a firm. This ratio is retrieved from Thomson Reuters Datastream.

The Fama and French model uses three indices; market risk premium, BM Index and SIZE index. The constituents of these indices at any point in time depend on the universe of firms at that particular time. The availability of the firms in the universe depends on the availability of B-BBEE rank. Put straightforward, the market risk premium is calculated as the average return of the firms available each year. The BM Index follows the Fama and French methodology, therefore the return of the BM Index equals the average return of the 30% highest book to market ratio firms at a particular time minus the average return of the 30% lowest book to market ratio firms at a particular time. The number of firms available in total, to emphasize, depends on the availability of B-BBEE rank. At the different time frames (one, two, three, four, five years) these indices represent the return of these indices over the different time frames, therefore the BM Index on a two years time frame represents the average two year return of the 30% highest book to market ratio firms at a particular time minus the average return of the 30% lowest book to market ratio

firms at a particular time.

Instead of using sector categorization through the Code of Good Practise, this study based sector classification based on the ICB Industry name, which is gathered through the Thomson Reuters Datastream Industry Level 2 Sector Name. Using the sector classification from Thomson Reuters Datastream prevents the sector classification inconsistencies encountered in the Mokgobinyane study.

5

Empirical Analysis

This chapter discusses the earlier stated hypotheses stated. This chapter will first discuss the descriptives of the dataset used for analysis (hereafter, the analysis dataset). Thereafter the research sub questions are investigated.

5.1 Descriptive statistics

Descriptive statistics are used to inform the reader about the general characteristics of the analysis dataset used to test the hypotheses. Preferably these characteristics resemble the characteristics of the wider population to allow for generalized statements. Therefore, the firms from analysis dataset were compared to the JSE All Share Index. The JSE All Share Index is the broad based Index of the Johannesburg Stock Exchange. The table below compares the sector weighting for the analysis dataset and the JSE All Share Index (equal weighted) as of 30th April 2019. The equal weight of 30th April 2019 for the JSE All Share Index was retrieved from Thomson Reuters Datastream. This index comprised as of latest date because only the latest date (as of 30th April 2019) and names (no weight) were available for the constituents of the JSE All Share Index. The sector weighting for the B-BBEE sample was calculated by the following formula:

$$W_{it} = \frac{N_{it}}{N_t} \tag{5.1}$$

where, W_{it} is the sector weight of sector i at time t, N_{it} is the number of firm in sector i at time t and N_t is the total number of firms at time t. For the JSE All Share the time variable was fixed, as only the latest date was available. To check for bias in the B-BBEE sample, this study subtracted the weight per sector of JSE All Share Index from the analysis dataset per sector per time. The results are displayed on the next page.

Table 5.1: Relative bias sample versus JSE All Share Index 2019

Year	Basic Materials	Consumer Goods	Consumer Services	Financials	Healthcare	Industrial	Technology	Telecommunications
2004	6%	0%	5%	-18%	-3%	4%	4%	1%
2005	2%	2%	-2%	-14%	-1%	4%	8%	1%
2006	2%	4%	1%	-18%	-1%	1%	9%	1%
2007	4%	-3%	1%	-9%	-1%	-2%	9%	1%
2008	-3%	-5%	-5%	-11%	-1%	9%	13%	3%
2009	-8%	-1%	1%	-11%	1%	11%	9%	-2%
2010	-8%	-3%	-2%	-14%	1%	14%	9%	3%
2011	-6%	-3%	-5%	-13%	1%	16%	8%	3%
2012	-4%	-5%	-4%	-13%	-1%	16%	9%	1%
2013	-6%	-3%	-4%	-11%	1%	11%	8%	4%
2014	-8%	-1%	-5%	-13%	1%	14%	8%	4%
2015	-9%	-3%	-4%	-8%	1%	16%	8%	-1%
2016	-3%	-5%	-10%	-9%	-4%	23%	8%	1%
2017	-3%	-6%	13%	-31%	2%	26%	-1%	-1%
2018	-3%	-5%	-4%	-14%	-1%	19%	8%	-1%

The Basic Materials sector predominantly consisted of mining firms such as Anglo-American, BHP Billiton and Lonmin. This sector had few observations in the total sample size. On the 1 year time horizon, the horizon with the most observations, there were only 108 observations. Similarly, the Telecom sector, consisting of mobile telecom operators such as Vodacom and MTN, had low observations. The Technology sector consisted of software companies, again a sector with limited observations. Health care, consisting of pharmaceutical firms, also had few observations in the dataset analysis. Consumer Services, the sector dominated by Media firms such as Naspers also yielded few observations. On the other hand, Industrial, a sector dominated by construction firms that build infrastructure, dominated the analysis dataset. Financials also displayed dominance in the analysis dataset. Finally, Consumer Goods, a sector consisting mostly of food producers such as Famous Brands, also claimed a dominant position in the analysis dataset. The low number in all the sectors except Industrial, Financials and Consumer Goods increase biases to a select number of firms. The Industrial, Financials and Consumer Goods are sufficiently observed to make substantial claims.

The table above shows the percentage of observations in the respective sectors for the JSE All Share equal weight, and the firms for which B-BBEE rank was available. Recall that the JSE All Share equal sector weight was retrieved from 30th April 2019, therefore the percentage of observations in any of the sectors of the JSE All Share equal weight was static through time. Contrary, the sector weighting for the analysis dataset did change annually.

Comparing the analysis dataset with the JSE All Share indicate bias towards Industrial sector. This might be due to the nature of this sector and relates to the cross sectional dynamics of the relationship between B-BBEE policy and firm performance as found in the theoretical framework. Most firms in the Industrial sector were active in the construction business. In the construction business, it is likely that a significant portion either directly or indirectly engages in business with government entities. Recall from the Theory chapter, firms that reach B-

BBEE targets receive B-BBEE aggregate score that places these firms eligible to obtain government business or business from firms that require suppliers to be B-BBEE compliant (van der Merwe and Ferreira, 2014, p546; Allison, 2015; Trade and Industry Portfolio Committee, 2000, p9). The extraordinary benefit that the Industrial sector enjoys, especially compared to other sectors, could explain the bias of the Industrial sector in the analysis dataset. It is interesting to note the increase in bias towards the Industrial sector in this dataset compared to the JSE All Share equal weight adjustment of the B-BBEE policy. This relates to the time dynamics as found in the theoretical framework. Recall from the Contextualization chapter that amendments in B-BBEE policy occurred in 2007 and in 2013. Prior to 2007 the overrepresentation of the Industrial sector was about 4%, between 2007 and 2013 about 15%, and after 2013 24%. On the other hand, this increasing overrepresentation could also indicate that the cost of compliance increased to the extent that firms operating in a different sector would find less beneficial to be B-BBEE compliant, simultaneously, Industrial firms would have to remain B-BBEE compliant to stay in business with government. This line of thinking reflects the idea that B-BBEE compliance benefits are in fact costs to remain in business, as discussed in the Theory.

The analysis dataset underrepresented the Financials sector. This also could be explained from the cross-sectional dynamic standpoint. Financials, such as banks, could have a less obvious benefits of B-BBEE compliance as these firms are not directly tendering for government like Industrial firms. However, recall from the Theory that consumer behavior could reward firms that were exhibiting social responsible behaviour (Vázquez-Burguete et al., 2017, p378). However, this benefit is not found significant enough in the case of the Financials sector in the analysis dataset. The underrepresentation is somewhat surprising as the Contextualization chapter revealed Sanlam, a Financials sector firm, was the first South African firm to implement a form of BEE by transferring 10% of ownership to Black people. The underrepresentation leads speculation that firms operating in the Financial sector mostly engage in B-BBEE policy to minimize damage and therefore adopt a defensive and apprehensive strategy reflected in the underrepresentation of this sector in the analysis dataset.

Despite these differences, the top 3 dominant sectors of the JSE All Share equal weight; Industrials, Consumer Goods and Financials are also dominant in the analysis dataset. The smaller sectors; Technology, Health Care, Telecommunication, Basic Materials and Consumer Services displayed at most overseeable deviations between the analysis dataset and JSE All Share Index. The JSE All Share Index consisted of 164 firms, of which 125 were included in the analysis dataset at some point in time. Therefore, the analysis dataset was found representative of Johannesburg Stock Exchange listed firms.

In terms of persistency of constituents, this study analysed how many of the top 30% ranking B-BBEE firms persisted in the top 30% the next one, two, three, four and five years. This reveals possible bias in the sample towards a particular set of firms in the analysis dataset. Considering the persistency over the entire analysis dataset the following results were observed.

Table 5.2: Firm persistency entire dataset

Year	1	2	3	4	5
2004	53%	42%	42%	21%	16%
2005	68%	47%	26%	16%	21%
2006	53%	32%	26%	32%	21%
2007	40%	35%	30%	25%	30%
2008	68%	53%	42%	37%	42%
2009	58%	53%	47%	42%	53%
2010	58%	47%	47%	47%	37%
2011	63%	58%	58%	47%	37%
2012	68%	63%	47%	42%	26%
2013	74%	58%	47%	37%	47%
2014	74%	47%	42%	42%	
2015	42%	47%	42%		
2016	26%	32%			
2017	47%				
2018					

This table can be interpreted as follows, for 2004 under column 1, persistency of 53% is observed. This means that from top 30% B-BBEE ranking firms over the entire analysis dataset in 2004, 53% of these firms were part of the top 30% B-BBEE ranking firm over the entire analysis dataset in 2005. Although the table shows some exceptions, few general remarks can be made. First, it appears as if the persistency is strongest in the next year (column 1) but generally fades in subsequent years (column 5, displaying generally the lowest persistency for each year). Secondly, it appears that the persistency increased over each year. For example, the next year persistency in 2004 was 53%, which gradually increased until 2014. In 2014 next year persistency reached 74%. This could indicate that tightened B-BBEE policy targets over time increased persistency.

Persistency also displayed some sector effects. The next page presents the persistency for firms in the Industrial sector.

Table 5.3: Firm persistency Industrial sector

Year	1	2	3	4	5
2004	38%	63%	63%	63%	75%
2005	50%	38%	38%	50%	63%
2006	50%	50%	75%	63%	50%
2007	100%	83%	83%	100%	83%
2008	64%	64%	73%	64%	55%
2009	62%	62%	54%	62%	54%
2010	92%	69%	54%	46%	46%
2011	71%	57%	50%	43%	43%
2012	79%	71%	57%	50%	64%
2013	85%	69%	54%	77%	62%
2014	69%	69%	85%	62%	
2015	50%	75%	58%		
2016	79%	64%			
2017	67%				
2018					

The persistency in the Industrial sector, generally, displayed higher percentages than the persistency over the entire analysis dataset. For example, see the 2007 row. This row shows 100% of the 2007 of the top 30% constituents were in the top 30% in 2008, 83% of the 2007 constituents were in the top 30% in 2009, 83% of the 2007 constituents were in the top 30% in 2010, 100% in 2011 and 83% in 2012. This indicate quite strong persistence which provides another indication of firms in the Industrial sector to remain B-BBEE compliant in order to be eligible for government business (van der Merwe and Ferreira, 2014, p546; Allison, 2015; Trade and Industry Portfolio Committee, 2000, p9).

The maximum amount of observations in the analysis dataset, given 60 firms for 15 years, equals 900. On the next page, an overview of descriptive statistics for the variables for Model 1, the FF (Fama and French based) model using the analysis dataset.

Table 5.4: Descriptive statistics variables

	BMRatio	SIZERatio	EPRatio	BMIndex_YR1	SIZEIndex_YR1	MarketPremium_YR1	RiskFreeReturn_YR1	SharePriceReturn_YR1
count	816	900	835	15	15	15	15	900
mean	0.90	36024	-11.50	6%	2%	9%	8%	14%
std	2.42	96943	221.03	6%	7%	23%	1%	47%
min	-0.47	3	-4670.81	0%	-15%	-20%	7%	-95%
25%	0.34	1522	5.10	3%	-1%	-5%	8%	-12%
50%	0.55	7653	7.70	6%	4%	3%	9%	10%
75%	0.88	26091	10.30	8%	8%	18%	9%	31%
max	55.66	1434027	65.39	23%	12%	67%	10%	756%

This table shows the descriptives for the one year forward share price return. The characteristics also held for the two, three, four and five year time horizon. The one year forward share price return varied widely. The standard deviation was 47%, and the difference between the minimum and maximum observation share price return for one year equaled more than 800%. Similarly the BM ratio and SIZE ratio varied greatly. BM is the book to market ratio as defined by van der Merwe and Ferreira. The minimum BM ratio was negative. A negative BM ratio indicates negative equity value, or a firm in severe distress. The number of observations on the BM ratio equaled 816, indicating that of 900 observations there was no BM ratio available for 84 observations. SIZE ratio was the market capitalization as defined by van der Merwe and Ferreira. The SIZE ratio indicates that both very small firms and very large firms were available in the dataset used for analysis with 75% of the observations having a market capitalization greater than 1.4 billion ZAR. The indices, BM, SIZE, MarketPremium, and RiskFreeReturn only showed 1 value for each year, hence 15 observations were yielded for these variables. The indices of BM, SIZE, MarketPremium and RiskFreeReturn are based upon the Fama and French methodology. Recall that the RiskFreeReturn equals 10 years South African government bond. The RiskFreeReturn remained, compared to the other variables, relatively immune from variance. The bottom 25 percentile observation equaled 8.1% and the top 75 percentile observation equaled 8.7%.

Given the large variability of some of the factors, this study adjusted analysis dataset for outliers (hereafter, outlier adjusted analysis dataset). The outlier adjusted analysis dataset constrained the minimum value for the BM ratio, SIZE ratio and share price return to -2 times standard deviation from the mean, and the maximum value to +2 times standard deviation from the mean. The descriptives for this outlier adjusted analysis dataset are presented below.

