Board Diversity and Organizational Valuation: Unravelling the Effects of Ethnicity and Gender

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Abstract

Organizational boards of directors are one of the most important subgroups within most modern organizations, performing critical advisory, monitoring and resource dependence roles. This paper investigates the crucial question of whether the stock market values ethnic and gender diversity within organizational boards. We find that board diversity is positively associated with market valuation. We distinctively demonstrate further that ethnic diversity is valued more highly by the stock market than gender diversity. By contrast, we do not find any evidence of a significant non-linear link between board diversity and market valuation. Our findings are robust across a number of econometric models that deal with different types of endogeneities and market valuation measures. Overall, our results are consistent with agency and resource dependence theoretical predictions.

JEL classification: G30, G32, G34, G38

Keywords: organizational governance, organizational valuation, board diversity, ethnicity and gender, endogeneity

1 Introduction

Organizational boards of directors are one of the most important subgroups within the top management of most modern organizations (Bilimoria & Piderit, 1994; Robertson and Park, 2007; Mahadeo et al., 2012; Arnegger et al., 2013; Bart and McQueen, 2013; Dale-Olsen et al., 2013; Luckerath-Rovers, 2013), performing strategic functions, including advising, monitoring, disciplining, motivating and compensating managers, as well as providing access to critical resources, such as business contracts, contacts and finance (Lipton and Lorsch, 1992; Jensen, 1993; Welbourne et al., 2007; Lincoln and Adedoyin, 2012; Abdullah, 2013; Triana et al., 2013; Wellage and Locke, 2013). This paper examines the crucial question of whether the South African (SA) stock market values ethnic and gender diversity among the boards of publicly listed organizations. Specifically, we exploit a natural and unique organizational context in SA, where recent regulatory, affirmative action, and organizational governance (OG) reforms uniquely require listed organizations to formally compose diverse boards on the basis of ethnicity and gender to investigate whether board diversity can explain observable variations in their market value.

Although SA has been widely recognised as one of the most ethnically diverse countries in the world (Armstrong et al., 2006; West, 2009; Ntim and Soobaroyen, 2013a, b), long-standing apartheid policy of racial, social, economic and political segregation resulted in largely homogenous organizational boards (Ho and Williams, 2003; Swartz and Firer, 2005). As will be discussed further, and following the collapse of apartheid in 1994, a number of regulatory, affirmative action, and OG reforms have been pursued aimed at enhancing diversity within SA organizational boards (Armstrong et al., 2006; West, 2009; Ntim and Soobaroyen, 2013a). These

reforms include the 1994 and 2002 King Reports on OG, the 1998 Employment Equity Act, and the 2003 Black Economic Empowerment Act.[1]

Generally, the reforms, especially the King Reports have focused on improving governance standards in SA public organizations (King Committee, 2002; Rossouw *et al*., 2002; Armstrong et al., 2006; Ntim and Soobaroyen, 2013a). A more specific objective of these reforms, however, has been to increase the monitoring power of SA organizational boards by improving board effectiveness and efficiency (West, 2009; Andreasson, 2013), and thereby enhancing the overall market value. A key determinant of organizational boards' operational and functional effectiveness and efficiency is the degree of ethnic and gender diversity (Pfeffer, 1973; Lipton and Lorsch, 1992; Jensen, 1993; Sonnenfeld, 2002; Krishman and Park, 2005; Kang et al., 2007; Campbell and Minquez-Vera, 2008; Bart and McQueen, 2013). Arguably, these unique regulatory and OG reforms provide a significant impetus to investigate the extent to which board diversity on the basis of ethnicity and gender influence market valuation in a major emerging economic power.

Apart from the distinctive regulatory and OG reforms pursued, it has been argued that the association between board diversity and market valuation may not just vary by organizational-level heterogeneities (Baysinger and Butler, 1985; Baysinger and Hoskisson, 1990; Goodstein et al., 1994), but also by variations in country-level regulatory, OG and institutional features (van der Walt and Ingley, 2003; Singh and Vinnicombe, 2004; Singh, 2007). In spite of this development, previous studies investigating the association between board diversity and market valuation are primarily concentrated in a small number of matured Western economies, such as US that depict comparatively similar institutional contexts (Gilbert and Stead, 1999; Carter et al., 2003; Catalyst, 2007; Adams and Ferreira, 2009; Carter *et al*., 2010). A further issue of concern is that existing

[1]As will be discussed further, some of the reforms set specific targets of non-white (i.e., people of Black African, Chinese, Indian and Mixed Race backgrounds) board representation for organizations to comply with. For example, the 1998 Employment Equity and 2003 Black Economic Empowerment Acts set aspirational (not legally enforceable) target of 40 to 50% non-white senior management and/or board membership.

studies that have been mainly conducted in developed countries have focused largely on the valuation implications of board diversity on the basis of gender (Shrader et al., 1997; Burges and Tharenou, 2002; Erhardt et al., 2003; Welbourne et al., 2007; Johnston and Malina, 2008; Dobbin and Jung, 2011; Lincoln and Adedoyin, 2012; Abdullah, 2013; Luckerath-Rovers, 2013).

With respect to the African context, although a limited number of studies have analysed the impact of different OG structures, such as the frequency of board meetings (El Mehdi, 2007; Ntim and Osei, 2011), ownership structure (Sanda et al., 2010; Ntim, 2012, 2013), board size (Ho and Williams, 2003; Kyereboah-Coleman, *et al*., 2006) and board structure (Swartz and Firer, 2005; Kyereboah-Coleman and Biekpe, 2006; Sunday, 2008; Ntim, 2011) on market valuation, studies examining the valuation implications of ethnic and gender diversity within organizational boards are rare (Lincoln and Adedoyin, 2012; Mahadeo et al., 2012; Ujunwa, 2012; Ujunwa et al., 2012).

However, it is argued that in emerging economies, such as SA with different regulatory, OG practices, and institutional contexts (as will be explained further), the effectiveness and efficiency of board diversity may vary, and as such the association between board diversity on the basis of ethnicity and gender, and market valuation can be expected to be different from what has been reported for public organizations operating in developed countries. Hence, an examination of the impact of board diversity on market value in emerging African markets, where there is an acute dearth of reliable empirical evidence (Swartz and Firer, 2005; Amankwah-Amoah and Debrah, 2010; Mahadeo et al., 2012) will arguably be important in providing a more holistic understanding of the effect that board diversity has on market valuation (Dwyer et al., 2003; Brammer et al., 2007; du Plessis, 2008; Lincoln and Adedoyin, 2012; Triana et al., 2013).

Therefore, and in this paper, we investigate the crucial policy question of whether the SA stock market values ethnic and gender diversity within the boards of publicly listed organizations, and thereby making a number of distinctive contributions to the extant literature. First, using a

sample of SA listed organisations, we provide evidence on the relationship between board diversity and market value. To the best of our knowledge, this study constitutes one of the first attempts at estimating the impact of board diversity on organizational valuation within an African context, with particular focus on SA, and thus crucially extends the literature to that continent. The study also contributes to the mainly developed countries-based literature on the association between board diversity and market valuation. Second, and different from most past studies, we show how both ethnic and gender diversity affect market value, and thereby shedding new crucial insights on the link between ethnic diversity and market value. Third, we distinctively provide evidence on the relative value relevance of ethnic versus gender diversity on market valuation. Fourth, we uniquely investigate the existence of a non-monotonic association between board diversity and market valuation. Finally, and distinct from most prior studies, we apply econometric methods that sufficiently deal with different kinds of endogeneities, as well as make use of different measures of market valuation.

Our results suggest that the SA stock market values ethnic and gender diversity within organizational boards as there is a statistically significant and positive relationship between board diversity and market valuation. Distinct from prior studies, we show further that ethnic diversity is valued more highly by the SA stock market than gender diversity. This sheds new important insights on the relative value relevance of gender versus ethnic diversity on market valuation. By contrast, we do not find any evidence of a significant non-linear link between board diversity and market valuation. The central tenor of our findings remains unchanged across a number of econometric models that deal with different types of endogeneities and market valuation measures. Overall, our findings are consistent with agency and resource dependence theories, which suggest that ethnic and gender diversity enhances board independence, executive monitoring and decision-

making, as well as helps to better link an organization to its external environment that facilitates securing critical resources, and thereby improving market valuation.

