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Racial diversity in South African corporate boards and shareholder value creation: A decadal study

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ABSTRACT

This study investigates the influence of board racial diversity (BRD) on shareholder value creation (SVC) of 95 non-financial companies listed on the Johannesburg Stock Exchange (JSE) from 2013 to 2022. The study employed a quantitative quasi-experimental method. The fixed effects model (FEM) was used to test the hypotheses. The results of linear FEM revealed that standard market value added was negatively influenced by the proportion of black directors (PBD), the Blau index for board racial diversity(BI_BRD) and dummies for skewed board (SB), tilted (TB) and balanced board (BB), while positively impacted by dummies for one Black director (BD1), two Black directors (BD2) and three or more Black directors (BD3). The market-to-book ratio was negatively influenced by BI_BRD and SB while positively impacted by PBD, BD1, BD2, BD3, TB and BB. Similarly, Tobin's Q was negatively affected by PBD, BI_BRD, BD3, SB, TB and BB while positively impacted by BD1 and BD2. The curvilinear quadratic results of FEM revealed that PBD and BI_BRD positively impacted all SVC measures while PBD^2 and BI_BRD^2 negatively impacted all SVC measures, highlighting an inverted U-shaped effect. Thus, the results revealed that BRD has a double-edged sword effect in creating and maximising shareholder value.

Contribution/Originality: The study found that a board with 40% PBD and a BI_BRD between 0.3 and 0.4 is crucial for maximising shareholder value. Corporate executives should actively promote diversity, equity, and inclusion on the corporate boards to enhance corporate success.

1. INTRODUCTION

Why is racial diversity on corporate boards in South Africa a problem? South Africa is acknowledged as one of the world's most racially diversified nations (Muniandy, 2022). Furthermore, the country has a history of apartheid, a legal system of racial segregation that has a significant impact on its social structure (Tawiah, Gyapong, & Wang, 2024). During apartheid, racial classification governed every aspect of life and people were defined by their ethnicity. Therefore, the historical legacy of racial segregation enforced by law in South Africa offers a distinctive setting for this research. Even though Black people make up the majority of the population, they are still disproportionately underrepresented on corporate boards some twenty years after apartheid ended (Munkuli, Nikidehaghani, Ma, & Chang, 2024). Apartheid's legacy has prevented individuals of colour from rising to director-level posts for more than 60 years despite being one of the most racially diverse countries in the world (Azasu, Owusu-Ansah, Lalloo, & Cudjoe, 2018). Homogeneous boards have historically achieved acceptable results and

made decisions based on restricted scorecard profitability (Perham-Lippman, Caldwell, & Richards, 2023). There is much pressure on companies, mainly publicly listed ones, to change the racial composition of their boards because of the nation's historical background (Mans-Kemp & Viviers, 2019; Muniandy, 2022).

The UN Agenda 2030 for Sustainable Development Goals (SDGs), endorsed in 2015, places considerable importance on SDG 10 to reduce inequalities by 2030. This goal is crucial for establishing a just and inclusive society because inequality can significantly affect social cohesion and well-being, limiting access to opportunities and undermining fundamental rights. SDG 10 emphasises diversity, equality, and inclusion (DEI) consistent with contemporary corporate practices. Using DEI disclosures, companies can improve diversity, equity, and inclusion (Nguyen, Evan, Chaudhuri, Hagen, & Williams, 2024). Similarly, successful DEI initiatives may depend on having a board of directors that members and staff view as approachable leaders who want to hear the problems of "people like me." Adding DEI to the corporate boards can significantly increase shareholder value (Smith & De Leon, 2023). Even with the growth of business case arguments, eliminating prejudices and inequities still seems to be at odds with the company's objectives of cutting expenses and increasing profits (Sasikala, Sankaranarayanan, Dhayanithy, & Mohan, 2025). Most previous studies suggest that company performance can be improved by a dedication to DEI through more decisive leadership, varied innovation, improved brand image, and stronger relationships with both consumers and employees (Li, Lo, Tang, & Zhou, 2024; Primecz & Mahadevan, 2025).

The South African government has continuously introduced several affirmative action policies since the end of apartheid to increase the presence of racial minorities in company boards and senior management roles (April, Dharani, & April, 2023). South Africa's self-imagination as a country has become the Rainbow Nation since the end of apartheid, encouraging a multicultural and cohesive community (Rocha Franco, 2019). However, South Africa has questioned the authenticity of the Rainbow Nation (Joseph Yende & Yende, 2021). In this regard, South Africa passed laws to combat racial discrimination after attaining independence, with the Broad-Based Black Economic Empowerment (B-BBEE) function as a pillar of government programs. The B-BBEE Act was enacted purposefully "to transform the economy to be representative of the demographics, specifically the race demographics of the country (Mathebula & Odeku, 2023; Myeni & Singh, 2024). Moreover, the B-BBEE is used by the South African government to influence and guide businesses' activities, motivating them to adopt policies that advance racial equality. Notwithstanding this admirable endeavour, serious problems with racial injustices, tensions of exclusion, and the underrepresentation of Indigenous Black people continue at the C-suite positions still heavily favour white South Africans (Musundwa & Moses, 2024). However, the King IV report on corporate governance in South Africa mandates that companies listed on the JSE should promote racial diversity in the boardroom to enhance shareholder value. Unlike certain advancements in Western countries, South Africa's King IV report on corporate governance does not stipulate a specific quota for racial minority representation on corporate boards.