Table 5.5: Descriptive statistics variables outlier adjusted

	BMRatio	SIZERatio	EPRatio	BMIndex_YR1	SIZEIndex_YR1	MarketPremium_YR1	RiskFreeReturn_YR1	SharePriceReturn_YR1
count	816	900	835	15	15	14	14	900
mean	0.77	29618	-11.50	4%	4%	4%	17%	14%
std	0.79	52727	221.03	3%	4%	21%	1%	40%
min	-0.47	3	-4670.81	0%	-3%	-27%	15%	-95%
25%	0.34	1522	5.10	2%	1%	-7%	17%	-12%
50%	0.55	7653	7.70	4%	3%	1%	18%	10%
75%	0.88	26091	10.30	6%	6%	7%	18%	31%
max	4.84	225857	65.39	11%	12%	50%	19%	189%

Recall that the indices of BM, SIZE and MarketPremium were based on the universe of share price returns available. Therefore, adjusting the share price return for outliers also impacted the indices of BM, SIZE and MarketPremium. The outlier adjusted analysis dataset still displayed variability, however at a much lower rate as can be viewed from the significantly lower maximum value for BM, SIZE and share price return. It is interesting to note that the variability of the MarketPremium rose as result of the outlier adjustment for the share price return. This indicates that as outliers were excluded from share price return, correlations increased between firms share price return and therefore the upper band of the MarketPremium increased.

The correlation matrix suggests that multicollinearity did not exist in the analysis dataset. Below the correlation matrix for the analysis dataset.

Table 5.6: Correlation matrix

	1	2	3	4	5	6	7	8	9
BMRatio (1)	1.00	-0.08	-0.02	0.01	-0.04	-0.07	0.04	0.04	-0.05
SIZERatio (2)	-0.08	1.00	0.03	-0.03	-0.05	0.06	-0.04	-0.06	0.04
EPRatio (3)	-0.02	0.03	1.00	0.03	-0.02	0.01	0.05	0.00	0.08
BMIndex_YR1 (4)	0.01	-0.03	0.03	1.00	0.00	-0.11	-0.34	0.06	-0.20
BBBEE_Rank (5)	-0.04	-0.05	-0.02	0.00	1.00	0.00	0.00	0.00	-0.03
SIZEIndex_YR1 (6)	-0.07	0.06	0.01	-0.11	0.00	1.00	-0.60	-0.28	-0.15
MarketPremium_YR1 (7)	0.04	-0.04	0.05	-0.34	0.00	-0.60	1.00	-0.07	0.39
RiskFreeReturn_YR1 (8)	0.04	-0.06	0.00	0.06	0.00	-0.28	-0.07	1.00	-0.05
SharePriceReturn_YR1 (9)	-0.05	0.04	0.08	-0.20	-0.03	-0.15	0.39	-0.05	1.00

An overview of the correlations on two, three, four and five years basis can be found in Appendix A. The correlation matrix for the outlier adjusted analysis dataset shows as similar picture, as can be viewed below.

Table 5.7: Correlation matrix outlier adjusted

	1	2	3	4	5	6	7	8	9
BMRatio (1)	1.00	-0.23	-0.08	0.02	-0.02	0.03	-0.10	0.06	-0.17
SIZERatio (2)	-0.23	1.00	0.04	0.00	-0.03	0.04	-0.01	-0.08	0.06
EPRatio (3)	-0.08	0.04	1.00	0.05	-0.02	0.04	0.05	0.00	0.09
BMIndex_YR1 (4)	0.02	0.00	0.05	1.00	0.00	0.53	-0.34	-0.12	-0.16
BBBEE_Rank (5)	-0.02	-0.03	-0.02	0.00	1.00	0.00	0.00	0.00	-0.01
SIZEIndex_YR1 (6)	0.03	0.04	0.04	0.53	0.00	1.00	-0.65	-0.29	-0.24
MarketPremium_YR1 (7)	-0.10	-0.01	0.05	-0.34	0.00	-0.65	1.00	-0.27	0.46
RiskFreeReturn_YR1 (8)	0.06	-0.08	0.00	-0.12	0.00	-0.29	-0.27	1.00	-0.05
SharePriceReturn_YR1 (9)	-0.17	0.06	0.09	-0.16	-0.01	-0.24	0.46	-0.05	1.00

Both correlation matrices indicate that there is no multicollinearity within the datasets. The observed correlations between the variables are low to negative. The correlation matrix for the outlier adjusted analysis dataset shows more pronounced correlations as expected. For example the correlation between BMRatio and SIZERatio is -0.23 in the outlier adjusted analysis dataset versus -0.08 in the analysis dataset.

It can also be observed from the correlation matrix of the analysis dataset that the market, contrary intuition based on the Fama French theory, indicates a negative correlations between BM ratio and share price return and BM Index and share price return. Recall from the Theory chapter that Fama and French (1997, p1975) state that the market undervalues distressed, high book to market ratio firms, and therefore these firms tend to outperform low book to market ratio firms. This relationship is elusive in the analysis dataset. This indicates that the BM variable could be inappropriate to explain share price returns within the dataset analysed. On the other hand the correlation between MarketPremium and share price return did display a higher correlation, 0.46. Therefore, the dataset suggests that share price return for firms was mostly determined by movement of the general market. This, in the context of a developing market such as South Africa, seems perfectly logical as these markets are not as mature as the United States, Japanese or European markets upon which the Fama French study were based. Nonetheless the unexpected correlation between BM and share price does raise concerns on the appropriateness of BM as a control variable in this study.

5.2 Regression results

Recall that the methodology indicated three aspects to the relationship between BBBEE policy and firm performance, one calling for a analysis on the entire dataset,

one calling for regression of specific time periods and one calling for regressions per sector. This section presents the empirical results of the regression analysis per sub research question by operationalizing B-BBEE policy through B-BBEE rank and firm performance with share price return, per specification in the Methodology chapter.

5.2.1 Relationship between B-BBEE policy and firm performance 2004 -2018

This section concerns the research sub question: "What was the long term relationship between Broad-Based Black Economic Empowerment policy on firm performance of the Johannesburg Stock Exchange-listed companies over the period 2004 - 2018?". The regression results of the analysis dataset for this sub research question for Model 1, the FF model (specified in the Methodology chapter) is presented below.

Table 5.8: Regression Model 1, 2004 - 2018

	1	2	3	4	5
BMIndex	-0.2480	-0.4555	-1.1840	0.3650	1.2904
	(0.3197)	(0.8511)	(1.5824)	(2.5089)	(2.1644)
BBBEE_Rank	-0.0006	-0.0028*	-0.0069***	-0.0065*	-0.0017
	(0.0009)	(0.0016)	(0.0026)	(0.0034)	(0.0046)
SIZEIndex	0.8076**	0.5197	0.6443	0.6603	-0.1533
	(0.3248)	(0.5360)	(0.7693)	(1.1358)	(1.1300)
MarketPremium	0.9686***	1.0702***	1.1230***	1.4520***	1.6534***
	(0.1079)	(0.1748)	(0.3680)	(0.5178)	(0.3945)
RiskFreeReturn	0.6521	-0.1951	0.8228	-2.7341	-4.1080
	(2.2691)	(2.9432)	(3.6206)	(7.5388)	(7.9526)
Consumer Goods	0.0369	0.2265	0.1400	1.7100	2.9063
	(0.2143)	(0.5548)	(1.0675)	(2.9893)	(4.0711)
Financials	0.0558	0.3282	0.3099	1.8070	2.9933
	(0.2090)	(0.5489)	(1.0607)	(2.9764)	(4.0449)
Technology	-0.0488	0.2580	0.2805	1.8074	3.0038
	(0.2127)	(0.5551)	(1.0666)	(2.9762)	(4.0513)
Healthcare	0.0960	0.5821	0.5522	2.1466	3.4400
	(0.2165)	(0.5585)	(1.0739)	(2.9911)	(4.0623)
Industrial	-0.0384	0.1635	0.0480	1.4233	2.2926
	(0.2061)	(0.5464)	(1.0565)	(2.9752)	(4.0371)
Consumer Services	0.0634	0.2392	0.1807	1.6321	2.7102
	(0.2102)	(0.5533)	(1.0664)	(2.9819)	(4.0610)
Basic Materials	0.0184	0.1657	0.0090	1.5287	2.4668
	(0.2115)	(0.5537)	(1.0651)	(2.9778)	(4.0566)
Telecommunications	0.0742	0.2379	0.1742	1.5765	2.4642
	(0.2201)	(0.5583)	(1.0682)	(2.9831)	(4.0483)
N	816	752	694	638	582
R^2	0.18	0.22	0.26	0.14	0.10

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p0.01

There are 5 columns visible in this table, these columns represent the share price returns time horizons. Therefore column 1 represent the 1 year share price return, column 2 represents the two year forward share price return, etc. From this model, under the specifications stated (no adjustment for outliers), r-squared for all time horizons exceed 0.10. Van der Merwe and Ferreira (2014, p551), in their study, note that a r-squared of 5.6% is acceptable to investigate the relationship between B-BBEE score and share price return. Therefore, Model 1's r-squares equal to or

exceeding 0.10, is interpreted as sufficient to capture the relationship between B-BBEE rank and share price return. Thus, all the above regressions are deemed acceptable.

Model 1 finds negative relationships between B-BBEE rank and share price return, significant on a two, three and four years time horizon. This means that for the specified time horizons, the better the B-BBEE rank, the worse the share price return. It has to be noted that the magnitude, especially compared to the coefficients of other independent variables is small. For example, the three year regression shows the most negative B-BBEE rank coefficient of -0.0069. This indicates that a 1 incremental improvement of B-BBEE rank results in a reduction on a two years share price return of merely 0.69%. Recall from the descriptives section that the variability of share price return was quite high (non outlier adjusted standard deviation of 47%), therefore the impact that a change in B-BBEE rank has on two years share price return is muted. In comparison, the magnitude of the market premium is far larger, and significant over the five time horizons. This suggests that the impact of B-BBEE is relatively small, but negative. Van der Merwe and Ferreira (2014, p552) also observed a same small significant negative relationship between B-BBEE and share price return. Using the different time horizons, Model 1 adds to the finding of van der Merwe and Ferreira and shows that the negative coefficient of B-BBEE rank increases up until the 4 years time horizon, from -0.0006 to -0.065. The increase of magnitude follows suggestions by Mehta and Ward (2016, p89) who indicated that the market has an initial response to a B-BBEE rank, which is more positive, and as the market processes information, the response to the B-BBEE rank becomes more pronounced. The negative increasing coefficient and significance of the relationship between B-BBEE rank and share price performance over various share price return time horizons indicate that the costs of B-BBEE policy compliance for firm outweigh the benefits, causing a negative long term relationship between B-BBEE policy and firm performance.

To check for robustness, the same model was tested on the outlier adjusted analysis dataset. Results below.

Table 5.9: Regression Model 1 - outlier adjusted, 2004 - 2018

	1	2	3	4	5
BMIndex	-0.4858	-1.8037	-2.0434	-2.5375*	-1.0682
	(0.4961)	(1.2019)	(1.5805)	(1.4165)	(1.7208)
BBBEE_Rank	0.0002	-0.0023*	-0.0040**	-0.0046**	-0.0031
	(0.0008)	(0.0012)	(0.0018)	(0.0023)	(0.0031)
SIZEIndex	1.4892***	1.4440***	1.9992***	1.5684*	0.7834
	(0.5035)	(0.4597)	(0.5777)	(0.8307)	(1.2044)
MarketPremium	0.9909***	0.7264***	0.5739	0.6428	0.9448**
	(0.0889)	(0.2324)	(0.4437)	(0.3912)	(0.3946)
RiskFreeReturn	-0.9639	-5.2936**	-6.9621**	-3.7378	-4.6235
	(2.3277)	(2.4482)	(3.0451)	(2.5987)	(3.0165)
Consumer Goods	0.1620	1.1208***	2.2522***	2.0092**	3.1361**
	(0.2098)	(0.4083)	(0.7774)	(0.9581)	(1.4945)
Financials	0.1339	1.1070***	2.1980***	1.9381**	3.0821**
	(0.2058)	(0.4012)	(0.7659)	(0.9435)	(1.4760)
Technology	0.0557	1.0409**	2.0749***	1.5954*	2.5532*
	(0.2091)	(0.4069)	(0.7730)	(0.9501)	(1.4821)
Healthcare	0.2218	1.3349***	2.5125***	2.3881**	3.7449**
	(0.2115)	(0.4115)	(0.7734)	(0.9552)	(1.4895)
Industrial	0.0540	0.9886**	1.9611**	1.5478*	2.4982*
	(0.2035)	(0.3977)	(0.7609)	(0.9391)	(1.4675)
Consumer Services	0.1520	1.1381***	2.2232***	1.8841**	2.9608**
	(0.2070)	(0.4056)	(0.7723)	(0.9489)	(1.4848)
Basic Materials	0.1664	1.0613***	2.1641***	1.7577*	2.7730*
	(0.2072)	(0.4061)	(0.7780)	(0.9528)	(1.4871)
Telecommunications	0.1557	1.1154***	2.2015***	1.7467*	2.6537*
	(0.2129)	(0.4132)	(0.7783)	(0.9564)	(1.4832)
N	757	693	635	579	523
R^2	0.24	0.20	0.14	0.15	0.14

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

Here the relationship between B-BBEE rank and share price return on a one-year time horizon is slightly positive albeit not significant. On the two, three and four years time horizon, the relationship between B-BBEE rank and share price returns remains, just as in the analysis dataset, negative and significant, but at a slightly less negative coefficient compared to the analysis dataset. In contrast the 5 years time horizon displays a more pronounced negative coefficient, compared to the non outlier adjusted model. Therefore, the outlier adjusted model suggest that outliers did indeed impact the analysis dataset. However, the finding from Model 1 for the analysis dataset, displaying significant negative relationships between B-BBEE rank and share price return on various time horizons remained unchanged after considering the outlier adjusted analysis dataset.