The rest of the paper is structured as follows. The second section provides a brief overview of the organizational governance and statutory reforms on board diversity within the South African organizational context. The third section discusses the extant theoretical and empirical literature on the impact of board diversity on market valuation. The fourth section presents the research design. The fifth section reports empirical analyses, whilst the final section contains concluding remarks.

2 Organizational Governance and Statutory Reforms on Board Diversity within the South African Organizational Context

As previously explained, and although SA is widely perceived as one of the most ethnically diverse countries in the world (Armstrong et al., 2006; Andreasson, 2013), apartheid policy of racial segregation in every reasonably conceivable aspect of life, such as education, housing, and economic participation ensured that organizational boards were dominated mainly by middle class white males (Swartz and Firer, 2005; Ntim and Soobaroyen, 2013a). Therefore, and following the collapse of apartheid in 1994, the ruling African National Congress initiated a number of reforms that were aimed addressing historical socio-economic inequalities between black and white South Africans (Rossouw et al., 2002; West, 2009). Among the reforms pursued so far, the 1994 and 2002 King Reports on OG, the 1998 Employment Equity (EE) Act and the 2003 Black Economic Empowerment (BEE) Act are directly relevant to enhancing diversity within SA organizational boards.[2]

First, and although OG had implicitly existed in SA in the form of the 1861 Companies Act, the general view is that the introduction of the King Reports explicitly institutionalised OG

[2] As an illustration (and will also be discussed further in sections 5 and 7), the Appendix contains examples of annual report disclosures of progress made by some SA companies on complying with the 1998 employment equity and 2003 black economic empowerment acts.

practices (Mangena and Chamisa, 2008; Ntim et al., 2012). The reports focused primarily on improving the way in which SA organizations are governed (King Committee, 2002), coinciding with international attempts (e.g., the 1992 UK Cadbury Report) at enhancing the efficacy of OG structures around the world, as well as preceding well-publicised cases of major organizational failure mainly in a number of developed economies in the 1980s, especially in the UK and US (King Committeee, 2002).

Noticeably, the OG proposals contained in the King Reports were largely similar to those of the UK's Cadbury Report (Mangena & Chamisa, 2008; Andreasson, 2013). For example, and similar to the Cadbury Report, the King Reports recommended an Anglo-American style single-tier independently chaired board of directors, consisting of executive and independent non-executive directors, supported by independent committees (e.g., audit, remuneration, and nomination), and operating within a voluntary ('comply or explain') OG compliance regime (King Committee, 2002; Armstrong et al., 2006). With particular respect to board diversity, the King Reports did not set any specific targets for organizations to comply with. However, the Reports suggested that every organization should consider whether its board is diverse enough in terms of demographics (i.e., age, ethnicity and gender). This is expected to ensure that the composition of SA organizational boards reflect the naturally diverse SA context, as well as make them effective.

Second, and unlike the King Reports, the 1998 EE and 2003 BEE Acts focused directly on enhancing diversity within SA organizational boards (Andreasson, 2013; Ntim and Soobaroyen, 2013a). More specifically, the EE Act seeks to identify and eliminate all previous unfair and discriminatory employment practices on any grounds, including race and gender, requiring every organization to work towards achieving a balance between their non-white and white workforce

across all levels of the organisational hierarchy.[3] Similarly, the BEE Act focuses on transforming the SA economy by de-racialising organizational ownership and management by increasing black ownership and direct participation in business. Specifically, the BEE Act proposes a number of ways by which economic transformation can be achieved, including equity ownership and management control with clear cut targets for organizations to meet. For example, and to address the low participation of blacks in executive management, the Act encourages organizations to appoint qualified blacks into senior management positions, including board memberships, with a target of 40 to 50% non-whites.

Third, and crucially, compliance with these reforms are largely voluntary. The SA organizational setting is, however, distinctively characterised by high block and institutional shareholdings, mainly in the form of complex cross-ownerships and tall pyramids (Barr et al., 1995; Ntim et al., 2012). Also, shareholder activism is noticeably weak, whilst the ability to implement and enforce organizational laws is observably poor (Rossouw et al., 2002; Mangena and Chamisa, 2008). Together, and given the SA organizational context, this raises critical concerns as to whether a voluntary compliance regime, as contained in the King Reports and the BEE Act, for example, will be effective in achieving meaningful diversity within SA organizational boards. Consequently, the main objective is to investigate the extent to which these regulatory, affirmative action, and OG reforms have been able to enhance diversity within the SA organizational boards, and whether the stock market values such diversity within SA organizational boards.

3 Board Diversity and Market Value: Theory, Evidence and Hypothesis Development

Organizational boards of directors remain one of the most crucial subgroups within the upper management of a considerable number of organizations (Lipton and Lorsch, 1992; Bilimoria and

[3]This implicitly suggests that the average SA organizations should ideally have a workforce consisting of about 80% non-whites and 20% whites at all levels of the organizational hierarchy, including the board of directors in order to reflect the ethnic diversity and composition of the SA populace.

Piderit, 1994; Sonnenfeld, 2002; Lincoln and Adedoyin, 2012; Bart and McQueen, 2013; Dale-Olsen et al., 2013). As a group, organizational boards perform a number of strategic functions, including advising, monitoring, compensating and firing executives, and securing critical organizational resources (Pfeffer, 1973; Jensen, 1993; Yermack, 1996; Abdullah, 2013; Luckerath-Rovers, 2013; Wellage and Locke, 2013). In fact, and as discussed, one of the most significant OG issues currently facing SA organizations is board diversity[4] and its impact on market valuation.

However, there are mixed theoretical propositions as to the impact of board diversity on shareholder value: those who argue for more diversity in boardrooms and those who are in favour of organizational monoculture and boardroom uniformity (Bilimoria and Piderit, 1994; du Plessis, 2008; Kang et al., 2007; Singh, 2007; Campbell and Minquez-Vera, 2008). Proponents of diversity in organizational boardrooms usually base their arguments on agency, resource dependence and stakeholding theories (Goodstein et al., 1994; Burges and Tharenou, 2002; Dwyer et al., 2003; Robertson and Park, 2007; Yang and Konrad, 2011). Firstly, agency theory suggests that boards of diverse backgrounds increases board independence and improves executive monitoring (Kesner, 1988; van der Walt and Ingley, 2003; Johnston and Malina, 2008; Lincoln and Adedoyin, 2012; Abdullah, 2013; Triana et al., 2013), and thereby enhance market value.

Secondly, it brings diversity in ideas, perspectives, experience, and business knowledge to the decision-making process in boardrooms (Gilbert and Stead, 1999; Watson et al., 1993; Baranchuk and Dybvig, 2009; Luckerath-Rovers, 2013), which can facilitate better appreciation of the complexities of the organizational external environment. It can also increase creativity and innovation in boardrooms due to diversity in cognitive abilities, which can also facilitate effective

[4]Board diversity has been broadly defined as the various attributes that may be represented among directors in the boardroom in relation to board process and decision-making, including age, gender, ethnicity, culture, religion, constituency representation, independence, knowledge, educational and professional background, technical skills and expertise, commercial and industry experience, career and life experience (van der Walt and Ingley, 2003, p.219). In this paper, we focus only on ethnic and gender aspects of the board.

decision-making (Wiersema and Bantel, 1992; Carter et al., 2003; Welbourne et al., 2007; Lincoln and Adedoyin, 2012; Bart and McQueen, 2013), and impact positively on market valuation.

Thirdly, resource dependence theory indicates that board diversity can have a positive influence on market valuation by linking an organization to its external environment and secure critical resources, including skills, business contacts, prestige and legitimacy (Goodstein et al., 1994; Westphal and Bednar, 2005; Arnegger et al., 2013). Finally, it has been suggested that (Shrader et al., 1997; Ryan & Haslam, 2007; Mahadeo et al., 2012; Wellage and Locke, 2013) organizational boards of qualified individuals of diverse backgrounds and constituencies can help provide a better link with an organization's stakeholders, such as consumers and communities, which can improve its opportunities, reputation and value. Carter et al. (2003) suggest, for example, that by matching the diversity of an organization's board to the diversity of its customers and suppliers, it can significantly increase its ability to penetrate competitive markets.