Using the Model 2, based on the van der Merwe and Ferreira model the analysis dataset yields the following results:

Table 5.10: Regression Model 2, 2004 - 2018

	1	2	3	4	5
const	0.1734***	0.3719***	0.6843***	0.8264***	0.8976***
	(0.0343)	(0.0633)	(0.1052)	(0.1258)	(0.1680)
BMRatio	-0.0078	0.0452***	0.0617***	0.0560**	0.0518*
	(0.0071)	(0.0125)	(0.0201)	(0.0232)	(0.0296)
SIZERatio	0.0000	-0.0000	-0.0000*	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
EPRatio	0.0001*	0.0006***	0.0006*	0.0007*	0.0027*
	(0.0001)	(0.0002)	(0.0003)	(0.0004)	(0.0014)
BBBEE_Rank	-0.0004	-0.0024	-0.0065**	-0.0068*	-0.0016
	(0.0010)	(0.0018)	(0.0030)	(0.0036)	(0.0048)
Consumer Goods	0.0562	0.1012	0.1306	0.1914	0.2939
	(0.0573)	(0.1038)	(0.1694)	(0.2020)	(0.2689)
Financials	0.0388	0.0791	0.1678	0.2121	0.2970*
	(0.0363)	(0.0653)	(0.1084)	(0.1305)	(0.1744)
Technology	-0.0606	-0.0277	0.0457	0.1290	0.3067
	(0.0525)	(0.0934)	(0.1542)	(0.1832)	(0.2435)
Healthcare	0.0550	0.3260**	0.3339	0.4978*	0.7604**
	(0.0761)	(0.1421)	(0.2277)	(0.2754)	(0.3714)
Industrial	-0.0838**	-0.1404**	-0.1430	-0.1942	-0.3659**
	(0.0363)	(0.0674)	(0.1136)	(0.1371)	(0.1833)
Consumer Services	0.0507	0.0393	0.0932	0.0534	0.0341
	(0.0441)	(0.0839)	(0.1367)	(0.1621)	(0.2140)
Basic Materials	0.0523	-0.0467	-0.0752	-0.1002	-0.2772
	(0.0456)	(0.0834)	(0.1389)	(0.1633)	(0.2147)
Telecommunications	0.0647	0.0411	0.1312	0.0371	-0.1515
	(0.0828)	(0.1491)	(0.2471)	(0.2904)	(0.3949)
N	816	752	694	638	582
R^2	0.02	0.04	0.04	0.03	0.04

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

It is immediately visible that the r-squared of Model 2 which follows the MF model lags the Model 1 which followed the FF model more closely. This strengthens the belief that the control variables as used in the FF model are more appropriate to explain share price return. Model 1 is significant on two, three and four years returns and Model 2 is significant on three and four years. Van der Merwe and Ferreira (2014, p552) use B-BBEE score rather than B-BBEE rank and found a coefficient of -0.003 at 1% significant between B-BBEE score and share price return. The van der Merwe and Ferreira finding means that an one increment increase of B-BBEE score detracts 0.30% of one year share price return. This coefficient differs from the finding presented in this study, when comparing this finding with the 1 year time horizon model as this study finds a (insignificant) coefficient nearly close to zero, -0.0004. This difference could arise from time period bias in van der Merwe and Ferreira research as they use the time period of 2005 - 2011, whereas this study analyzes the time period 2004 - 2018. Further, the number of observations per year, in this study was uniform, at 60 observations per year.

Nonetheless, the findings of Model 2 on the relationship between B-BBEE rank and share price return are largely unchanged. The coefficients for the relationship between B-BBEE rank and share price return at most differ -0.0004. This means that for the entire time period of 2004 to 2018 a higher B-BBEE rank did not add to share price returns.

5.2.2 Relationship between B-BBEE policy on firm performance in three B-BBEE policy periods

This section deals with the research sub question: "What was the relationship between B-BBEE policy and firm performance among the three B-BBEE policy periods?". Previous research on the relationship between B-BBEE and firm performance did not show consensus on the nature of the relationship. This could be due to the different time periods the studies used. It could be that the overall nature between B-BBEE and firm performance was negative, but at particular time periods the relationship was positive. It could also be that the negative relationship over the entire dataset found in the previous section is driven by a particular time period. This study examined the relationship over the three periods of B-BBEE, as explained in the Methodology. The three sections this study identified were from 2004 until 2007, from 2007 until 2013 and from 2013 until 2018. These sections were selected based on B-BBEE policy initiation in 2004 and B-BBEE policy amendments in 2007 and 2013. Below the relationships between B-BBEE rank and share price returns over the three periods for the analysis dataset using Model 1:

Table 5.11: Regression Model 1, sub section time

	1	2	3	4	5
BBBEE_Rank 2004 - 2007	-0.0036	0.0032	-0.0066	-0.0084	-0.0028
	(0.0032)	(0.0055)	(0.0081)	(0.0073)	(0.0067)
BBBEE_Rank 2007 - 2013	0.0009	-0.0030	-0.0054*	-0.0033	0.0008
	(0.0009)	(0.0019)	(0.0032)	(0.0050)	(0.0070)
BBBEE_Rank 2013 - 2018	-0.0002	-0.0060***	-0.0083***	-0.0123***	-0.0088
	(0.0013)	(0.0020)	(0.0030)	(0.0040)	(0.0061)

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

The output on the relationships between B-BBEE rank and share price returns over the three periods for the analysis dataset using Model 2 are similar.

Table 5.12: Regression Model 2, sub section time

	1	2	3	4	5
BBBEE_Rank 2004 - 2007	-0.0032	0.0036	-0.0061	-0.0079	-0.0021
	(0.0033)	(0.0060)	(0.0095)	(0.0081)	(0.0073)
BBBEE_Rank 2007 - 2013	0.0013	-0.0030	-0.0055	-0.0035	0.0007
	(0.0011)	(0.0020)	(0.0033)	(0.0051)	(0.0071)
BBBEE_Rank 2013 - 2018	-0.0009	-0.0060***	-0.0077**	-0.0114***	-0.0045
	(0.0013)	(0.0020)	(0.0030)	(0.0042)	(0.0064)

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

The period 2004 - 2007 shows no significant relationship between between B-BBEE rank and share price return. Recall from the chronology discussed in earlier section that this was a period in which B-BBEE policy was not enforced tightly. The results over time do display that increasing interventionist stance of the B-BBEE became more pronounced in share price return. The relationship between B-BBEE rank and one and five year share price return were marginally positive. With regards to the 2007 to 2013 period, the relationship between B-BBEE and share price returns on two, three and four years basis were less negative compared to the entire dataset results. It has to be noted that these findings, with the exception of the three years regression, were not significant. These findings resemble the

findings of Mokgobinyane who found a disperse relationship between the B-BBEE score coefficients on different measurements of firm performance using observations from this time period. Finally, with regards to the 2013 to 2018 period, it is found that this time period produces the most pronounced negative relationships between B-BBEE rank and share price return. The negative coefficients of B-BBEE rank on the two, three and four years share price return were found significant on 1%. In the descriptive statistics section of this chapter, this study observed that the bias toward Industrial, a sector more dependent on B-BBEE compliance, increased as the Codes of Practise became more stringent over time. However, this study finds that the benefits of B-BBEE compliance over the 2013 to 2018 did not outweigh the costs. This finding contrasts Acemoglu et al. (2007, p32) , who finds positive, but not significant, relationship between B-BBEE aggregate score and net profit margin. It could be however, especially considering the short time span, that a disconnect existed between net profit margins and share price returns. For example, van der Merwe and Ferreira (2014, p552) examined the period 2005 to 2011, which therefore overlaps the period 2004 to 2007 and found a small significant negative relationship between B-BBEE and share price return. The analysis of the different subsections of time indicate that increasing intervention of B-BBEE policy caused a more pronounced negative relationship between B-BBEE policy and share price return.

5.2.3 Relationship between B-BBEE policy on firm performance on sector basis

The theoretical framework also identified cross-sectional dynamics to hypothetically affect the relationship between B-BBEE policy. The theory notes that the aggregate cost and benefit for firms to comply with B-BBEE might differ across sectors. This relates to the sub research question: "Did the relationship between B-BBEE policy and firm performance differ across sectors?". Therefore the analysis dataset was subdivided per sector. The next table presents the results of the sector linear regressions using Model 1 per sector.

Table 5.13: Regression Model 1, sub section sector

	1	2	3	4	5
BBBEE_Rank_Telecom	-0.0012	0.0006	-0.0005	-0.0082	-0.0221
	(-0.0041)	(-0.0075)	(-0.0107)	(-0.0132)	(-0.0191)
BBBEE_Rank_BasicMat	0.0007	-0.0008	-0.0045	-0.011	-0.009
	(-0.003)1	(-0.0049)	(-0.0067)	(-0.0078)	(-0.0083)
BBBEE_Rank_ConsumerServices	0.0019	-0.001	-0.0042	-0.0069	-0.0094
	(-0.0014)	(-0.0025)	(-0.0036)	(-0.0056)	(-0.0067)
BBBEE_Rank_Industrial	-0.0027*	-0.0125***	-0.0182***	-0.0201***	-0.0132*
	(-0.0016)	(-0.0027)	(-0.0047)	(-0.006)	(-0.007)
BBBEE_Rank_HealthCare	-0.0005	0.0069	-0.0016	0.0052	0.0084
	(-0.0039)	(-0.0095)	(-0.0087)	(-0.0098)	(-0.0214)
BBBEE_Rank_Technology	0.0012	-0.0042	-0.0009	0.014	0.0365
	(-0.0033)	(-0.0076)	(-0.0141)	(-0.0237)	(-0.0363)
BBBEE_Rank_Financials	-0.0019	0.0024	0.0012	0.0041	0.0071
	(-0.0022)	(-0.0039)	(-0.0064)	(-0.0068)	(-0.0091)
BBBEE_Rank_ConsumerGoods	0.0011	0.0053**	0.0024	0.0032	0
	(-0.0019)	(-0.0026)	(-0.0038)	(-0.0047)	(-0.0068)
N_Telecom	32	30	28	27	23
N_BasicMat	117	101	93	89	84
N_ConsumerServices	124	100	97	90	84
N_Industrial	221	179	158	141	125
N_HealthCare	35	29	29	26	23
N_Technology	91	84	78	72	66
N_Financials	215	197	180	162	147
N_ConsumerGoods	215	197	180	162	147

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

Model 2 shows the following results:

Table 5.14: Regression Model 2, sub section sector

	1	2	3	4	5
BBBEE_Rank_Telecom	0.0058	0.0072	0.0103	0.0093	0.0096
	(0.0038)	(0.0062)	(0.0090)	(0.0109)	(0.0126)
BBBEE_Rank_BasicMat	0.0027	0.0031	-0.0029	-0.0108	-0.0120
	(0.0033)	(0.0054)	(0.0075)	(0.0087)	(0.0088)
BBBEE_Rank_ConsumerServices	0.0016	-0.0020	-0.0078	-0.0108**	-0.0100
	(0.0018)	(0.0029)	(0.0048)	(0.0053)	(0.0066)
BBBEE_Rank_Industrial	-0.0029	-0.0138***	-0.0240***	-0.0238***	-0.0149**
	(0.0018)	(0.0031)	(0.0059)	(0.0067)	(0.0067)
BBBEE_Rank_HealthCare	0.0016	0.0005	0.0015	0.0081	0.0250
	(0.0043)	(0.0095)	(0.0087)	(0.0132)	(0.0213)
BBBEE_Rank_Technology	0.0001	0.0038	0.0118	0.0274	0.0643
	(0.0036)	(0.0091)	(0.0172)	(0.0297)	(0.0438)
BBBEE_Rank_Financials	-0.0024	0.0031	0.0019	0.0055	0.0099
	(0.0027)	(0.0043)	(0.0071)	(0.0071)	(0.0096)
BBBEE_Rank_ConsumerGoods	-0.0023	0.0072**	0.0056	0.0074	0.0088
	(0.0023)	(0.0034)	(0.0051)	(0.0058)	(0.0083)
N_Telecom	29	28	26	25	22
N_BasicMat	108	99	91	87	82
N_ConsumerServices	113	96	93	87	81
N_Industrial	197	173	152	136	122
N_HealthCare	33	29	29	26	23
N_Technology	79	78	73	68	63
N_Financials	195	190	173	156	141
N_ConsumerGoods	62	59	57	53	48

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

The sectors Technology, Health Care and Telecom have less than 100 observations on one year time horizon. Considering 15 years, that means that these sector

could exhibit time period bias or other biases. The Model 1 for these sectors are mostly insignificant with varying coefficients. The limited interpretability is further emphasized as for these sectors, Model 2 shows insignificant and in certain instances opposite coefficients compared to Model 1. For example, the B-BBEE coefficient is insignificant negative in Model 1 and insignificantly positive in Model 2. Therefore, this study does not base any conclusions in these sectors. The sectors Industrial, Financial and Consumer Goods do present a solid number of observations, which allows for substantial claims. For these sectors, Model 1 and Model 2 find similar outcomes.

The relationship between B-BBEE policy and firm performance for Financials is found insignificant but positive. This contradicts suspicions raised in the descriptive statistics section, where underrepresentation towards Financials hinted towards possible low benefits of B-BBEE compliance to Financials. This finding of insignificant but positive relationship between B-BBEE policy and firm performance for this sector could hint that firms that do decide to comply to B-BBEE policy find that benefits are greater than costs. The Consumer Goods sector displays positive relationships, albeit this relationship is not as convincing as the relationship found for Industrial with only one significant relationship (on the two years time horizon) for Consumer Goods. Recall from the section B-BBEE policy and firm performance, that from a consumer's perspective, the disenfranchised Black people are the group of people in South Africa with a higher propensity to spend. The Consumer Goods, consisting of Food and Beverage firms are highly visible and directly connected to the consumer. The relationship found hints that spending could be reflected in the performance of the Consumer Goods firms.

Most interestingly, the sectors in which the incentives to comply, access to government contracts, was expected larger, display negative relationship between B-BBEE policy and firm performance. Most notable, the Industrial sector shows highly significant and most pronounced negative coefficients. This indicates that the benefits presented for these firm to comply to B-BBEE policy are underwhelming compared to the costs. It is further interesting to note that for Industrial the coefficient becomes more pronounced negative as time horizon increases, until the four year time horizon. This indicates that especially on the longer term the relationship between B-BBEE policy and firm performance is negative. This favors the notion from the Theory that the incentive to comply to B-BBEE by providing access, acts more as a cost to continue to do business.

5.3 Bootstrap method

To add robustness to the findings from the regression analysis, this study investigated whether the relationship between B-BBEE rank and share price return displayed a deviating result using the Bootstrap method. This adds robustness to answer the research sub questions "What was the long term relationship between Broad-Based Black Economic Empowerment policy on firm performance of the Johannesburg Stock Exchange-listed companies over the period 2004 - 2018?" and "Did the relationship between B-BBEE policy and firm performance differ across sectors?". Next, a visualization of the bootstrap method results.