However, and relying on agency and organization theories, opponents contend that board diversity can impact negatively on market valuation. Firstly, ethnic and gender-based board members may be appointed as a sign of tokenism, and as such their contributions may be marginalised (Hillman et al., 2007; Abdullah, 2013). Secondly, organization theory indicates that greater diversity within boards may significantly constrain its efforts to take decisive action and initiate strategic changes, especially in times of poor organizational performance and environmental turbulence (Goodstein et al., 1994; Krishman and Park, 2005). Thirdly, diverse board members may bring their individual and constituencies' interests and commitments to the board (Baysinger and Butler, 1985; Wellage and Locke, 2013). The greater the diversity of these interests, the greater the potential for conflicts and factions to emerge among them as a group (Robertson and Park, 2007;

Baranchuk and Dybvig, 2009), which can inhibit boardroom cohesion and performance (Goodstein et al., 1994; Francoeur et al., 2008; Lincoln and Adedoyin, 2012).[5]

Consistent with the conflicting nature of the theoretical literature on board diversity, previous evidence regarding the link between board diversity and market valuation is equally mixed (Zahra and Stanton, 1988; Wiersema and Bantel, 1992; Shrader et al., 1997; Carter et al., 2003, 2010; Ujunwa, 2012; Dale-Olsen et al., 2013). One strand of the empirical literature reports that more diverse boards are associated with higher market valuation (Erhardt et al., 2003; Adams and Ferreira, 2009; Adler, 2010). For example, and using 25 American listed organizations, Adler (2010) finds a positive correlation between employing higher percentage of women in top management and market valuation. Carter et al. (2003) also report a positive link between board diversity and market value using a 1997 cross-sectional sample of 638 American organizations.

Consistent with prior evidence (Erhardt et al., 2003; Catalyst, 2007; Kang et al., 2007; Campbell and Minquez-Vera, 2008; Johnston and Malina, 2008; Robertson and Park, 2008), Francoeur et al. (2008) examine whether the participation of women in an organization's board improves market valuation in a sample of 230 Canadian listed organizations from 2001 to 2004. They report positive and significant abnormal returns in organizations with a higher proportion of women officers. Further, recent evidence by Mahadeo et al. (2012), Abdullah (2013), Bart and McQueen (2013), Luckerath-Rovers (2013), Triana et al. (2013), and Wellage and Locke (2013) provide additional support for the evidence of a positive association between board diversity and market valuation in Mauritius, Malaysia, Finland, Netherlands, US, and Sri Lanka, respectively.

By contrast, but consistent with the conflicting nature of prior board diversity theory, other studies report that board diversity rather impacts negatively on market valuation (Watson et al.,

[5]This also suggests that the association between board diversity and organizational value can be non-linear, whereby initial increases in ethnic and gender board representations lead to declines in market valuation up to a point, beyond which additional increases in diversity improve market valuation (Robertson and Park, 2007). Therefore, we investigate whether there is a curvilinear relationship between board diversity and market valuation, as part of our robustness analyses.

1993; Shrader et al., 1997; Hillman et al., 2007; Ujunwa, 2012; Ujunwa et al., 2012; Dale-Olsen et al., 2013). Goodstein et al. (1994) investigate the impact of board diversity on an organization's ability to initiate strategic changes in a total of 335 American organizations from 1980 to 1985, and find that organizations with diverse boards are less likely to initiate strategic changes than those with homogenous boards. Shrader et al. (1997) examine the association between the percentage of female board members and market valuation for a 1992 cross-sectional sample of 200 American organizations. Their results suggest a negative relationship between the percentage of women on the board and market valuation, implying that while the views of women on the board may be marginalised, their presence may also have financial costs implications for the organization, which can impact negatively on market valuation. Recent evidence by Ujunwa (2012), Ujunwa et al. (2012), and Dale-Olsen et al. (2013) supports the theoretical prediction that firms that have more women on their boards tend to be valued lowly.

A third stream of empirical studies (Zahra and Stanton, 1988; Farrell and Hersch, 2005; Westphal and Bednar, 2005; Rose, 2007), indicates that board diversity has no impact on market valuation. For example, and using a sample of 95 American listed organizations, Zahra and Stanton (1988) find no significant relationship between board diversity and market valuation. Similarly, Rose (2007) investigates whether female board representation influence market valuation using a sample of Danish listed organizations over the period 1998-2001. Consistent with the evidence of Zahra and Stanton (1988), he finds no significant link between market valuation and female board representation. Observably, these studies have focused mainly on how gender diversity within organizational boards impacts on their market valuation, resulting in limited insights on how ethnic diversity within boards influence their dynamics, as a top management group and market valuation.

With respect to SA, and as has been discussed, both the 1998 EE and 2003 BEE Acts directly seek to enhance ethnic and gender diversity within SA organizational boards. Similarly,

the King Reports require organizations to regularly review ethnic and gender composition of their boards, so as to not only reflect the diverse SA context, but also enhance effective operations. Together, these regulatory and OG reforms appear to suggest that board diversity can impact positively on market valuation. However, and given the mixed international evidence, we predict a statistically significant association between board diversity and market valuation without being specific about the direction of the sign of the coefficient. Therefore, our main hypothesis to be tested in this study is that:

H_1: There is either a statistically significant negative or positive association between board diversity on the basis of both ethnicity and gender, and market valuation.

4 Research Design

4.1 Sample and data

As at 31/12/2007, a total of 402 organizations from ten industries, namely: basic materials; consumer goods; consumer services; financials; health care; industrials; oil & gas; technology; telecoms; and utilities were listed on the Johannesburg Stock Exchange. Due to capital structure and regulatory reasons, 111 financials and utilities were excluded from the sample, leaving us with 291 organizations from eight non-financial industries to be sampled. We needed data on OG and financial variables to investigate the association between board diversity and market value. The OG variables were collected from the sampled organizations' annual reports, which were downloaded from the *Perfect Information* Database. The financial data were collected from *DataStream*. The organizations in our final sample had to satisfy two criteria: the accessibility to an organization's full five-year annual reports from 2002 to 2006; and the availability of an organization's corresponding financial data from 2003 to 2007.[6]

[6]Organizational board decisions take time in order to be reflected in market value (Guest, 2009; Ntim et al., 2012). Thus, to circumvent potential endogenous relationship between board diversity and market valuation, we introduce a one year lag between board diversity and market valuation such that this year's organizational value depends on last year's governance structure similar to Yermack (1996) and Ntim et al. (2012), as specified in equation (1). The sample also starts from 2002 for two reasons. First, King II

Our criteria were motivated by a number of reasons. First, and in line with past studies (Yermack, 1996; Carter et al., 2003), the criteria allowed us to satisfy the requirements for a balanced panel data analysis. Some of the benefits that can be derived for using panel data include having both time-series and cross-sectional observations, more degrees of freedom and less multi-collinearity among the variables (Gujarati, 2003; Wooldridge, 2010). Second, an investigation of five-year data with both cross-sectional and time-series properties may be useful in determining whether the observed cross-sectional relationship between board diversity and market valuation holds over-time (Carter et al., 2010; Ntim et al., 2012). This may help in drawing direct comparisons with the findings of previous studies (Rose, 2007; Francoeur et al., 2008; Robertson and Park, 2008). Using our selection criteria, the complete data needed is obtained for a total of 169 organizations over five years and 8 industries for our empirical investigation.

4.2 Dependent, independent and control variables

In this subsection, we discuss the three main categories of variables that we use in our examination, and Table 1 contains their full definitions. First, we measure our main independent variable in four ways: board diversity on the basis of ethnicity (*BDIVE*); board diversity on the basis of gender (*BDIVG*); board diversity on the basis of gender non-whites (i.e., black women) (*BDIVGNW*); and board diversity on the basis of both ethnicity and gender (*BDIV*). Second, the widely used Tobin's Q (*Q*) is our main dependent variable/measure for market valuation. As a robustness check, however, we use return on assets (*ROA*) and total share return (*TSR*), as an alternative accounting and market-based organizational valuation measures, respectively.

Finally, and in line with past studies (Carter et al., 2003, 2010; Johnston and Malina, 2008; Dale-Olsen et al., 2013), we include below a number of control variables to control for potential omitted variables bias. First, organizations with greater investment opportunities often grow faster

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came into operation in 2002, and secondly, data coverage in *Perfect Information/DataStream* on SA listed organizations is very limited until 2002. The sample ends in 2007 because it is the year for which data is available.

(Beiner et al., 2006; Ntim et al., 2012) and hence, such organizations are more likely to be highly valued by the stock market. Therefore, we conjecture that sales growth (*SGR*) will correlate positively to market valuation. Second, organizations that invest heavily in research and development can obtain knowledge and technological advantages over their competitors (Shrader et al., 1997; Adams and Ferreira, 2009), and as such, may be highly valued by the stock market. By contrast, the capital intensive nature of the research and development activity (Baranchuk and Dybvig, 2009; Ntim et al., 2012), can impact negatively on current market valuation.

Insert Table 1 about here

In a similar vein, and on the one hand, organizations that use more debt can improve their market valuation by effectively minimising the ability of opportunistic managers to extract 'free cash flows' (Jensen, 1986; Guest, 2009). On the other hand, high levels of leverage can increase the risk of financial distress and bankruptcy by impairing the ability of organizations to fully utilise commercial opportunities (Jensen, 1986; Ntim et al., 2012). This can impact negatively on market valuation. Also, larger organizations may have economy of scale, market power, and access to resources advantages over their smaller counterparts (Beiner et al., 2006; Robertson and Park, 2007) and therefore, may be more highly valued by the stock market. By contrast, smaller organizations tend to have higher opportunities to grow than larger ones (Pfeffer, 1973; Guest, 2009; Kang et al., 2007; Dale-Olsen et al., 2013; Triana et al., 2013) and hence, smaller organizations may be valued higher by the stock market than larger organizations.

Due to the conflicting theoretical expectations, we predict that leverage (*LEV*), capital expenditure (*CAPX*) and organizational size (*LOGTA*) will have either a negative or positive correlation with market valuation. Third, organizations that are cross-listed on foreign stock markets may be better placed to raise capital at a cheaper cost to finance growth opportunities than their non-cross-listed counterparts (Ntim et al., 2012), and thus may be valued more highly by the

stock market. Hence, we expect dual-listed organizations (*DUALIST*) to be positively related to market valuation. Fourth, DeAngelo (1981) suggests that audit organizational size is positively related to auditor independence and audit quality, and therefore organizations audited by large audit organizations may be more highly valued by the stock market. Thus, we predict that the size and reputation of the audit organization (*BIG4*) will impact positively on market valuation.

Fifth, maintaining connections with government in the form of direct government ownership can provide access to critical resources, such as finance and lucrative business contracts (Pfeffer, 1973; Yang and Konrad, 2011). Therefore, we expect government ownership (*GVOWN*) to correlate positively with market valuation. Sixth, organizations that voluntarily set-up OG committee to specifically monitor OG standards may be in a better position to reduce the ability of self-serving managers to expropriate organizational resources (Ntim et al., 2012), and as such may be more highly valued by the stock market. Thus, we expect the presence of an OG committee (*OGCO*) to be positively associated with market valuation. Finally, and in line with past studies (Robertson and Park, 2007; Welbourne et al., 2007; Johnston and Malina, 2008), we expect that market valuation will differ across different industries and financial years. Therefore, we include industry (*IND*) dummies for the 5 remaining industries[7]: basic materials and oil & gas; consumer goods; consumer services and health care; industrials; and technology & telecoms; and year (*YED*) dummies for the financial years 2003 to 2007.

5 Empirical Analyses and Discussion

5.1 Descriptive statistics

Table 2 contains detailed descriptive statistics relating to different aspects of board diversity within SA organizations. Table 2 shows that *BDIV* has a wide spread, ranging from a minimum of

[7]Due to insufficient number of observations in 3 industries, namely health care, oil and gas, and telecoms industries with three, one and three listed organizations, respectively, were merged with the closest remaining five major industries. Consequently, the three *health care* organizations were included in the *consumer services* industry, the one *oil and gas* organization was added to the *basic materials* industry, whilst the three *telecoms* organizations were also shared out to the *technology* industry.

0% to a maximum of 100%, and averaging approximately at 30%. This implies that despite board diversity reforms pursued (BEE, EE and King Reports), the average SA listed organization's board remains dominated (70%) by white males. Our finding is largely consistent with those of past studies (Brammer et al., 2007; Fraucoeur et al., 2008; Luckerath-Rovers, 2013; Triana et al., 2013). For example, in a sample of 543 UK organizations, Brammer et al. (2007) find that only 23% of the average board members originate from diverse ethnic and gender backgrounds. Of the 30% diverse board members (*BDIV*), only 34% are women (*BDIVG*).

Similarly, and of the approximately 26% non-whites (*BDIVE*) found on an average organization's board, only 23% are women (*BDIVGNW*). Overall, only 17% of the board members of an average sampled organization are women (*BDIVG*), of which 56% are women of colour. The evidence of low representation of women on SA organizational boards is also consistent with the findings of prior studies (Carter et al., 2003; Singh and Vinnicombe, 2004; Campbell and Minquez-Vera, 2008; Abdullah, 2013; Ujunwa, 2012; Dale-Olsen et al., 2013; Luckerath-Rovers, 2013). This notwithstanding, however, gender and ethnic diversity within SA boards are generally increasing. For example, *BDIV* has increased from 26% in 2002 to 35% in 2006, and similar increases are noticeable in *BDIVE*, *BDIVG* and *BDIVGNW*, which may be explained by the increasing willingness of the sampled organizations to comply with the provisions of the 1998 EE and 2003 BEE Acts. These findings are also consistent with examples of disclosures regarding the progress made by some SA organizations on complying with the requirements of the EE and BEE acts that are reported in the Appendix. For example, AngloGold Ashanti Group, a large mining company had only 14% (2 out of 14) of its year 2002 board members as non-whites with no (0%) woman. By contrast, a significant 47% (8 out of 17) of AngloGold Ashanti's year 2006 board members were non-whites with 4 (24%) women, representing a substantial 33 percentage point increase over the 5-year period examined. Similar positive developments and patterns are observable in the Aspen

Pharmacre, Harmony Gold, and Truworths International Groups (see the Appendix), as well as across the entire 169 sampled organizations that were analysed.

Insert Table 2 about here

Table 3 reports descriptive statistics relating to the other variables used, although for purposes of completeness, the summary board diversity measures are also reported. Generally, all the values show wide variations. For instance, and consistent with the results of Beiner et al. (2006) and Guest (2009), *Q* is between a minimum of 0.58 and a maximum of 3.58 with a mean of 1.52, displaying wide spread. The alternative market valuation proxies (i.e., *ROA* and *TSR*), as well as the control variables (i.e., *BIG4*, *CAPX*, *DUALIST*, *GVOWN*, *LEV*, *LOGTA*, *OGCO* and *SGR*) show wide variations, implying that our sample has been adequately chosen to achieve sufficient variation, and thus eschews any possibilities of sample selection bias.

Insert Table 3 about here

We also examined linear regression assumptions of multicollinearity, autocorrelation, normality, homoscedasticity, and linearity. We investigated the multicollinearity assumption by conducting the Spearman non-parametric and Pearson parametric bivariate correlation tests among the variables. The results, which are not reported for the sake of brevity, but available upon request, suggested that no significant non-normality and multicollinearity problems were present among the variables. In addition, we examined scatter, *P-P* and *Q-Q* plots, studentised residuals, Cook's distances and Durbin-Watson statistics of the variables, with these tests indicating no serious violation of the linear regression assumptions of homoscedasticity, linearity, normality and autocorrelation, and thereby implying that it is appropriate to carry out multivariate regression analyses.

5.2 Multivariate regression analyses

Organizations tend to differ in the challenges and opportunities that they encounter over time (Guest, 2009; Ntim et al., 2012). This can lead to situation whereby *BDIV* and *Q* are jointly and dynamically determined by organizational-specific differences, such as organizational culture, complexity and managerial talent (Guest, 2009), which simple OLS regressions may not be able to detect (Gujarati, 2003; Wooldridge, 2010), and thereby resulting in misleading findings (Hausman, 1978; Beiner et al., 2006; Dale-Olsen et al., 2013; Triana et al., 2013). As such, and given the panel nature of our data, as well as in line with past studies (Guest, 2009; Carter et al., 2010), we carry out fixed-effects regressions so as to control for possible unobserved organization-specific heterogeneities. We start our analysis with a fixed-effects regression model specified as follows:

$$Q_{it} = \alpha_0 + \beta_1 BDIVG_{it-1} + \sum_{i=1}^{n} \beta_i CONTROLS_{it-1} + \delta_{it-1} + \varepsilon_{it-1} \quad (1)$$

where: *Q* is the main dependent variable; *BDIVG*, *BDIVE*, *BDIV* and *BDIVGNW* are the main independent variables; and *CONTROLS* refers to the control variables, including *BIG4*, *CAPX*, *DUALIST*, *GVOWN*, *LEV*, *LOGTA*, *OGCO*, *SGR*, *IND* and *YED*, and δ refers to the organizational-level fixed-effects, made up of a vector of the mean-differences of all time variant variables.[8]