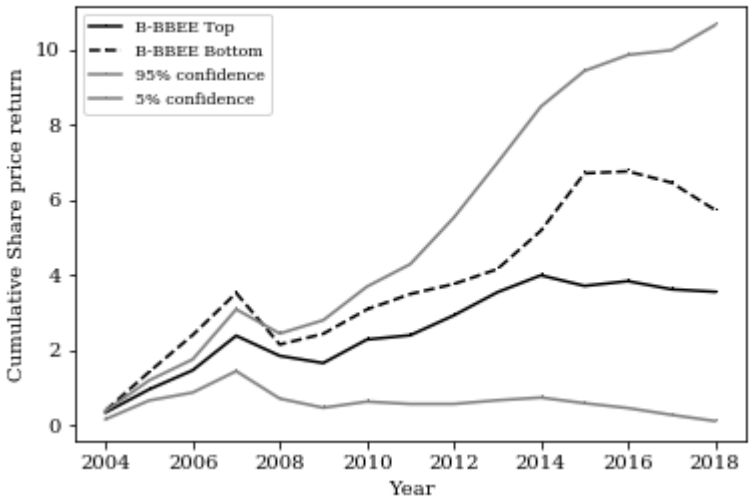

Figure 5.1: Bootstrap entire dataset

This chart displays four variables the 5% and 95% confidence intervals and the share price return of the top and bottom B-BBEE ranking firms over the entire time period. This relates to the research sub question "What was the long term relationship between Broad-Based Black Economic Empowerment policy on firm performance of the Johannesburg Stock Exchange-listed companies over the period 2004 - 2018?". The confidence intervals were generated by bootstrapping the median returns of the entire dataset for each year, and retrieving the 5% lowest and 5% highest median returns for this year. These returns, as well as the returns for the top and bottom B-BBEE ranking firms were compounded over time. The top and bottom B-BBEE ranking firms were the median return of top and bottom 30% ranking firms for each year. This chart shows that the 5% highest median returns, the 95% confidence interval rose significantly post 2008, outperformed the top and bottom ranking B-BBEE firms handsomely as the median returns compounded aggressively. Until 2007, this graph shows that the cumulative return of the bottom B-BBEE ranking firms exceeded the 5% highest median return. This indicates significant positive returns for firms that least complied to B-BBEE. Acemoglu et al. (2007, p32) found however, found insignificant positive relationship between B-BBEE policy and firm performance in this period. However, Acemoglu et al. (2007, p29) used accounting measurements to capture firm performance. It is particularly striking that from this analysis the bottom ranking B-BBEE firms consistently outperform the top ranking B-BBEE firms. This analysis further shows that the bottom ranking B-BBEE firms do outperform the 5% low confidence interval. This indicates the relationship between B-BBEE and share price return is insignificant, but most likely negative. Therefore this analysis provides (weak) support to the finding of the regression analyses on the entire period 2004 to 2018.

With regards to the sub question: "Did firms operating in a sector with a higher incentive to comply to the B-BBEE policy have higher firm performance?", this study discusses the results for the sectors with robust observations, Industrial, Financials and Consumer Goods. Below a visualization of the results for Industrial.

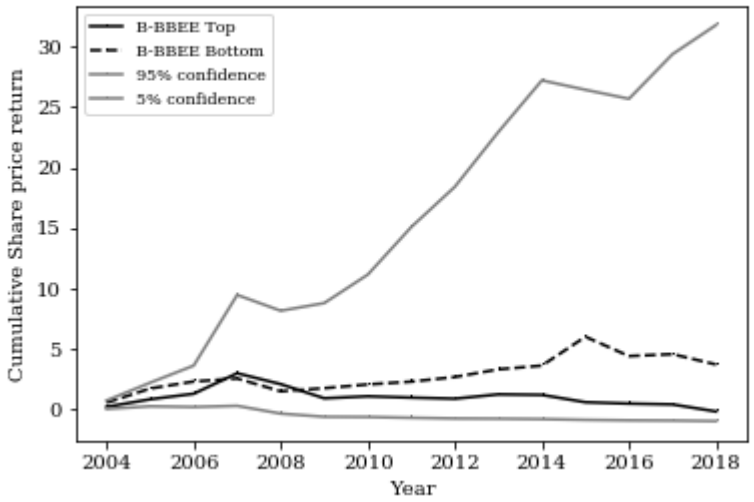

Figure 5.2: Bootstrap Industrial sector

The above bootstrap analysis on the Industrial sector did entail a smaller sample size, which might explain that the findings of this chart are an exaggeration of the findings in the bootstrap analysis on the entire dataset in terms of scale of the vertical axis. Similar to the previous chart, this chart displays that generally bottom B-BBEE ranking firms have outperformed top B-BBEE ranking firms. In this dataset, contrary to the idea in the Descriptives section, it appears that the negative relationship between B-BBEE and share price return is close to significant, as the top B-BBEE ranking firms in the Industrial sector inches towards the bottom 5% confidence interval. This confirms earlier findings from the regression analysis on a sector by sector basis.

The bootstrap analysis for Financials can be viewed below.

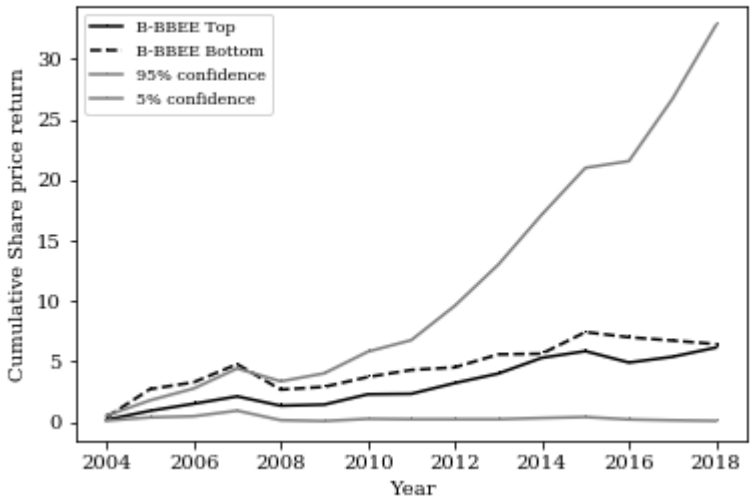

Figure 5.3: Bootstrap Financials sector

Similar to the bootstrap on the entire dataset, this graph shows bottom ranking B-BBEE firms significantly outperforming until 2007. Thereafter, the bottom

ranking B-BBEE firms continue to outperform the top ranking firms. This finding contradicts the positive, non significant, relationship between B-BBEE rank and share price return for Financials found in the previous section. This finding adds to the conclusion that within the Financial sector the relationship between B-BBEE rank and share price return is ambiguous.

The bootstrap analysis for Consumer Goods can be found below.

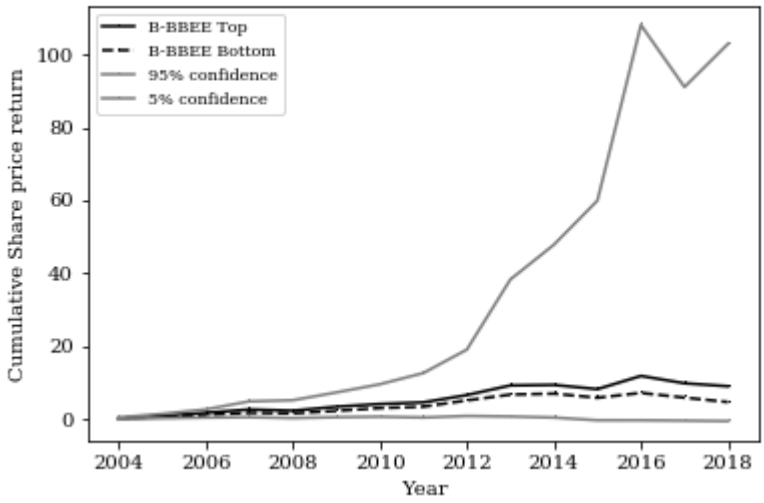

Figure 5.4: Bootstrap Consumer Goods sector

The findings from the bootstrap provide weak confirmation of the findings from the regression analyses on the Consumer Goods sector. This chart displays that, although the performance of the top ranking B-BBEE firms is not significantly positive, the top ranking B-BBEE firms outperform the bottom ranking B-BBEE firms in this sector. This further hints that there is merit to being B-BBEE policy compliant for firms in the Consumer Goods sector.

The other sector bootstrap analyses can be found in Appendix C. Note however, that the sectors Basic Materials, Telecommunications, Technology, Health Care and Consumer Services had only a limited number of observations in each year. This could affect the robustness of the findings per sector.

5.4 Summary and conclusion

Descriptive statistics were used to inform the reader about the general characteristics of the dataset used to test the hypothesis. These displayed a sizeable sample size, with at most 816 observations. Furthermore, the sample size did display a positive bias towards the Industrial sector and a negative bias towards the Financial sector, which, this study speculates, could be attributed to the sector's incentive to comply to B-BBEE relating to market access.

Although the dataset did present outliers, the outliers did not meaningfully alter the conclusions on the regression analyses used to answer the research sub question: "What was the long term relationship between Broad-Based Black Economic Empowerment policy on firm performance of the Johannesburg Stock Exchange-listed

companies over the period 2004 - 2018?". Both outlier and non outlier adjusted regressions of Model 1, the FF model, indicate that the relationship between B-BBEE rank and two, three and four years share price return was significantly negative. Model 2, the MF model, confirmed the finding on three and four years share price return. The significance levels did differ. For example, the non-outlier adjusted Model 1 was significant at 1% on 3 years share price return, whereas Model 2 for this time horizon was significant at 5%. Further, Model 2, the MF model, held quite low explanatory value, with r-squared below 5%, whereas Model 1, the FF model generated acceptable r- squared equal to or larger than 14%. This means that the better a firm complies to B-BBEE policy in the long term, the worse it share price return will be. This notion was supported, albeit not significantly, as the bootstrap method confirmed outperformance of firms that whose compliance to B-BBEE policy was weak, over firms whose compliance to B-BBEE policy was good. Therefore the hypothesis The relationship between B-BBEE policy and firm performance between 2004 and 2018 was positive was rejected.

Regressions were tested on sub sections of the dataset to answer the research sub question: "What was the long term relationship between B-BBEE policy and firm performance among the three B-BBEE policy periods?". The results over time do display that increasing interventionist stance of the B-BBEE became more pronounced in share price return. The period 2013-2018 displayed more pronounced significant negative relationship between B-BBEE and two, three and four years share price return compared to the entire dataset. Further the strength of the 2013-2018 subset, measured in the coefficient of the B-BBEE rank on share price return, was more pronounced than period 2007-2013 and the 2004 to 2007 period on a two, three and four years time horizon. Therefore, this study speculates, that the increased targets aggravated costs and therefore the aggregate effect of B-BBEE policy on firm performance became more pronounced negative. In either case, the hypothesis The intensity of the relationship between B-BBEE policy and firm performance is uniform through time is rejected.

Finally, empirical analysis was done to explore the cross-sectional dimension of the relationship between B-BBEE policy and firm performance in the long term. This related to the research sub question "Did the relationship between B-BBEE policy and firm performance differ across sectors?". The descriptives, as mentioned, already hinted towards cross sectional effects. The regression analysis per sector proved that the long term relationship for Industrials was most pronounced, with coefficients of B-BBEE rank significantly negative. The bootstrap provided weak support to this finding. This study speculates that these findings support the notion coined in the Theory chapter that the benefit of market access through B-BBEE policy compliance, actually acts more as a tax to continue business with government entities. On the other hand, the Consumer Goods sector displayed positive coefficients, albeit only significant on two year time horizon. Outperformance of top ranking B-BBEE firms in the bootstrap method supported the regressions on Consumer Goods. This indicates that this sector, which faces consumers, might benefit from being viewed as supporting Black Economic Empowerment. The hypothesis The relationship between B-BBEE policy and firm performance is uniform across sectors is rejected.

6

Conclusion

Within the realm of CSR, research regarding the long term relationship between CSR and firm performance is underdeveloped. B-BBEE policy is viewed as a form of CSR, for which research on the long term relationship was underdeveloped as well. To add to the long term analysis in the field of CSR generally and B-BBEE policy specifically, this study investigated the long term relationship between B-BBEE policy and firm performance over the time period 2004 to 2018. Using theory from CSR as the theoretical framework, it established the connection between B-BBEE policy and firm performance through the Instrumental motivation of self interest, the firm's desire for increased firm performance through adherence to the policy. Profitability was established as the variable for firm performance. Costs and benefits associated with B-BBEE policy compliance affect profitability. Profitability was operationalized as the dependent variable share price returns (on different time horizons) and B-BBEE policy was operationalized as treatment variable B-BBEE rank. Finally, the theoretical framework further established that the relationship between B-BBEE policy and firm performance was subject to time period dynamics, as well as cross-sectional dynamics. Understanding the relationship between B-BBEE policy and firm performance required this study to incorporate these dynamics.

Prior to understanding specific dynamics, this study focussed on the general relationship between B-BBEE policy and firm performance. "What was the long term relationship between Broad-Based Black Economic Empowerment policy and firm performance of the Johannesburg Stock Exchange-listed companies over the period 2004 - 2018?". The theoretical framework initiated from the broader CSR and firm performance to the specific B-BBEE policy and firm performance. The general relationship between CSR and firm performance displayed inconclusive nature of relationships. With regards to the relationship between B-BBEE policy and firm performance, previous research hinted toward a negative relationship. This study performed quantitative analysis using two models, Model 1, based on the methodology of Fama and French, and Model 2, based on the methodology of van der Merwe and Ferreira. Similar to what the Theory suggested, the long term relationship between B-BBEE policy and firm performance over the entire time period (2004 to 2018) was found negative. Specifically, the two, three and four years share price return time horizon, in the primary regression model, Model 1, found significant negative relationships between B-BBEE rank and share price return. Therefore, in general the relationship between B-BBEE policy and firm performance was found negative, implying that on aggregate compliance to the B-BBEE policy costs firms

more than that it benefited them.

To provide a rigorous analysis, which require appreciation of contextual dynamics to understand the long term relationship, this study investigated the time period dynamics. This refers to the research sub question: "What was the long term relationship between B-BBEE policy and firm performance among the three B-BBEE policy periods?". The theoretical framework based from research on CSR indicated that relationship between CSR and firm performance in early times was negative and later changed to positive. Regarding B-BBEE policy, the historical background provided in the Contextualization chapter revealed that government intervention on firm performance through B-BBEE policy increased as targets set to comply to B-BBEE increased through time. This suggested that the relationship between B-BBEE policy and firm performance should become more pronounced over time. The Empirical Results confirmed that the extent of the negative relationship between B-BBEE policy and firm performance increased over time and was most pronounced after the last amendments of the B-BBEE policy targets in 2013. This could indicate that increasing targets of the B-BBEE policy aggravated costs of B-BBEE policy compliance.