Table 4 reports fixed-effects regressions results of the impact of the various *BDIV* measures on *Q*. First, to ascertain whether the SA stock market values board diversity on the basis of gender, we run *Q* on *BDIVG*, including the control variables using equation (1). Statistically significant and positive impact of *BDIVG* on *Q* is observable in Model 1 of Table 4, and thereby providing support for H_1, as well as the similar findings of past studies (Johnston and Malina, 2008; Adam and

[8]However, we note that our choice is between random and fixed-effects estimation techniques. Therefore, to ensure that fixed-effects model is appropriate, we first carry out Hausman (1978) specification test by estimating both fixed and random-effects models for the *BDIV* proxies separately using equation (1) and comparing their respective coefficients. Under the null hypothesis of consistent random unobserved organizational-level heterogeneity (i.e., unobserved organization-specific effects or the regressions errors are uncorrelated with the independent variables), random-effects estimates will be both consistent and efficient, whilst fixed-effects coefficients will be consistent, but inefficient (Hausman, 1978; Wooldridge, 2010). In contrast, if the null hypothesis is rejected, then the fixed-effects approach will provide both consistent and efficient estimates, whereas random-effects estimates will be both inconsistent and biased (Hausman, 1978; Gujarati, 2003). The test consistently rejects the null hypothesis of consistent random effects for both models at the 1% level, providing further empirical support for our decision to rely primarily on fixed-effects models.

Ferreira, 2009; Adler, 2010; Bart and McQueen, 2013; Luckerath-Rovers, 2013; Wellage and Locke, 2013). Second, and whilst prior studies have examined how the presence of white women on organizational boards influence performance (Shrader et al., 1997; Farrell & Hersch, 2005; Rose, 2007; Mahadeo et al., 2012; Abdullah, 2013; Dale-Olsen et al., 2013; Luckerath-Rovers, 2013), the effect that non-white or black women board members has on market value remains largely unexplored. Therefore, we seek to fill this gap within the literature by uniquely running *BDIVGNW* on *Q*. Statistically significant and positive effect of *BDIVGNW* on *Q* is noticeable in Model 2 of Table 4, and thereby providing support for $H_{1,}$ in addition to shedding new crucial empirical insights on the impact of *BDIVGNW* on market valuation.

Third, the question of whether ethnic diversity within organizational boards is valued by the stock market has also rarely been explicitly investigated in the past (Robertson and Park, 2007; Carter et al., 2003; 2010; Mahadeo et al., 2012; Abdullah, 2013; Wellage and Locke, 2013). Therefore, to separately examine the impact of board diversity on the basis of ethnicity on market valuation, we re-estimate equation (1) by replacing *BDIVG* with *BDIVE*. The coefficient of *Q* on the *BDIVE* in Model 3 of Table 4 is positive and statistically significant, thereby providing support for $H_{1,}$ as well as shedding new insights on the effect of *BDIVE* on market valuation.

Insert Table 4 about here

Fourth, and given the evidence of higher market valuation separately for *BDIVG* and *BDIVE*, respectively, we expect organizations that exhibit high levels of both gender and ethnic diversity to be valued more highly by the stock market. Hence, we re-regress equation (1) by replacing *BDIVG* with *BDIV*, which includes both *BDIVG* and *BDIVE*, in order to investigate the overall effect of board diversity on market valuation. Statistically significant and positive effect of *BDIV* on *Q* is discernible in Model 4 of Table 4, thereby providing further support for H_1. Overall, our results imply that organizations that show greater commitment towards enhancing board diversity and

good governance are rewarded with higher market valuation. This evidence is also largely consistent with the recommendations of the 1998 EE act, the 2003 BEE act, and the 1994 and 2002 King Reports, as well as similar findings from other markets (Erhardt et al., 2003; Francoeur et al., 2008; Dobbin and Jung, 2011; Wellage and Locke, 2013). Theoretically, our results provide support for agency (Lipton and Lorsch, 1992; Jensen, 1993) and resource dependence theories (Pfeffer, 1973; Yang and Konrad, 2011; Arnegger et al., 2013), which suggest that ethnic and gender diversity improves board independence, executive monitoring, disciplining, and decision-making, as well as helps to better link an organization to its external environment that can facilitate securing critical resources, and thereby by improving market valuation.

Fifth, our evidence so far suggests that both gender and ethnic diversity contributes to market value, but it is unclear within the empirical literature whether gender or ethnic diversity contributes more to market value. In a regression containing both *BDIVG* and *BDIVE*, we would expect the stronger contributor to market value to dominate the other. We therefore re-run equation (1) by including both *BDIVG* and *BDIVE* to test for the relative value relevance of gender versus ethnic diversity on organizational boards. The coefficient of *Q* on *BDIVE* in Model 5 of Table 4 is positive and statistically significant, while that on *BDIVG* is positive, but statistically insignificant, and thereby uniquely further shedding new important empirical insights on the relative value relevance of gender and ethnic diversity within organizational boards. Although this finding may also be explained by the lower number of gender representation on SA boards compared with men from ethic backgrounds (see Tables 2 and 3), it appears to be consistent with the view that women's views on the board tend to be marginalised (Shrader et al., 1997; Hillman et al., 2007; Ujunwa, 2012; Dale-Olsen et al., 2013; Luckerath-Rovers, 2013; Triana et al., 2013).

Finally, and the coefficients on the control variables in Models 1 to 5 of Table 4 are generally in line with our expectations. For example and as predicted, the coefficients on *CAPX*,

LEV and *LOGTA* are statistically significant and negatively related to *Q*, whereas *BIG4*, *DUALIST*, *GVOWN*, *OGCO* and *SGR* are statistically significant and positively associated with *Q*, in Models 1 to 5. Finally, the *F*-values in Models 1 to 5 of Table 4 consistently reject the null hypothesis that the coefficients on the main independent and the control variables are equal to zero. Consistent with the findings of previous studies (Adam and Ferreira, 2009; Carter et al., 2003, 2010), the adjusted R^2 is between 21% and 32%, implying that our fixed-effects regressions can explain significant differences in our sampled organizations' *Q*.

5.3 Robustness analyses

Our fixed-effects regressions so far do not take into account the presence of possible non-monotonic associations and alternative market valuation measures, as well as other potential endogeneities. This indicates that the evidence of a significant positive effect of *BDIV* on *Q*, for instance, may be misleading. In this subsection, we investigate how robust our findings are to the existence of potential non-linear relationships, alternative market valuation proxies, and other endogeneity problems.

First, to examine whether there is a non-monotonic link between board diversity and market valuation, such that initial increases in ethnic and gender board representations lead to declines in market valuation up to a point, beyond which additional increases in diversity improve market valuation, as predicted by Robertson and Park (2007), we re-estimate equation (1) using squared board diversity ($BDIV^2$) in addition to *BDIV*.[9] Positive, but statistically insignificant impact of $BDIV^2$ on *Q* is discernible in Model 6 of Table 4, and thereby indicating that our evidence of a positive impact of *BDIV* on *Q* is not sensitive to this specification.

[9]We carried out similar non-monotonic examination for the *BDIVE*, *BDIVG* and *BDIVGNW* measures and found statistically insignificant non-linear association between board diversity and market valuation. We further investigate other forms of non-linear transformations, such as cubing the variables (i.e., *BDIVE*, *BDIVG*, *BDIVGNW* and *BDIV*), but we found statistically insignificant link between board diversity and market valuation.

Second and as previously noted, we investigate the robustness of our findings to two alternative market valuation measures: return on assets (*ROA* – an accounting based measure) and total share returns (*TSR* – a market based proxy). Models 7 and 8 of Table 4 report results obtained by making use of *ROA* and *TSR*, respectively, instead of *Q*. Statistically significant and positive impact of *BDIV* on *ROA* and *TSR* in models 7 and 8 of Table 4, respectively, is observable, and thereby implying that our results are fairly robust to the use of either an accounting (*ROA*) or a market (*TSR*) based market valuation measure, instead of *Q*.