To extend on the dynamic between B-BBEE policy and firm performance, this study examined cross-sectional dynamics. This relates to the research sub question: "Did firms operating in a sector with a higher incentive to comply to the B-BBEE policy have higher firm performance?". Within the realm of CSR, literature suggest that the relationship between CSR and firm performance could be affected to the closeness of firms in a sector towards stakeholders. Research on B-BBEE policy indicated that policy compliance was required to gain access to government contracts, which led to the expectation that differentiation existed in the long term relationship between B-BBEE policy and firm performance per sector as certain sectors were more dependent on government business than others. Literature debated whether the market access acted as a benefit of B-BBEE policy compliance for firms, or that the market access acted as a tax on firms. The Empirical Results confirmed sector specific dynamics to the relationship between B-BBEE policy and firm performance. This was notable through analysis of the Industrial sector, a sector more directly linked to government. Descriptives indicated a bias towards Industrial firms, indicating that Industrial firms were more prone to be B-BBEE policy compliant. Further regression analysis displayed strong significant negative relationships between B-BBEE policy and firm performance for Industrial firms. Contrary, Theory indicated that consumers express their appreciation of a firm's commitment to B-BBEE through their consumption behaviour. The Consumer Goods sector displayed a significant positive relationship, which led to the speculation that consumer facing firm's find merit in B-BBEE policy compliance. Combining the Theory and Empirical Results, this study, speculates that the findings on the sector analysis indicates that B-BBEE policy compliance as prerequisite to do business acts as a tax on firms to continue transacting with government entities.

The sub research questions facilitate comprehensive argumentation to answer the main research question: "What is the long term relationship between the Broad-Based Black Economic Empowerment policy and firm performance of Johannesburg Stock Exchange-listed companies?". The long term relationship between Broad-Based Black Economic Empowerment and firm performance of Johannesburg Stock Exchange-listed companies is negative. The aggregate costs of B-BBEE compliance

exceed the aggregate benefits. The relationship is not stable, effects of increasing intervention through time, as well as sector specific incentives created for B-BBEE compliance, aggravate the negative relationship between B-BBEE policy and firm performance.

6.1 Implications

Practically speaking this study re-emphasizes that the incentives of firms with comply to B-BBEE are not sufficiently aligned with the purpose of B-BBEE. Increasing the targets to B-BBEE compliance only aggravates this misalignment. As this study is the only study that investigated the relationship on a multi year basis over the entire time period that there were B-BBEE ranking, policy makers should rest assure that these findings are fairly robust. This study could serve as an input to redesign the policy measures as the ANC, under President Cyril Ramaphosa, is dedicated to create inclusive economic growth in South Africa. Further, specialists operating in the field of B-BBEE scores indicate that the findings of this study can be used for future referencing [1].

Academically speaking, the contribution of this study is twofold. First, this study adds to the limited body of research on long term relationship between CSR and firm performance. This study indicates that this relationship is not stable, therefore discussion on the relationship between CSR and firm performance requires understanding of contextual factors. Second, this study adds to the academic research on the relationship between B-BBEE policy and firm performance. By uniquely obtaining the most comprehensive dataset available, from onset of the B-BBEE policy in 2004 to the latest available B-BBEE data of 2018, this study adds knowledge to the body of B-BBEE policy and firm performance, which is not affected by events occurring in a certain time period. This also study fulfills the need expressed in prior research to investigate the long term effects of B-BBEE policy compliance on firm performance.

6.2 Limitations

This study was limited on the number of firms investigated. It only captured the top 60 highest ranking B-BBEE compliant firms according to the Empowerdex Top 100. Therefore, it could be that there was a sample size bias. Perhaps comparing B-BBEE compliant and non compliant firms over the entire time period would generate different results. The regression analyses per sector also contained sectors with low observations, this could affect the interpretability of the regression analyses on these sectors. To somewhat mitigate this issue, sector analysis chiefly focussed on sectors, such as Industrial and Financials with a larger number of observations.

This study utilized the Fama and French model for control variables. One of these control variables, book to market, displayed no relationship with share price return in the Empirical Analysis. This raises concerns on the applicability of this variable and possibly limits the appropriateness of the Fama and French model based

[1] Anthony Collin, General Manager of Intellidex inidcated that the findings of this study could be referred to in the next publication of the Empowerdex Top 100 report from which this study sourced the B-BBEE aggregate scores per firm from. Intellidex is the holding company of Empowerdex.

control variables. However, the regression results still showed acceptable r-squared results, and by using the bootstrap method to add robustness to the findings of the regression, this study remains confident that the findings with regards to the relationship between B-BBEE policy and firm performance do hold.

Lastly, this study narrowed to Johannesburg Stock Exchange listed firms. Research on CSR indicates that size effects might affect the relationship between CSR and firm performance. This infers that the relationship between B-BBEE policy and firm performance could differ based on the size of the firm. Further, this study did find that B-BBEE policy compliance requirements differ based on the size of the firm. By only investigating on large Johannesburg Stock Exchange listed firms, this study limits itself to this size of firms and neglects the relationship between B-BBEE policy and firm performance for smaller size firms.

6.3 Recommendations

Further research would be advised to investigate how self interest of firms could effectively be transformed as a tool to incentivize the empowerment of Black people and thus making the goal of the B-BBEE policy a reality. In particular, the access to government business has been stated as one of the key benefits to comply to B-BBEE policy. However, this study suggests that access to government business rather acts as a costs to firms. In contrast, the Consumer Goods sector facing consumers did display a positive relationship between B-BBEE policy and firm performance. These findings demand deep investigation into the incentives for these sectors which could possibly provide key insights to reconfigure the B-BBEE policy to better align the policy with firm performance. Further investigation into this measure could possibly provide key insights to reconfigure the B-BBEE policy to better align the policy with firm performance.

Within the realm of academic research on CSR and firm performance, this study has contributed by investigating the long term relationship between B-BBEE policy and firm performance. This study on finds that the relationship between CSR and firm performance is dependent on contextual dynamics. Therefore, to further add to the body of academic research on the long term relationship between CSR and firm performance, this study would recommend academics to investigate the long term relationship between CSR and firm performance in different countries, or at least with different contextual dynamics.

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Appendix A

Table A.1: Descriptive statistics variables 1 year time horizon

	BMRatio	SIZERatio	EPRatio	BMIndex_YR1	SIZEIndex_YR1	MarketPremium_YR1	RiskFreeReturn_YR1	SharePriceReturn_YR1
count	816	900	835	15	15	15	15	900
mean	0.90	36024	-11.50	6%	2%	9%	8%	14%
std	2.42	96943	221.03	6%	7%	23%	1%	47%
min	-0.47	3	-4670.81	0%	-15%	-20%	7%	-95%
25%	0.34	1522	5.10	3%	-1%	-5%	8%	-12%
50%	0.55	7653	7.70	6%	4%	3%	9%	10%
75%	0.88	26091	10.30	8%	8%	18%	9%	31%
max	55.66	1434027	65.39	23%	12%	67%	10%	756%

Table A.2: Descriptive statistics variables 2 year time horizon

	BMIndex_YR2	SIZEIndex_YR2	MarketPremium_YR2	RiskFreeReturn_YR2	SharePriceReturn_YR2
count	13	13	13	14	780
mean	-8%	-4%	16%	17%	31%
std	6%	13%	42%	1%	84%
min	-19%	-37%	-31%	15%	-97%
25%	-9%	-5%	-10%	17%	-14%
50%	-7%	-1%	10%	18%	17%
75%	-3%	4%	15%	18%	54%
max	2%	11%	118%	19%	1270%

Table A.3: Descriptive statistics variables 3 year time horizon

	BMIndex_YR3	SIZEIndex_YR3	MarketPremium_YR3	RiskFreeReturn_YR3	SharePriceReturn_YR3
count	12	12	12	13	720
mean	-10%	-5%	23%	27%	52%
std	9%	22%	65%	2%	134%
min	-30%	-71%	-35%	24%	-98%
25%	-15%	-5%	-14%	26%	-15%
50%	-8%	0%	14%	27%	21%
75%	-3%	7%	32%	29%	79%
max	3%	12%	214%	29%	1935%

Table A.4: Descriptive statistics variables 4 year time horizon

	BMIndex_YR4	SIZEIndex_YR4	MarketPremium_YR4	RiskFreeReturn_YR4	SharePriceReturn_YR4
count	11	11	11	12	660
mean	-9%	-2%	20%	38%	65%
std	9%	15%	46%	2%	154%
min	-23%	-40%	-32%	34%	-99%
25%	-15%	-5%	-10%	36%	-11%
50%	-5%	-1%	9%	38%	31%
75%	-2%	7%	42%	39%	101%
max	3%	13%	134%	40%	1613%

Table A.5: Descriptive statistics variables 5 year time horizon

	BMIndex_YR5	SIZEIndex_YR5	MarketPremium_YR5	RiskFreeReturn_YR5	SharePriceReturn_YR5
count	10	10	10	11	600
mean	-11%	0%	23%	49%	88%
std	12%	12%	37%	3%	195%
min	-31%	-22%	-31%	45%	-99%
25%	-18%	-8%	3%	46%	-8%
50%	-6%	-1%	16%	49%	44%
75%	-2%	9%	56%	51%	123%
max	3%	15%	77%	53%	1871%

Table A.6: Correlation matrix 1 year

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BMRatio (1)	1.00	-0.08	-0.02	0.01	-0.04	-0.07	0.04	0.04	-0.05	-0.06	-0.05	-0.01	-0.04	0.06	-0.05	0.13	-0.02
SIZERatio (2)	-0.08	1.00	0.03	-0.03	-0.05	0.06	-0.04	-0.06	0.04	0.12	0.10	-0.13	0.00	-0.17	-0.05	0.04	0.20
EPRatio (3)	-0.02	0.03	1.00	0.03	-0.02	0.01	0.05	0.00	0.08	0.02	0.00	-0.01	0.01	-0.06	0.03	0.01	0.01
BMIndex_YR1 (4)	0.01	-0.03	0.03	1.00	0.00	-0.11	-0.34	0.06	-0.20	-0.02	0.07	0.06	-0.01	-0.01	-0.07	-0.03	0.01
BBBEE_Rank (5)	-0.04	-0.05	-0.02	0.00	1.00	0.00	0.00	0.00	-0.03	-0.02	0.11	0.11	-0.02	0.01	-0.03	-0.19	0.01
SIZEIndex_YR1 (6)	-0.07	0.06	0.01	-0.11	0.00	1.00	-0.60	-0.28	-0.15	-0.04	0.04	-0.01	0.02	0.08	-0.03	-0.09	-0.01
MarketPremium_YR1 (7)	0.04	-0.04	0.05	-0.34	0.00	-0.60	1.00	-0.07	0.39	0.06	0.00	0.01	-0.03	-0.12	0.01	0.09	0.01
RiskFreeReturn_YR1 (8)	0.04	-0.06	0.00	0.06	0.00	-0.28	-0.07	1.00	-0.05	0.02	-0.03	-0.01	-0.03	-0.05	0.05	0.07	-0.02
SharePriceReturn_YR1 (9)	-0.05	0.04	0.08	-0.20	-0.03	-0.15	0.39	-0.05	1.00	0.04	0.04	-0.05	0.02	-0.11	0.04	0.04	0.03
Consumer Goods (10)	-0.06	0.12	0.02	-0.02	-0.02	-0.04	0.06	0.02	0.04	1.00	-0.16	-0.09	-0.06	-0.16	-0.11	-0.11	-0.06
Financials (11)	-0.05	0.10	0.00	0.07	0.11	0.04	0.00	-0.03	0.04	-0.16	1.00	-0.18	-0.12	-0.32	-0.22	-0.22	-0.11
Technology (12)	-0.01	-0.13	-0.01	0.06	0.11	-0.01	0.01	-0.01	-0.05	-0.09	-0.18	1.00	-0.07	-0.18	-0.13	-0.13	-0.06
Healthcare (13)	-0.04	0.00	0.01	-0.01	-0.02	0.02	-0.03	-0.03	0.02	-0.06	-0.12	-0.07	1.00	-0.12	-0.08	-0.08	-0.04
Industrial (14)	0.06	-0.17	-0.06	-0.01	0.01	0.08	-0.12	-0.05	-0.11	-0.16	-0.32	-0.18	-0.12	1.00	-0.23	-0.22	-0.11
Consumer Services (15)	-0.05	-0.05	0.03	-0.07	-0.03	-0.03	0.01	0.05	0.04	-0.11	-0.22	-0.13	-0.08	-0.23	1.00	-0.16	-0.08
Basic Materials (16)	0.13	0.04	0.01	-0.03	-0.19	-0.09	0.09	0.07	0.04	-0.11	-0.22	-0.13	-0.08	-0.22	-0.16	1.00	-0.07
Telecommunications (17)	-0.02	0.20	0.01	0.01	0.01	-0.01	0.01	-0.02	0.03	-0.06	-0.11	-0.06	-0.04	-0.11	-0.08	-0.07	1.00