Third, to account for potential additional endogeneity problems that may be caused by omitted variable bias, we apply the widely used two-stage least squares (*2SLS*) technique (Beiner et al., 2006; Carter et al., 2003, 2010). However, to make sure that the *2SLS* research design is appropriate, and in line with Beiner et al. (2006), we first carry out Durbin-Wu-Hausman exogeneity test (see Beiner et al., 2006, p. 267) to determine whether *BDIV* is endogenously associated with *Q*. Applied to equation (1), the test rejects the null hypothesis of exogeneity, and therefore we conclude that the *2SLS* technique may be appropriate and that our earlier results based on the fixed-effects regressions may be misleading. In the first stage, we conjecture that *BDIV* will be determined by all the control (exogenous) variables specified in equation (1). In the second stage, we utilise the predicted portion of the *BDIV* (*PRE_BDIV*) as an instrument for the *BDIV* and re-estimate equation (1) as specified below:

$$Q_{it} = \alpha_0 + \hat{\beta}_1 BDIV_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \qquad (2)$$

whereby everything remains unchanged as specified in equation (1)[10] except that we use the predicted *BDIV* (*PRE_BDIV*) from the first-stage regression as an instrument for the *BDIV*.

[10]As estimating a lagged structure will jeopardise the validity of the *Durbin-Wu-Hausman* test (Gujarati, 2003; Wooldridge, 2010), we estimate equation (2) as un-lagged structure. An additional advantage is that it allows us to ascertain the robustness of our results against estimating an un-lagged structure.

Statistically significant and positive effect of the *PRE_BDIV* on *Q* is noticeably in Model 9 of Table 4, and thereby indicating that our evidence of a positive effect of *BDIV* on *Q* is not sensitive to endogeneity problems that may be caused by potential omitted variables. Overall, the robustness analyses indicate that our results are fairly robust to potential endogeneity problems, non-linear associations, and alternative market valuation proxies.

6 Summary and Conclusions

Organizational boards of directors are one of the most important subgroups within most modern organizations, performing a number of critical roles, such as advising, monitoring, disciplining, motivating, and compensating managers, as well as providing access to critical resources, such as contracts and finance. This paper has attempted to determine whether the South African (SA) stock market values ethnic and gender diversity within organizational boards using a sample of 169 publicly listed organizations from 2002 to 2007. This coincides with a period during which the SA authorities embarked upon regulatory, affirmative action and organizational governance (OG) reforms, noticeably including the 1998 Employment Equity (EE) Act, 2003 Black Economic Empowerment (BEE) Act, and the 1994 and 2002 King Reports. These reforms have focused primarily on enhancing ethnic and gender diversity within organizational boards in order to improve their independence and monitoring power, and thereby enhancing overall market valuation.

Our results contribute to the literature in a number of ways. First, our summary descriptive statistics suggest a wide spread in the distribution of board diversity on the basis of ethnicity and gender, ranging from a minimum of 0% to a maximum of 100%, and averaging approximately at 30%. This implies that despite board diversity reforms pursued (e.g., BEE, EE and King Reports), the average SA listed organization's board remains dominated (70%) by white males. This notwithstanding, however, the evidence also suggests that gender and ethnic diversity within SA boards are generally increasing. For example, general board diversity has increased from 26% in

2002 to 35% in 2006, and similar increases are noticeable in ethnicity and gender, which may be explained by the increasing willingness of the sampled organizations to comply with the provisions of the 1998 EE and 2003 BEE Acts. These findings are also in line with examples of disclosures regarding the progress made by some SA organizations on complying with the requirements of the EE and BEE acts that are presented in the Appendix.

Second, we find a statistically significant and positive relationship between board diversity and market valuation, implying that the SA stock market values ethnic and gender diversity within organizational boards. Third and distinct from prior studies, we show further that ethnic diversity is valued more highly by the SA stock market than gender diversity. This sheds new crucial insights on the relative value relevance of gender versus ethnic diversity on market valuation. Fourth and by contrast, we do not find any evidence of a significant non-linear link between board diversity and market valuation. Our findings are consistent across a raft of econometric models that take into consideration different types of endogeneity problems and market valuation measures.

Overall, our results provide support for agency and resource dependence theories, which suggest that ethnic and gender diversity improves board independence, executive monitoring and decision-making, as well as helps to better link an organization to its external environment that can facilitate securing critical resources, and thereby enhancing market valuation. Resource dependence may be particularly powerful in explaining our evidence of a positive effect of board diversity on market value in SA. This is because securing and renewing profitable government contracts and mining licenses in SA are usually linked to complying with affirmative action policies, such as those contained in the 1998 EE and 2003 BEE acts (Rossouw et al., 2012; West, 2009; Andreasson, 2013; Ntim and Soobaroyen, 2013a). This means that by appointing more board members from diverse ethnic and gender backgrounds, SA organizations may be inherently complying with the EE and BEE acts. As the EE and BEE acts are backed by the government, this may be a major way by

which SA organizations can win government support and gain access to critical resources, such as government contracts and contacts, finance, and tax concessions that can facilitate growth and improve long-term financial performance.

Our evidence also has important implications for governments, policy-makers, and regulatory authorities. Whereas our evidence of a positive effect of board diversity on market valuation provides support for the recommendations of the EE and BEE Acts, as well as those of the King Reports, the relatively low levels of ethnic and gender diversity within SA organizational boards appear to suggest that there is the need to strengthen enforcement and compliance with the provisions of the reforms. In this case, setting up a "compliance and enforcement committee" to regularly check the levels of compliance among listed organizations may help in improving board diversity specifically, but OG standards more generally. Our SA findings will also have particular implications for countries that are currently and/or contemplating pursuing board diversity reforms. Specifically, our findings will be of specific interests and added impetus to regulators, policy-makers and governments in Australia, Brazil, Canada, the European Union, India, Malaysia, Norway, Mozambique, New Zealand, and the USA, amongst others, where different variants of affirmative action policies are being pursed with the aim of improving racial, ethnic minority and/or gender representation in top corporate management.

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Table 1 Summary of variables

Organizational valuation/dependent variables

Q	The ratio of total assets minus book value of equity plus market value of equity to total assets.
ROA	The percentage of operating profit to total assets.
TSR	The percentage of annualised total share returns made up of share price and dividends.

Organizational governance/independent variables

BDIV	The percentage of non-whites (i.e., of Black African, Indian, Chinese and Mixed Race backgrounds) and females (i.e., women) to the total number of directors on an organizational board.
BDIVE	The percentage of non-whites (i.e., of Black African, Indian, Chinese and Mixed Race backgrounds) to the total number of directors on an organizational board.
BDIVG	The percentage of females (i.e., women) to the total number of directors on an organizational board.
BDIVGNW	The percentage of non-white females (i.e., black women) to the total number of directors on an organizational board.
BSIZE	The total number of directors on the board of an organization.

Control variables

BIG4	A dummy variable that takes the value of 1, if an organization is audited by a big four audit organization (PricewaterhouseCoopers, Deloitte & Touché, Ernst & Young, and KPMG), 0 otherwise.
CAPX	The percentage of total capital expenditure to total assets.
DUALIST	A dummy variable that takes the value of 1, if an organization is cross-listed on a foreign stock market, 0 otherwise.
GVOWN	A dummy variable that takes the value of 1, if government ownership is at least 5%, 0 otherwise.
LEV	The percentage of total debts to market value of equity.
LOGTA	The natural log of total assets.
OGCO	A dummy variable that takes the value of 1, if an organization has set up an organizational governance committee, 0 otherwise.
SGR	The percentage of the current year's sales minus last year's sales to last year's sales.
IND	Industry dummies for the five main remaining industries.
YED	Year dummies from 2003 to 2007 inclusive.

Table 2 Descriptive statistics of board diversity expressed as a percentage of board size

	All	2002	2003	2004	2005	2006
Panel A: Board diversity on the basis of ethnicity and gender (BDIV) - (%)						
Mean	29.85	25.98	26.34	28.51	33.50	34.91
Median	26.67	24.29	21.11	23.33	30.00	30.00
SDV	29.20	25.57	28.89	30.57	28.44	29.71
Min	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.00	81.82	100.00	100.00	100.00	100.00
Sample (N)	845	169	169	169	169	169
Panel B: Board diversity on the basis of ethnicity (BDIVE) - (%)						
Mean	25.77	22.22	23.29	24.72	28.80	29.80
Median	22.50	19.09	19.09	20.00	26.67	26.67
SDV	26.90	24.24	26.74	27.39	27.13	27.57
Min	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.00	72.73	80.00	80.00	100.00	100.00
Sample (N)	845	169	169	169	169	169
Panel C: Board diversity on the basis of gender (BDIVG) - (%)						
Mean	17.73	16.75	17.45	17.89	17.92	18.61
Median	15.00	10.00	10.00	15.26	10.00	15.89
SDV	20.03	18.62	19.85	20.54	20.19	20.84
Min	0.00	0.00	0.00	0.00	0.00	0.00
Max	60.00	63.33	50.00	60.00	50.00	60.00
Sample (N)	845	169	169	169	169	169
Panel D: Board diversity on the basis of gender non-whites alone (BDIVGNW) - (%)						
Mean	14.33	13.22	13.71	13.97	15.16	15.57
Median	10.00	10.00	10.00	10.00	10.00	10.00
SDV	17.02	15.77	15.99	16.66	17.85	18.28
Min	0.00	0.00	0.00	0.00	0.00	0.00
Max	43.33	35.00	37.27	35.00	43.33	43.33
Sample (N)	845	169	169	169	169	169
Panel E: Other Relevant Board Diversity Statistics						
Gender (non-white and white women or females) as a percentage (%) of board diversity:						
Mean	34.30	33.70	33.80	34.00	34.70	35.50
Ethnicity (non-white males and females) as a percentage (%) of board diversity:						
Mean	84.40	79.70	80.60	84.60	85.70	88.30
Non-white women as a percentage (%) of gender (white and non-white women or females):						
Mean	55.60	40.70	41.70	53.30	59.80	69.90
Non-white women (gender) as a percentage (%) of ethnicity (non-white males and females):						
Mean	22.60	17.10	17.40	20.80	24.20	28.10

Note: All figures have been expressed as a percentage of total organizational board size (*BSIZE*). For comparison purposes, and as also reported in Table 3, the average board size of our sample is 9.75 or approximately 10 directors, ranging from a minimum of 4 to a maximum of 18.

Table 3 Summary descriptive statistics of all variables for all 845 observations

Variable	Mean	Median	Std. dev.	Maximum	Minimum
Panel A: Organizational valuation (dependent) variables					
Q	1.52	1.33	0.69	3.58	0.58
ROA (%)	10.26	10.97	12.21	36.55	-23.19
TSR (%)	33.57	29.60	48.68	173.41	-55.20
Panel B: Organizational governance (independent) variables					
BDIV (%)	29.85	26.67	29.20	0.00	100.00
BDIVE (%)	25.77	22.50	26.90	0.00	100.00
BDIVG (%)	17.73	15.00	20.03	0.00	100.00
BDIVGNW (%)	14.33	10.00	17.02	0.00	43.33
BSIZE	9.75	10.00	3.67	4.00	18.00
Panel C: Control variables					
BIG4 (%)	73.25	100.00	44.29	100.00	0.00
CAPX (%)	11.08	6.28	13.86	64.46	0.00
DUALIST (%)	21.66	0.00	41.21	100.00	0.00
GVOWN (%)	38.00	0.00	49.00	100.00	0.00
LEV (%)	34.78	14.63	55.02	270.65	0.00
LOGTA	5.95	5.97	0.89	7.60	4.08
OGCO (%)	35.80	0.00	48.00	100.00	0.00
SGR (%)	14.40	12.60	24.94	88.26	-41.88

Notes: Variables are defined as follows: Tobin's Q (*Q*), measured as the ratio of total assets minus book value of equity plus market value of equity to total assets. Return on assets (*ROA*), defined as the ratio of operating profit to total assets. Total shareholder returns (*TSR*), calculated as annualised total share returns made up of share price and dividends. Board diversity (*BDIV*), estimated as the percentage of non-whites (i.e., of Black African, Indian, Chinese and Mixed Race backgrounds) and females (i.e., women) to the total number of directors on an organizational board. Board diversity on the basis of ethnicity (*BDIVE*), estimated as the percentage of non-whites (i.e., of Black African, Indian, Chinese and Mixed Race backgrounds) to the total number of directors on an organizational board. Board diversity on the basis of gender (*BDIVG*), measured as the percentage of females (i.e., women) to the total number of directors on an organizational board. Board diversity on the basis of gender non-whites (*BDIVGNW*), estimated as the percentage of non-white females (i.e., black women) to the total number of directors on an organizational board. Board size (*BSZIE*), which refers to the total number of directors on the board of an organization, is reported for comparison purposes only. Audit organization size (*BIG4*), measured as a dummy variable that takes the value of 1, if an organization is audited by a big four audit organization (PricewaterhouseCoopers, Deloitte & Touché, Ernst & Young, and KPMG), 0 otherwise. Capital expenditure (*CAPX*), calculated as the ratio of total capital expenditure to total assets. The presence of an organizational governance committee (*OGCO*), defined as a dummy variable that takes the value of 1, if a firm has set up an organizational governance committee, 0 otherwise. Dual-listing (*DUALIST*), measured as a dummy variable that takes the value of 1, if an organization is cross-listed to a foreign stock market, 0 otherwise. Government ownership (*GVOWN*), measured as a dummy variable that takes the value of 1, if government ownership is at least 5%, 0 otherwise. Leverage (*LEV*), calculated as the ratio of total debts to market value of equity. Organizational size (*LOGTA*), measured as the natural log of total assets. Sales growth (*SGR*), calculated as the current year's sales minus last year's sales to last year's sales.

Table 4 Fixed-effects regressions of the relationship between board diversity and market valuation

Dep. variables	*Q*	*Q*	*Q*	*Q*	*Q*	*Q*	*ROA*	*TSR*	*2SLS (Q)*
Adjusted R^2	0.248	0.206	0.265	0.315	0.296	0.189	0.326	0.382	0.394
F-value	5.092***	4.594***	6.980***	7.984***	7.670***	4.378***	8.248***	9.543***	9.836***
(*N*)	(845)	(845)	(845)	(845)	(845)	(845)	(845)	(845)	(845)
Constant	1.086	1.050	1.098	1.193	1.180	1.036	-0.410	2.694	1.282
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.138)	(0.000)***	(0.000)***
Indep. variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
BDIVG	0.054	-	-	-	0.002	0.035	-	-	-
	(0.018)**	-	-	-	(0.285)	(0.042)**	-	-	-
BDIVNW	-	0.040	-	-	-	-	-	-	-
	-	(0.026)**	-	-	-	-	-	-	-
BDIVE	-	-	0.062	-	0.072	-	-	-	-
	-	-	(0.010)***	-	(0.000)***	-	-	-	-
BDIV/BDIV²	-	-	-	0.080	-	0.004	0.625	0.680	-
	-	-	-	(0.000)***	-	(0.271)	(0.000)***	(0.000)***	-
PRE_BDIV	-	-	-	-	-	-	-	-	0.095
	-	-	-	-	-	-	-	-	(0.000)***
Cont. variables									
BIG4	0.138	0.129	0.144	0.182	0.175	0.124	0.118	0.216	0.205
	(0.035)**	(0.043)**	(0.025)**	(0.000)***	(0.000)***	(0.048)**	(0.054)*	(0.000)***	(0.000)***
CAPX	-0.014	-0.008	-0.017	-0.022	-0.019	-0.007	-0.038	-0.029	-0.032
	(0.000)***	(0.015)**	(0.000)***	(0.000)***	(0.000)***	(0.023)**	(0.000)***	(0.000)***	(0.000)***
DUALIST	0.195	0.169	0.228	0.245	0.233	0.152	0.094	0.250	0.314
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.020)**	(0.065)*	(0.000)***	(0.000)***
GVOWN	0.115	0.118	0.126	0.296	0.259	0.103	0.749	0.862	0.292
	(0.068)*	(0.053)*	(0.030)**	(0.000)***	(0.000)***	(0.077)*	(0.000)***	(0.000)***	(0.000)***
LEV	-0.016	-0.018	-0.020	-0.028	-0.023	-0.012	-0.428	-0.475	-0.036
	(0.073)*	(0.069)*	(0.066)*	(0.034)**	(0.039)**	(0.086)*	(0.000)***	(0.000)***	(0.000)***
LOGTA	-0.139	-0.129	-0.147	-0.286	-0.273	-0.128	-0.560	-0.614	-0.318
	(0.030)**	(0.037)**	(0.026)**	(0.000)***	(0.000)***	(0.044)**	(0.000)***	(0.000)***	(0.000)***
OGCO	0.186	0.165	0.194	0.249	0.235	0.146	0.454	0.476	0.260
	(0.020)**	(0.028)**	(0.013)**	(0.000)***	(0.000)***	(0.037)**	(0.000)***	(0.000)***	(0.000)***
SGR	0.019	0.014	0.022	0.128	0.140	0.011	0.385	0.402	0.135
	(0.060)*	(0.067)*	(0.054)*	(0.030)**	(0.025)**	(0.076)*	(0.000)***	(0.000)***	(0.020)**
IND	Included	Included	Included	Included	Included	Included	Included	Included	Included
YED	Included	Included	Included	Included	Included	Included	Included	Included	Included