Table A.7: Correlation matrix 2 year

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BMRatio (1)	1.00	-0.08	-0.02	-0.06	-0.04	-0.08	0.08	0.03	0.13	-0.06	-0.05	-0.01	-0.04	0.06	-0.05	0.13	-0.02
SIZERatio (2)	-0.08	1.00	0.03	0.12	-0.05	0.08	-0.11	-0.04	-0.04	0.12	0.10	-0.13	0.00	-0.17	-0.05	0.04	0.20
EPRatio (3)	-0.02	0.03	1.00	-0.04	-0.02	-0.03	0.03	-0.01	0.09	0.02	0.00	-0.01	0.01	-0.06	0.03	0.01	0.01
BMIndex_YR1 (4)	-0.06	0.12	-0.04	1.00	-0.01	0.66	-0.71	0.39	-0.34	-0.02	0.02	0.02	0.01	-0.03	-0.01	-0.01	0.02
BBBEE_Rank (5)	-0.04	-0.05	-0.02	-0.01	1.00	-0.01	0.01	0.00	-0.04	-0.02	0.11	0.11	-0.02	0.01	-0.03	-0.19	0.01
SIZEIndex_YR1 (6)	-0.08	0.08	-0.03	0.66	-0.01	1.00	-0.91	-0.06	-0.40	-0.04	0.03	0.04	0.04	0.03	-0.03	-0.07	0.01
MarketPremium_YR1 (7)	0.08	-0.11	0.03	-0.71	0.01	-0.91	1.00	-0.02	0.46	0.05	-0.05	-0.03	-0.02	-0.05	0.05	0.07	-0.01
RiskFreeReturn_YR1 (8)	0.03	-0.04	-0.01	0.39	0.00	-0.06	-0.02	1.00	-0.03	0.01	-0.02	0.00	-0.03	-0.06	0.05	0.08	-0.03
SharePriceReturn_YR1 (9)	0.13	-0.04	0.09	-0.34	-0.04	-0.40	0.46	-0.03	1.00	0.02	0.03	-0.02	0.07	-0.08	0.02	0.00	-0.01
Consumer Goods (10)	-0.06	0.12	0.02	-0.02	-0.02	-0.04	0.05	0.01	0.02	1.00	-0.16	-0.09	-0.06	-0.16	-0.11	-0.11	-0.06
Financials (11)	-0.05	0.10	0.00	0.02	0.11	0.03	-0.05	-0.02	0.03	-0.16	1.00	-0.18	-0.12	-0.32	-0.22	-0.22	-0.11
Technology (12)	-0.01	-0.13	-0.01	0.02	0.11	0.04	-0.03	0.00	-0.02	-0.09	-0.18	1.00	-0.07	-0.18	-0.13	-0.13	-0.06
Healthcare (13)	-0.04	0.00	0.01	0.01	-0.02	0.04	-0.02	-0.03	0.07	-0.06	-0.12	-0.07	1.00	-0.12	-0.08	-0.08	-0.04
Industrial (14)	0.06	-0.17	-0.06	-0.03	0.01	0.03	-0.05	-0.06	-0.08	-0.16	-0.32	-0.18	-0.12	1.00	-0.23	-0.22	-0.11
Consumer Services (15)	-0.05	-0.05	0.03	-0.01	-0.03	-0.03	0.05	0.05	0.02	-0.11	-0.22	-0.13	-0.08	-0.23	1.00	-0.16	-0.08
Basic Materials (16)	0.13	0.04	0.01	-0.01	-0.19	-0.07	0.07	0.08	0.00	-0.11	-0.22	-0.13	-0.08	-0.22	-0.16	1.00	-0.07
Telecommunications (17)	-0.02	0.20	0.01	0.02	0.01	0.01	-0.01	-0.03	-0.01	-0.06	-0.11	-0.06	-0.04	-0.11	-0.08	-0.07	1.00

Table A.8: Correlation matrix 3 year

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BMRatio (1)	1.00	-0.08	-0.02	-0.06	-0.04	-0.07	0.08	0.03	0.12	-0.06	-0.05	-0.01	-0.04	0.06	-0.05	0.13	-0.02
SIZERatio (2)	-0.08	1.00	0.03	0.12	-0.05	0.08	-0.11	-0.03	-0.06	0.12	0.10	-0.13	0.00	-0.17	-0.05	0.04	0.20
EPRatio (3)	-0.02	0.03	1.00	-0.02	-0.02	0.00	0.02	0.00	0.07	0.02	0.00	-0.01	0.01	-0.06	0.03	0.01	0.01
BMIndex_YR1 (4)	-0.06	0.12	-0.02	1.00	-0.01	0.79	-0.88	0.26	-0.45	0.00	0.03	0.03	0.02	-0.04	-0.02	-0.01	0.01
BBBEE_Rank (5)	-0.04	-0.05	-0.02	-0.01	1.00	-0.01	0.01	0.00	-0.07	-0.02	0.11	0.11	-0.02	0.01	-0.03	-0.19	0.01
SIZEIndex_YR1 (6)	-0.07	0.08	0.00	0.79	-0.01	1.00	-0.96	-0.15	-0.45	-0.02	0.03	0.04	0.03	0.01	-0.03	-0.07	0.00
MarketPremium_YR1 (7)	0.08	-0.11	0.02	-0.88	0.01	-0.96	1.00	0.08	0.49	0.02	-0.04	-0.04	-0.03	-0.01	0.04	0.07	-0.01
RiskFreeReturn_YR1 (8)	0.03	-0.03	0.00	0.26	0.00	-0.15	0.08	1.00	0.02	0.03	0.00	0.00	-0.04	-0.09	0.04	0.10	-0.03
SharePriceReturn_YR1 (9)	0.12	-0.06	0.07	-0.45	-0.07	-0.45	0.49	0.02	1.00	0.00	0.03	0.00	0.04	-0.06	0.02	0.00	-0.01
Consumer Goods (10)	-0.06	0.12	0.02	0.00	-0.02	-0.02	0.02	0.03	0.00	1.00	-0.16	-0.09	-0.06	-0.16	-0.11	-0.11	-0.06
Financials (11)	-0.05	0.10	0.00	0.03	0.11	0.03	-0.04	0.00	0.03	-0.16	1.00	-0.18	-0.12	-0.32	-0.22	-0.22	-0.11
Technology (12)	-0.01	-0.13	-0.01	0.03	0.11	0.04	-0.04	0.00	0.00	-0.09	-0.18	1.00	-0.07	-0.18	-0.13	-0.13	-0.06
Healthcare (13)	-0.04	0.00	0.01	0.02	-0.02	0.03	-0.03	-0.04	0.04	-0.06	-0.12	-0.07	1.00	-0.12	-0.08	-0.08	-0.04
Industrial (14)	0.06	-0.17	-0.06	-0.04	0.01	0.01	-0.01	-0.09	-0.06	-0.16	-0.32	-0.18	-0.12	1.00	-0.23	-0.22	-0.11
Consumer Services (15)	-0.05	-0.05	0.03	-0.02	-0.03	-0.03	0.04	0.04	0.02	-0.11	-0.22	-0.13	-0.08	-0.23	1.00	-0.16	-0.08
Basic Materials (16)	0.13	0.04	0.01	-0.01	-0.19	-0.07	0.07	0.10	0.00	-0.11	-0.22	-0.13	-0.08	-0.22	-0.16	1.00	-0.07
Telecommunications (17)	-0.02	0.20	0.01	0.01	0.01	0.00	-0.01	-0.03	-0.01	-0.06	-0.11	-0.06	-0.04	-0.11	-0.08	-0.07	1.00

Table A.9: Correlation matrix 4 year

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BMRatio (1)	1.00	-0.08	-0.02	0.00	-0.04	-0.05	0.06	0.04	0.09	-0.06	-0.05	-0.01	-0.04	0.06	-0.05	0.13	-0.02
SIZERatio (2)	-0.08	1.00	0.03	0.07	-0.05	0.05	-0.14	-0.02	-0.05	0.12	0.10	-0.13	0.00	-0.17	-0.05	0.04	0.20
EPRatio (3)	-0.02	0.03	1.00	-0.03	-0.02	-0.01	0.05	0.00	0.07	0.02	0.00	-0.01	0.01	-0.06	0.03	0.01	0.01
BMIndex_YR1 (4)	0.00	0.07	-0.03	1.00	0.00	0.33	-0.55	0.80	-0.22	0.03	0.00	0.01	-0.03	-0.11	0.00	0.09	0.02
BBBEE_Rank (5)	-0.04	-0.05	-0.02	0.00	1.00	-0.01	0.01	0.00	-0.06	-0.02	0.11	0.11	-0.02	0.01	-0.03	-0.19	0.01
SIZEIndex_YR1 (6)	-0.05	0.05	-0.01	0.33	-0.01	1.00	-0.86	0.07	-0.29	-0.01	0.03	0.05	0.02	-0.03	-0.02	-0.02	0.00
MarketPremium_YR1 (7)	0.06	-0.14	0.05	-0.55	0.01	-0.86	1.00	-0.10	0.35	0.01	-0.03	-0.04	-0.02	0.02	0.04	0.03	-0.02
RiskFreeReturn_YR1 (8)	0.04	-0.02	0.00	0.80	0.00	0.07	-0.10	1.00	-0.06	0.04	-0.01	0.00	-0.04	-0.11	0.04	0.11	-0.01
SharePriceReturn_YR1 (9)	0.09	-0.05	0.07	-0.22	-0.06	-0.29	0.35	-0.06	1.00	0.01	0.04	0.01	0.06	-0.07	0.01	-0.01	-0.02
Consumer Goods (10)	-0.06	0.12	0.02	0.03	-0.02	-0.01	0.01	0.04	0.01	1.00	-0.16	-0.09	-0.06	-0.16	-0.11	-0.11	-0.06
Financials (11)	-0.05	0.10	0.00	0.00	0.11	0.03	-0.03	-0.01	0.04	-0.16	1.00	-0.18	-0.12	-0.32	-0.22	-0.22	-0.11
Technology (12)	-0.01	-0.13	-0.01	0.01	0.11	0.05	-0.04	0.00	0.01	-0.09	-0.18	1.00	-0.07	-0.18	-0.13	-0.13	-0.06
Healthcare (13)	-0.04	0.00	0.01	-0.03	-0.02	0.02	-0.02	-0.04	0.06	-0.06	-0.12	-0.07	1.00	-0.12	-0.08	-0.08	-0.04
Industrial (14)	0.06	-0.17	-0.06	-0.11	0.01	-0.03	0.02	-0.11	-0.07	-0.16	-0.32	-0.18	-0.12	1.00	-0.23	-0.22	-0.11
Consumer Services (15)	-0.05	-0.05	0.03	0.00	-0.03	-0.02	0.04	0.04	0.01	-0.11	-0.22	-0.13	-0.08	-0.23	1.00	-0.16	-0.08
Basic Materials (16)	0.13	0.04	0.01	0.09	-0.19	-0.02	0.03	0.11	-0.01	-0.11	-0.22	-0.13	-0.08	-0.22	-0.16	1.00	-0.07
Telecommunications (17)	-0.02	0.20	0.01	0.02	0.01	0.00	-0.02	-0.01	-0.02	-0.06	-0.11	-0.06	-0.04	-0.11	-0.08	-0.07	1.00

Table A.10: Correlation matrix 5 year

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BMRatio (1)	1.00	-0.08	-0.02	0.03	-0.04	0.00	0.04	0.05	0.06	-0.06	-0.05	-0.01	-0.04	0.06	-0.05	0.13	-0.02
SIZERatio (2)	-0.08	1.00	0.03	0.02	-0.05	0.02	-0.13	-0.01	-0.04	0.12	0.10	-0.13	0.00	-0.17	-0.05	0.04	0.20
EPRatio (3)	-0.02	0.03	1.00	0.00	-0.02	-0.02	0.00	0.00	0.08	0.02	0.00	-0.01	0.01	-0.06	0.03	0.01	0.01
BMIndex_YR1 (4)	0.03	0.02	0.00	1.00	0.00	0.68	-0.55	0.88	-0.14	0.03	-0.01	-0.01	-0.04	-0.11	0.02	0.12	0.01
BBBEE_Rank (5)	-0.04	-0.05	-0.02	0.00	1.00	-0.01	0.00	0.00	0.00	-0.02	0.11	0.11	-0.02	0.01	-0.03	-0.19	0.01
SIZEIndex_YR1 (6)	0.00	0.02	-0.02	0.68	-0.01	1.00	-0.69	0.50	-0.18	0.02	0.01	0.03	-0.02	-0.10	0.00	0.07	0.00
MarketPremium_YR1 (7)	0.04	-0.13	0.00	-0.55	0.00	-0.69	1.00	-0.23	0.27	0.01	-0.02	-0.03	0.00	0.05	0.03	-0.03	-0.02
RiskFreeReturn_YR1 (8)	0.05	-0.01	0.00	0.88	0.00	0.50	-0.23	1.00	-0.06	0.06	-0.02	-0.02	-0.04	-0.12	0.04	0.13	-0.01
SharePriceReturn_YR1 (9)	0.06	-0.04	0.08	-0.14	0.00	-0.18	0.27	-0.06	1.00	0.03	0.07	0.04	0.07	-0.10	0.00	-0.06	-0.03
Consumer Goods (10)	-0.06	0.12	0.02	0.03	-0.02	0.02	0.01	0.06	0.03	1.00	-0.16	-0.09	-0.06	-0.16	-0.11	-0.11	-0.06
Financials (11)	-0.05	0.10	0.00	-0.01	0.11	0.01	-0.02	-0.02	0.07	-0.16	1.00	-0.18	-0.12	-0.32	-0.22	-0.22	-0.11
Technology (12)	-0.01	-0.13	-0.01	-0.01	0.11	0.03	-0.03	-0.02	0.04	-0.09	-0.18	1.00	-0.07	-0.18	-0.13	-0.13	-0.06
Healthcare (13)	-0.04	0.00	0.01	-0.04	-0.02	-0.02	0.00	-0.04	0.07	-0.06	-0.12	-0.07	1.00	-0.12	-0.08	-0.08	-0.04
Industrial (14)	0.06	-0.17	-0.06	-0.11	0.01	-0.10	0.05	-0.12	-0.10	-0.16	-0.32	-0.18	-0.12	1.00	-0.23	-0.22	-0.11
Consumer Services (15)	-0.05	-0.05	0.03	0.02	-0.03	0.00	0.03	0.04	0.00	-0.11	-0.22	-0.13	-0.08	-0.23	1.00	-0.16	-0.08
Basic Materials (16)	0.13	0.04	0.01	0.12	-0.19	0.07	-0.03	0.13	-0.06	-0.11	-0.22	-0.13	-0.08	-0.22	-0.16	1.00	-0.07
Telecommunications (17)	-0.02	0.20	0.01	0.01	0.01	0.00	-0.02	-0.01	-0.03	-0.06	-0.11	-0.06	-0.04	-0.11	-0.08	-0.07	1.00

Table A.11: Correlation matrix 1 year - outlier adjusted

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BMRatio (1)	1.00	-0.23	-0.08	0.02	-0.02	0.03	-0.10	0.06	-0.17	-0.13	-0.07	0.02	-0.10	0.24	-0.10	0.04	-0.02
SIZERatio (2)	-0.23	1.00	0.04	0.00	-0.03	0.04	-0.01	-0.08	0.06	0.08	0.21	-0.18	0.02	-0.22	-0.11	0.04	0.29
EPRatio (3)	-0.08	0.04	1.00	0.05	-0.02	0.04	0.05	0.00	0.09	0.02	0.00	-0.01	0.01	-0.06	0.03	0.01	0.01
BMIndex_YR1 (4)	0.02	0.00	0.05	1.00	0.00	0.53	-0.34	-0.12	-0.16	0.00	0.08	0.05	0.00	-0.01	-0.06	-0.05	-0.02
BBBEE_Rank (5)	-0.02	-0.03	-0.02	0.00	1.00	0.00	0.00	0.00	-0.01	-0.02	0.11	0.11	-0.02	0.01	-0.03	-0.19	0.01
SIZEIndex_YR1 (6)	0.03	0.04	0.04	0.53	0.00	1.00	-0.65	-0.29	-0.24	-0.03	0.06	0.04	0.02	0.06	-0.06	-0.10	-0.01
MarketPremium_YR1 (7)	-0.10	-0.01	0.05	-0.34	0.00	-0.65	1.00	-0.27	0.46	0.06	0.00	0.01	-0.01	-0.11	0.01	0.08	0.01
RiskFreeReturn_YR1 (8)	0.06	-0.08	0.00	-0.12	0.00	-0.29	-0.27	1.00	-0.05	0.02	-0.03	-0.01	-0.03	-0.05	0.05	0.07	-0.02
SharePriceReturn_YR1 (9)	-0.17	0.06	0.09	-0.16	-0.01	-0.24	0.46	-0.05	1.00	0.05	0.02	-0.05	0.03	-0.13	0.06	0.05	0.04
Consumer Goods (10)	-0.13	0.08	0.02	0.00	-0.02	-0.03	0.06	0.02	0.05	1.00	-0.16	-0.09	-0.06	-0.16	-0.11	-0.11	-0.06
Financials (11)	-0.07	0.21	0.00	0.08	0.11	0.06	0.00	-0.03	0.02	-0.16	1.00	-0.18	-0.12	-0.32	-0.22	-0.22	-0.11
Technology (12)	0.02	-0.18	-0.01	0.05	0.11	0.04	0.01	-0.01	-0.05	-0.09	-0.18	1.00	-0.07	-0.18	-0.13	-0.13	-0.06
Healthcare (13)	-0.10	0.02	0.01	0.00	-0.02	0.02	-0.01	-0.03	0.03	-0.06	-0.12	-0.07	1.00	-0.12	-0.08	-0.08	-0.04
Industrial (14)	0.24	-0.22	-0.06	-0.01	0.01	0.06	-0.11	-0.05	-0.13	-0.16	-0.32	-0.18	-0.12	1.00	-0.23	-0.22	-0.11
Consumer Services (15)	-0.10	-0.11	0.03	-0.06	-0.03	-0.06	0.01	0.05	0.06	-0.11	-0.22	-0.13	-0.08	-0.23	1.00	-0.16	-0.08
Basic Materials (16)	0.04	0.04	0.01	-0.05	-0.19	-0.10	0.08	0.07	0.05	-0.11	-0.22	-0.13	-0.08	-0.22	-0.16	1.00	-0.07
Telecommunications (17)	-0.02	0.29	0.01	-0.02	0.01	-0.01	0.01	-0.02	0.04	-0.06	-0.11	-0.06	-0.04	-0.11	-0.08	-0.07	1.00

Appendix B

Table B.1: Regression Model 1, 2004 - 2007

	1	2	3	4	5
BMIndex	-0.4768	1.5935	6.5245	4.3066	0.0732*
	(1.8076)	(1.8356)	(6.5581)	(8.0116)	(0.0431)
$BBBEE_{Rank}$	-0.0036	0.0032	-0.0066	-0.0084	-0.0028
	(0.0032)	(0.0055)	(0.0081)	(0.0073)	(0.0067)
SIZEIndex	-0.5313	-2.0712	-6.8045	3.5305	7.1990
	(1.3303)	(1.9215)	(6.3889)	(6.7894)	(23.5393)
MarketPremium	0.5950	0.5822	-0.4361	2.6416	3.6816
	(0.3985)	(0.5279)	(1.3985)	(2.8624)	(6.4191)
RiskFreeReturn	0.3235	0.4535	5.1573	2.4644	-2.6438
	(0.6078)	(0.6938)	(4.5417)	(2.6380)	(10.7259)
Consumer Goods	0.1855	-0.2177	-0.9829	-0.5599	1.3301
	(0.2100)	(0.3038)	(0.9613)	(1.4412)	(3.0605)
Financials	0.4028**	0.1277	-0.4056	-0.2013	1.7999
	(0.1945)	(0.2769)	(0.9274)	(1.4161)	(3.0432)
Technology	0.1306	-0.1211	-0.8204	-0.9861	0.3395
	(0.2433)	(0.3575)	(0.9944)	(1.4583)	(3.0663)
Healthcare	0.1172	0.6335	-0.3201	-0.1573	1.5431
	(0.3445)	(0.5478)	(1.1521)	(1.5443)	(3.0963)
Industrial	0.2058	0.0788	-0.4441	-0.3324	0.9204
	(0.1931)	(0.2844)	(0.9334)	(1.4186)	(3.0438)
Consumer Services	0.2305	-0.2291	-0.8075	-0.5979	1.1556
	(0.1964)	(0.2884)	(0.9603)	(1.4411)	(3.0636)
Basic Materials	0.1197	-0.1488	-0.9896	-0.6622	0.6876
	(0.1845)	(0.2671)	(0.9359)	(1.4244)	(3.0518)
Telecommunications	0.3996	-0.1997	-0.5066	-0.0750	1.3700
	(0.3494)	(0.5616)	(1.1688)	(1.5512)	(3.1004)
N	179	179	179	179	179
R^2	0.07	0.17	0.29	0.21	0.21

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

Table B.2: Regression Model 1, 2007 - 2013

	1	2	3	4	5
BMIndex	0.0684	-0.8771	4.7233	4.4462	2.0409
	(0.4427)	(2.6761)	(11.0213)	(4.9275)	(6.9007)
$BBBEE_Rank$	0.0009	-0.0030	-0.0054*	-0.0033	0.0008
	(0.0009)	(0.0019)	(0.0032)	(0.0050)	(0.0070)
SIZEIndex	1.3046***	1.8320	0.4846	-1.5323	-0.8320
	(0.4144)	(1.6149)	(4.6785)	(7.1413)	(2.8958)
MarketPremium	0.9533***	1.2458*	2.7488	3.5357**	1.9737
	(0.1374)	(0.6795)	(3.5955)	(1.7776)	(1.5519)
RiskFreeReturn	1.5893	-2.4879	1.0389	10.1270	1.6351
	(2.3633)	(4.7629)	(21.7418)	(33.6025)	(13.2573)
Consumer Goods	-0.0470	0.7455	0.7131	-2.8045	0.2210
	(0.2216)	(0.7402)	(4.9453)	(12.4422)	(6.6847)
Financials	-0.1436	0.6808	0.6989	-2.8914	0.0784
	(0.2144)	(0.7327)	(4.9472)	(12.4304)	(6.6650)
Technology	-0.2071	0.5925	0.7542	-2.5193	0.7984
	(0.2174)	(0.7368)	(4.9533)	(12.4308)	(6.6670)
Healthcare	0.0239	1.0206	1.1612	-2.2375	0.9671
	(0.2248)	(0.7434)	(4.9472)	(12.4442)	(6.6809)
Industrial	-0.1940	0.4424	0.2602	-3.4313	-0.5612
	(0.2116)	(0.7307)	(4.9470)	(12.4245)	(6.6432)
Consumer Services	-0.0511	0.6485	0.5835	-3.0032	-0.0706
	(0.2181)	(0.7370)	(4.9461)	(12.4414)	(6.6899)
Basic Materials	-0.1790	0.5154	0.4105	-3.1232	-0.2061
	(0.2165)	(0.7321)	(4.9449)	(12.4367)	(6.6791)
Telecommunications	-0.1721	0.4694	0.3607	-3.3794	-0.5757
	(0.2222)	(0.7348)	(4.9479)	(12.4434)	(6.6452)
N	346	346	346	346	346
R^2	0.33	0.19	0.13	0.10	0.09

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

Table B.3: Regression Model 1, 2013 - 2018

	1	2	3	4	5
BMIndex	-0.3820	2.2597	0.0700	-0.2791***	-0.0474**
	(1.5049)	(5.3056)	(0.9947)	(0.1005)	(0.0202)
$BBBEE_{Rank}$	-0.0002	-0.0060***	-0.0083***	-0.0123***	-0.0088
	(0.0013)	(0.0020)	(0.0030)	(0.0040)	(0.0061)
SIZEIndex	0.3886	-1.6439	-0.2285	-0.1716***	-0.0041**
	(2.1549)	(4.5608)	(2.3960)	(0.0619)	(0.0017)
MarketPremium	0.7540	0.5733	0.7851*	0.8754*	-0.2792**
	(0.9221)	(0.5496)	(0.4217)	(0.5134)	(0.1193)
RiskFreeReturn	-14.0167	0.6516	0.6186***	0.9144***	0.5620**
	(20.6409)	(0.7959)	(0.1732)	(0.2280)	(0.2400)
Consumer Goods	1.1952	0.2584*	0.3346*	0.2275	-0.0429
	(1.7374)	(0.1431)	(0.1880)	(0.2290)	(0.3443)
Financials	1.2486	0.2523**	0.2451*	0.4038***	0.3323
	(1.7433)	(0.1008)	(0.1272)	(0.1514)	(0.2005)
Technology	1.1938	0.3332**	0.3567*	0.2404	-0.1894
	(1.7448)	(0.1362)	(0.1808)	(0.2191)	(0.2957)
Healthcare	1.2731	0.2647	0.2507	0.2373	-0.0014
	(1.7419)	(0.1794)	(0.2238)	(0.2772)	(0.3943)
Industrial	1.1692	0.1303	0.1840	0.2525	-0.0338
	(1.7429)	(0.1010)	(0.1319)	(0.1632)	(0.2246)
Consumer Services	1.2592	0.3413***	0.3931**	0.4552**	0.2724
	(1.7412)	(0.1306)	(0.1729)	(0.2079)	(0.2893)
Basic Materials	1.4220	0.1975	0.4002**	0.3896*	0.5346*
	(1.7398)	(0.1222)	(0.1678)	(0.2026)	(0.2858)
Telecommunications	1.4021	0.3615**	0.4087*	0.3804	0.2781
	(1.7455)	(0.1771)	(0.2370)	(0.2704)	(0.3935)
N	291	227	169	113	57
R^2	0.10	0.09	0.10	0.14	0.17

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

Table B.4: Regression Model 2, 2004 - 2007

	1	2	3	4	5
const	0.4351***	0.6379***	1.1616***	1.0997***	0.9556***
	(0.1202)	(0.2175)	(0.3465)	(0.2941)	(0.2633)
BMRatio	-0.0058	0.0415*	0.0468	0.0267	0.0269
	(0.0119)	(0.0215)	(0.0342)	(0.0290)	(0.0260)
SIZERatio	-0.0000	-0.0000	-0.0000	-0.0000*	-0.0000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
EPRatio	0.0044	0.0014	0.0020	0.0054	0.0072
	(0.0034)	(0.0062)	(0.0098)	(0.0083)	(0.0075)
BBBEE_Rank	-0.0032	0.0036	-0.0061	-0.0079	-0.0021
	(0.0033)	(0.0060)	(0.0095)	(0.0081)	(0.0073)
Consumer Goods	-0.0033	-0.1316	-0.1940	0.0039	0.2838
	(0.1509)	(0.2731)	(0.4351)	(0.3692)	(0.3306)
Financials	0.2022	0.2490	0.4343	0.3702	0.7508***
	(0.1234)	(0.2233)	(0.3557)	(0.3019)	(0.2703)
Technology	-0.0563	-0.1856	-0.3228	-0.6544	-0.9153**
	(0.1694)	(0.3067)	(0.4886)	(0.4146)	(0.3713)
Healthcare	0.0826	0.6526	0.2455	0.3481	0.5388
	(0.3011)	(0.5450)	(0.8682)	(0.7367)	(0.6597)
Industrials	0.0155	0.1908	0.3954	0.2290	-0.1434
	(0.1364)	(0.2470)	(0.3934)	(0.3338)	(0.2989)
Consumer Services	0.0326	-0.1598	0.0299	-0.0158	0.0976
	(0.1335)	(0.2416)	(0.3849)	(0.3266)	(0.2925)
Basic Materials	-0.0273	-0.0208	-0.0255	0.0795	-0.1984
	(0.1288)	(0.2332)	(0.3715)	(0.3152)	(0.2823)
Telecommunications	0.1891	0.0433	0.5988	0.7392	0.5416
	(0.2855)	(0.5169)	(0.8233)	(0.6986)	(0.6256)
N	179	179	179	179	179
R2	0.04	0.06	0.05	0.06	0.12

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

Table B.5: Regression Model 2, 2007 - 2013

	1	2	3	4	5
const	0.0708*	0.3114***	0.5771***	0.6871***	0.8121***
	(0.0393)	(0.0711)	(0.1197)	(0.1820)	(0.2538)
BMRatio	-0.0227	0.0273	0.0923**	0.1799***	0.1842*
	(0.0150)	(0.0270)	(0.0455)	(0.0692)	(0.0965)
SIZERatio	0.0000	0.0000	-0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
EPRatio	0.0009***	0.0013***	0.0017**	0.0021*	0.0029*
	(0.0002)	(0.0005)	(0.0008)	(0.0012)	(0.0016)
BBBEE_Rank	0.0013	-0.0030	-0.0055	-0.0035	0.0007
	(0.0011)	(0.0020)	(0.0033)	(0.0051)	(0.0071)
Consumer Goods	0.0454	0.1466	0.2100	0.2839	0.3185
	(0.0686)	(0.1239)	(0.2086)	(0.3171)	(0.4422)
Financials	-0.0336	0.0633	0.1321	0.0969	0.0716
	(0.0396)	(0.0716)	(0.1206)	(0.1832)	(0.2556)
Technology	-0.0441	0.0219	0.2349	0.5402**	0.9120***
	(0.0545)	(0.0986)	(0.1660)	(0.2523)	(0.3519)
Healthcare	0.1471*	0.4526***	0.6690***	0.8605**	1.0780**
	(0.0813)	(0.1469)	(0.2473)	(0.3759)	(0.5243)
Industrials	-0.0716*	-0.0946	-0.2339*	-0.3768**	-0.4991*
	(0.0411)	(0.0743)	(0.1251)	(0.1901)	(0.2651)
Consumer Services	0.1045**	0.0291	0.0156	0.0024	-0.0418
	(0.0498)	(0.0900)	(0.1515)	(0.2303)	(0.3213)
Basic Materials	0.0074	-0.1671*	-0.2866*	-0.3483	-0.4272
	(0.0530)	(0.0958)	(0.1613)	(0.2452)	(0.3419)
Telecommunications	-0.0843	-0.1405	-0.1641	-0.3719	-0.5999
	(0.0910)	(0.1644)	(0.2768)	(0.4208)	(0.5869)
N	346	346	346	346	346
R2	0.10	0.07	0.07	0.07	0.06