Notes: *P*-values are in the parenthesis. ***, ** and * indicate *p*-value significance at the 1%, 5% and 10% level, respectively. Following Petersen (2009), coefficients are estimated by using the robust clustered standard errors technique along both industry and year dimensions. Variables are defined as follows: Tobin's (*Q*), return on assets (*ROA*), total share return (*TSR*), board diversity on the basis of ethnicity (*BDIVE*), board diversity on the basis of gender , including (*BDIVG*) and excluding (*BDIVGNW*) whites, board diversity on the basis of ethnicity and gender (*BDIV*)/squared ($BDIV^2$), predicted *BDIV* (*PRE_BDIV*) – obtained by regressing *BDIV* on the control variables and used as an instrument for *BDIV* in model 9, audit organization size (*BIG4*), capital expenditure (*CAPX*), dual-listing (*DUALIST*), government ownership (*GVOWN)*, leverage (*LEV*), organizational size (*LOGTA*), the presence of an organizational governance committee (*OGCO*), sales growth (*SGR*), industry dummies (*IND*), and year dummies (*YED*). Table 1 fully defines all the variables used.

Appendix

Examples of annual report disclosures of progress on complying with the employment equity and black economic empowerment acts

Company name	Examples of disclosures regarding progress on complying with the 1998 employment equity act in company annual reports	Examples of disclosures regarding progress on complying with the 2003 black economic empowerment act in company annual reports
AngloGold Ashanti Group	*"In October 2006, AngloGold Ashanti submitted its sixth annual employment equity report to the Department of Labour on progress made with the implementation of the company's employment equity plan in respect of its South African operations. The 2006 report indicates that some progress has been made year-on-year. Employment equity governance structures and monitoring processes have been entrenched at company and business unit levels".* (AngloGold Ashanti, 2006, p.103).	*In early October 2006, AngloGold Ashanti announced the proposed launch of an Employee Share Ownership Plan (ESOP) and a Black Economic Empowerment (BEE) transaction, both of which were approved by shareholders at a general meeting held on 11 December 2006. Shareholders approved the issue of up to 960,000 ordinary shares to nearly 31,000 South African employees eligible for participation of 30 shares per individual worker at an issue price of R320 per share. These shares were issued to the individual workers at nil cost. In addition, each eligible employee was allotted 90 E ordinary shares ("loan shares") issued at a fair value of R126.80 per share. These shares will vest in five equal tranches over the next eight years. The BEE transaction allows Izingwe Holdings (Pty) Ltd, a private South African investment company, to acquire 1.4 million 'loan shares' at an issue price of R0.25 per share under terms similar to those of the ESOP."* (AngloGold Ashanti, 2006, p.103).
Aspen Pharmacare Group	*"All of the Group's South African businesses comply fully with the requirements for the submission of information to the Department of Labour. Aspen focuses on the recruitment and retention of suitable historically disadvantaged candidates on merit. Aspen seeks to develop historically disadvantaged employees who demonstrate potential as a part of the Group's overall succession planning. Particular emphasis is placed on the Group's Leadership Academy, where suitable candidates are identified through a tailor-made selection and interview process. On 1 September 2006 Sindi Zilwa was appointed to the Board. Sindi became the second black woman chartered accountant in South Africa in 1990. Her qualifications include an Advanced Taxation Certificate (UNISA), an Advanced Diploma in Financial Planning (UOFS) and an Advanced Diploma in Banking (RAU). Sindi is the Chief Executive of Nkonki Chartered Accountants, and has also been a member of the GAAP Monitoring Panel. She holds non-executive directorships with Woolworths Ltd, Primedia Ltd, Discovery Ltd and Strate Ltd. Sindi is also the Chairperson of the BUSA Standing Committee on Transformation".* (Aspen, 2006, pp.34, 45).	*"On 17 November 2005 the Group established a formal Transformation Committee inter alia to monitor Aspen's compliance with the industry scorecard in respect of BEE and to liaise with the relevant authorities on the Healthcare Charter. The committee is tasked primarily with assisting the Board in Broad Based Black Economic Empowerment ("BBBEE") compliance and adherence to best-practice transformation principles. At present 40,1 million ordinary shares in Aspen are owned by BBBEE shareholders whose ownership has been facilitated by Aspen. BBBEE shareholders control a further 17,6 million preference shares which have rights of conversion into Aspen ordinary shares on a one-for-one basis in June 2012. The preference shares enjoy full voting rights on a parri passu basis with ordinary shares in Aspen. One of the BBBEE shareholders, Imithi Investments (Pty) Ltd, has a call option over a further 6,1 million ordinary shares currently held by the Industrial Development Corporation of South Africa Ltd. Aspen's current effective BBBEE holding in the Group's South African business at year-end (the shareholding measured under the Department of Trade and Industry's Code of Good Practice on BBBEE ("the Codes")) amounts to 17%. Upon exercise of the call option, the effective shareholding in the South African business as measured under the Codes could increase to 19%. The main shareholder under the BBBEE ownership facilitated by Aspen is CEPPWAWU Development Trust and its subsidiaries. The CEPPWAWU Development Trust benefits the 70 000 CEPPWAWU members who include Aspen unionised employees. Other BBBEE shareholders include black women and healthcare professionals. In addition an estimated 6% of Aspen's shares are indirectly held by BEE investors".* (Aspen, 2006, pp.44-45).
Harmony Gold Group	*"In considering new appointments to the board, Harmony takes cognisance of the gender and racial mix of its members and believes that it has achieved an acceptable balance. Page 105, 2006, HGM. The Empowerment Committee was established by the board to ensure that the company meets not only regulations stipulated in the Employment Equity Act, the Labour Relations Act and the Mineral and Petroleum Resources Development Act's Mining Charter Scorecard, but also in fulfilment of Harmony's own empowerment imperatives. The Empowerment Committee complies fully with its charter".* (Harnony, 2006, pp.106, 114).	*"The primary purpose of the Investment Committee is to ensure that the capital projects have been adequately reviewed and budgeted for, due diligence and any other procedures for mergers and acquisitions have been followed, and cognisance has been taken of BEE requirements. The total number of shares to be reserved for the Broad-based Scheme will be 5% of our issued share capital, will be granted under the Broad-based Scheme, subject to certain employee performance-linked milestones which can be realistically achieved. Once achieved, the value is unlocked to the Broad-based Scheme for the ultimate benefit of the non-managerial employees. Management and employees will jointly participate in the structuring of the Broad-based Scheme. It is the intention of the company to structure the Broad-based Scheme to maximise the recognition of black participation therein, both from the perspective of the Mineral and Petroleum Resources Development Act and the Broad-Based Black Economic Empowerment Act*". (Harmony, 2006, pp.115, 143).
Truworths Interna-tional Group	*"At the top management level, there is currently one black female non-executive director on the TI board, and one female executive director on the Truworths board. Currently 55% of all managers are black, and 70% are female. Historically low labour turnover of employees at senior and top management levels will mean that empowerment at these levels will take time. The transformation committee in conjunction with the HR department is implementing a policy and programme to increase the number of black people and women in senior management positions through skills development initiatives".* (Truworths, 2006, p.121).	*"Our initial BBBEE focus has been on skills transfer and the upliftment of our own employees in line with our human resources policy to ensure that we retain and grow existing talent within the business and offer opportunities for advancement internally. Further information on our progress in this regard can be found on page 120. Truworths supports Government's broad-based black economic empowerment policy, as contained in the Broad-Based Black Economic Empowerment Act and the Department of Trade and Industry' codes of good practice (DTI code) and scorecard. The committee's initial focus will be on areas that are beneficial to the sustainability of the Group's business such as procurement, employment equity, skills development and the upliftment of employees. In addition, the Group's corporate social investment strategy will be reviewed to ensure that it enhances the Group's BBBEE strategies".* (Truworths, 2006, pp.14, 120-121).