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

Table B.6: Regression Model 2, 2013 - 2018

	1	2	3	4	5
const	0.1867***	0.2222***	0.2684**	0.3182*	0.0681
	(0.0497)	(0.0779)	(0.1171)	(0.1648)	(0.2723)
BMRatio	-0.1128***	0.0446	0.1175*	0.2139*	0.3571*
	(0.0275)	(0.0413)	(0.0693)	(0.1097)	(0.2011)
SIZERatio	0.0000	0.0000	0.0000	-0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
EPRatio	0.0000	0.0004***	0.0003*	0.0004*	0.0065
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0048)
BBBEE_Rank	-0.0009	-0.0060***	-0.0077**	-0.0114***	-0.0045
	(0.0013)	(0.0020)	(0.0030)	(0.0042)	(0.0064)
Consumer Goods	-0.0735	0.0168	0.0608	-0.0099	-0.1708
	(0.0831)	(0.1242)	(0.1704)	(0.2224)	(0.3608)
Financials	0.0111	0.0183	-0.0320	0.1498	0.1298
	(0.0484)	(0.0699)	(0.1010)	(0.1349)	(0.2015)
Technology	0.0096	0.0954	0.0536	-0.0656	-0.2173
	(0.0779)	(0.1083)	(0.1558)	(0.1997)	(0.2997)
Healthcare	-0.0175	0.0553	-0.0055	0.0108	-0.0291
	(0.0959)	(0.1540)	(0.1964)	(0.2540)	(0.3850)
Industrials	-0.0153	-0.1501*	-0.1833	-0.1584	-0.3261
	(0.0492)	(0.0776)	(0.1137)	(0.1576)	(0.2369)
Consumer Services	-0.0645	0.1286	0.1472	0.2400	0.2871
	(0.0602)	(0.1068)	(0.1476)	(0.1906)	(0.2910)
Basic Materials	0.1701***	-0.0564	0.0992	0.0741	0.4625
	(0.0652)	(0.1025)	(0.1585)	(0.1981)	(0.2978)
Telecommunications	0.1668	0.1143	0.1284	0.0773	-0.0679
	(0.1101)	(0.1575)	(0.2254)	(0.2617)	(0.4101)
N	291	227	169	113	57
R2	0.11	0.10	0.12	0.19	0.25

Standard errors in parentheses. * p¡0.10, ** p¡0.05, ***p¡0.01

Appendix C

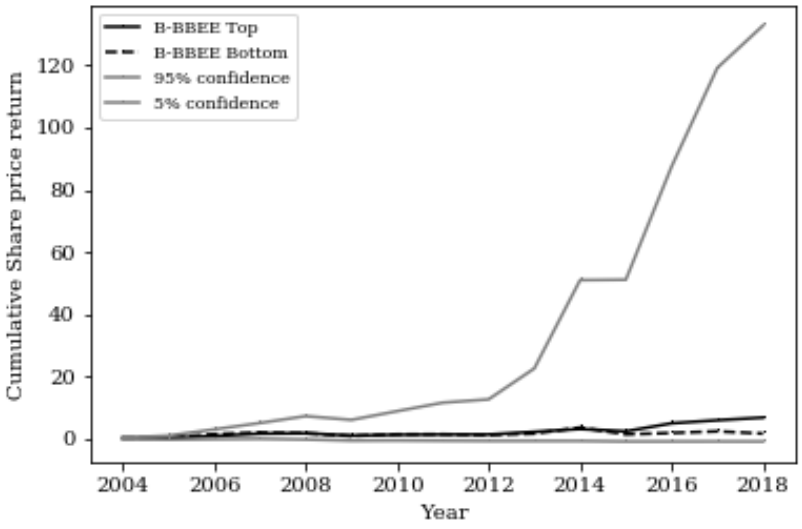

Figure C.1: Bootstrap Basic Materials

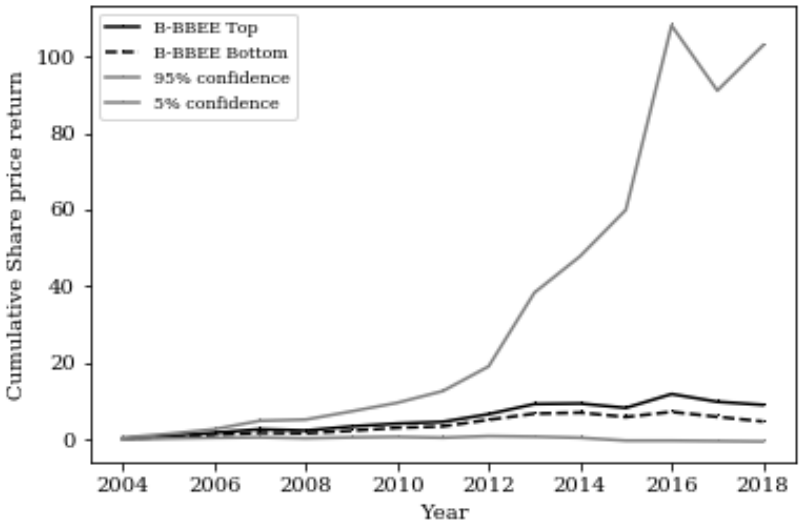

Figure C.2: Bootstrap Consumer Goods

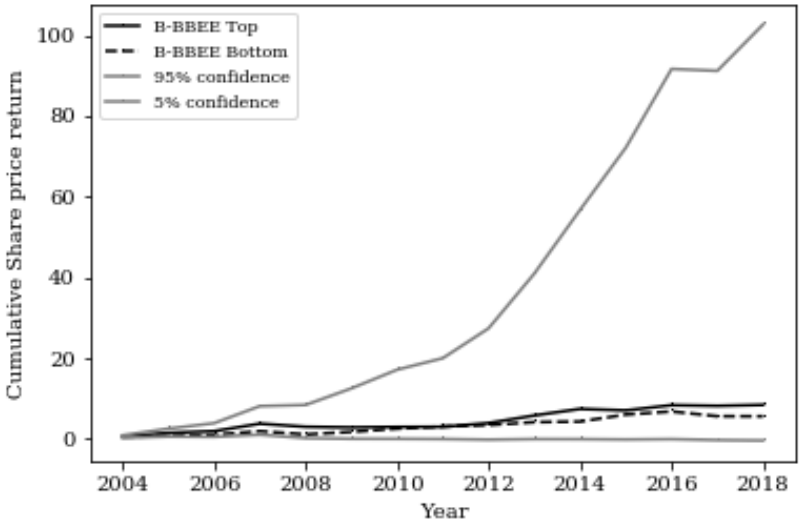

Figure C.3: Bootstrap Consumer Services

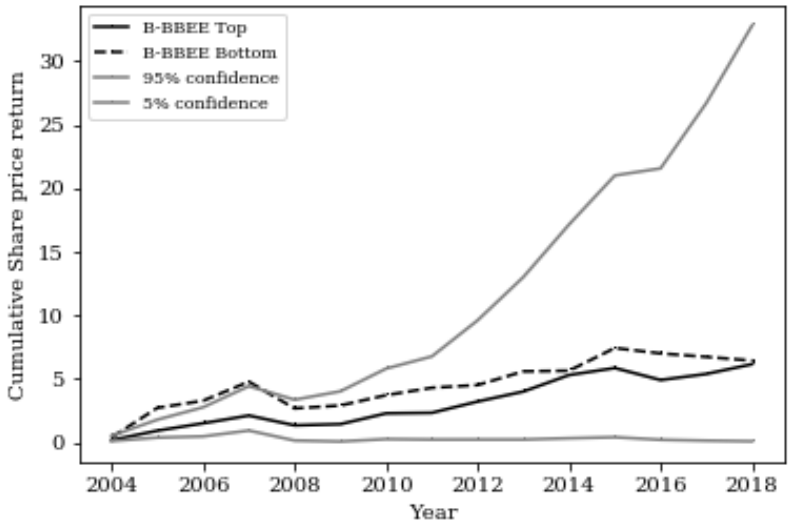

Figure C.4: Bootstrap Financials

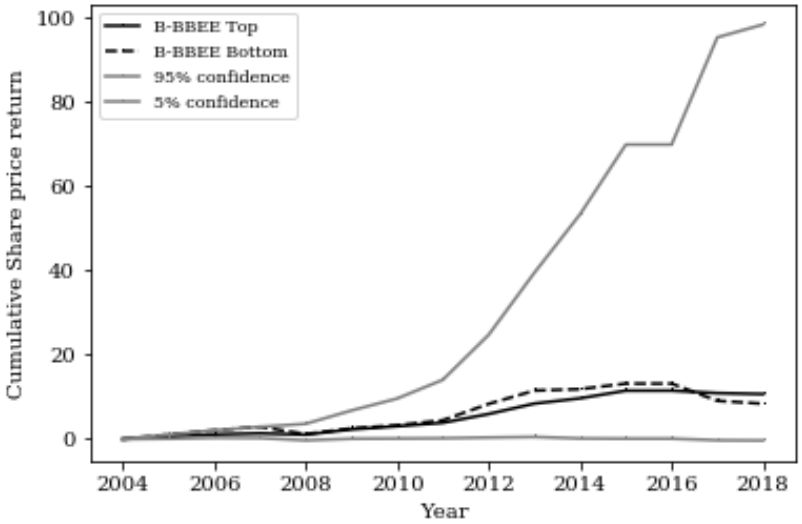

Figure C.5: Bootstrap Healthcare

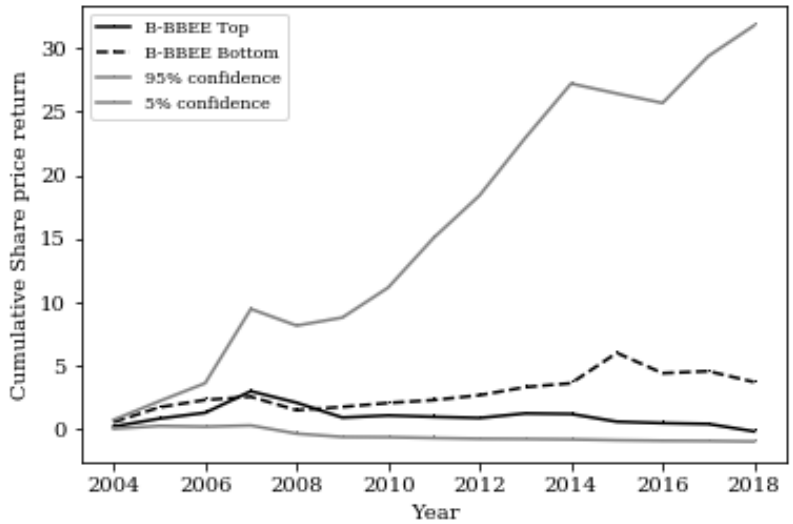

Figure C.6: Bootstrap Industrial

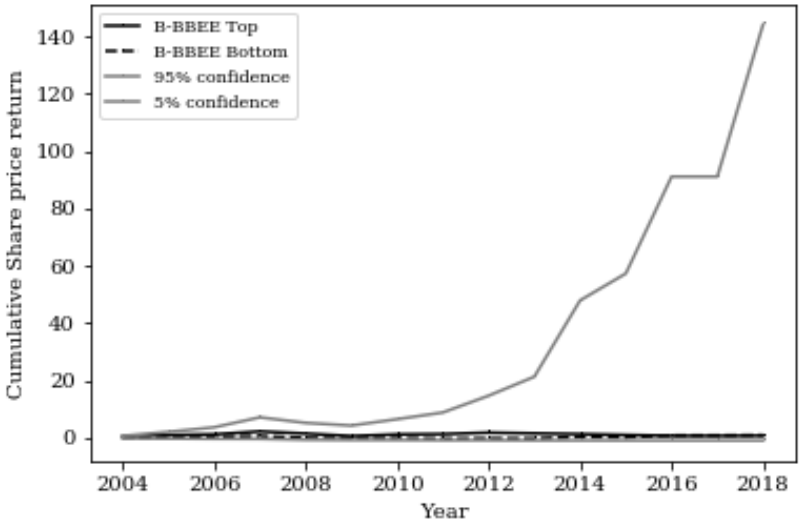

Figure C.7: Bootstrap Technology

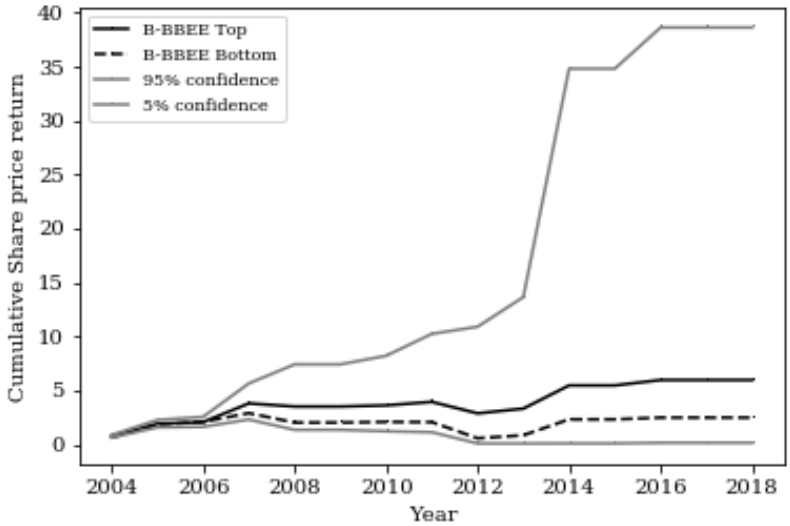

Figure C.8: Bootstrap Telecommunications