From an organisational perspective, board racial diversity is a double-edged sword (Bermiss, Green, & Hand, 2024; Hakovirta, Denuwara, Topping, & Eloranta, 2023). Drawing from the value-in-diversity hypothesis, the benefits of having a racially diverse board of directors are correlated with information, skills, expertise, and viewpoints that increase the organisations' cognitive variety and range of mental resources (Fredette & Sessler Bernstein, 2019; Yadav & Lenka, 2023). Bringing racial and ethnic minorities into leadership roles enhances an organisation's diversity and empowers minority incumbents, fostering a stronger and more inclusive workplace (Glass & Cook, 2017; Mendiratta & Tasheva, 2024). In contrast, based on social identity, self-categorisation and similarity-attraction perspectives, board racial diversity can lead to disagreements, intergroup bias and discrimination among board members (Caillier, 2023; Kolev & McNamara, 2020). However, disputes between members of racially homogeneous groups are reduced because of shared beliefs and experiences which promotes better communication (Cheong, 2023; Yadav & Lenka, 2023). This can lead to cognitive biases in the "us vs them" mentality that breeds conflict and division and eventually impairs performance (Cheong, 2023; Ng, Sears, & Arnold, 2021). Interestingly, no single subgroup may have enough members to dominate at elevated levels of board racial

diversity. This non-linear dynamic may explain the conflicting results of earlier research on the connection between board racial diversity and shareholder value creation. Hence, this empirical study examines how board racial diversity affects the shareholder value creation of South African non-financial companies listed on the JSE between 2013 and 2022.

This study makes several significant contributions to literature and practice. First, it is commonly acknowledged that South Africa is among the world's most racially diverse nations. Diversity, equity, and inclusion are anticipated to be more critical in nations where racial conflicts have occurred. Second, it is commonly believed that attaining board racial diversity requires racial minorities. South Africa's history of legal racial segregation makes it a natural and distinctive setting for this research. Nevertheless, little is known about how inclusive practices for racial minorities on board affect shareholder value creation. Third, this study improves the understanding of the influence of racial minority directors on corporate boards by incorporating ideas from a multi-theoretical insight to evaluate the suggested hypotheses. Competing hypotheses arise when there is prior knowledge about a topic that supports multiple plausible explanations. Fourth, most of the previous studies used linear models, which has led to conflicting results that either overstate or underestimate the advantages of racial diversity on board at various levels. This study employs linear and curvilinear quadratic models to reconcile and synthesise the inconsistent results from previous studies.

The remainder of this paper is structured as follows: Section 2 reviews the relevant literature. Section 3 outlines the research design employed. Section 4 presents empirical results and discussions. Section 5 offers a conclusion of the results. Section 6 explores the practical implications of the results. Finally, section 7 provides limitations and recommendations for future research.

2. LITERATURE REVIEW

2.1. Theoretical Literature Review

Although several theories and empirical studies suggest that board racial diversity affects shareholder value creation, there is no unanimity regarding the direction of influence (Susaeta, Suárez, & Babinger, 2024; Tawiah et al., 2024). There are countervailing theoretical and empirical positions regarding how including directors of different races may influence board-level effectiveness. Therefore, this study uses a multi-theoretical perspective, including upper echelon theory, agency theory, resource dependency theory, resource-based view theory, tokenism theory, critical mass theory, and social categorisation theory.

2.1.1. Upper Echelons Theory

The upper echelons theory (UET) asserts that the traits of the leaders impact organisational outcomes (Kusumastati, Siregar, Martani, & Adhariani, 2022; Shortland & Perkins, 2024). In other words, the UET suggests that an organisation's strategic actions reflect the values and perspectives of top-level decision-makers (Vairavan & Zhang, 2020). The UET highlights the relevancy of the composition of the top managers' teams regarding strategic decision-making (Curado, Tai, Oliveira, & Sarmento, 2022). In line with this stream of thinking, race has often been used in diversity research as a proxy for differences in perspectives and human capital (Smith & De Leon, 2023). The UET indicates that a racially diverse board is more likely than a homogenous one to enhance information access and processing capabilities, owing to its members' broader networks and perspectives (Li, Jiang, Liu, Huang, & Tao, 2024). Additionally, a racially diverse board can help mitigate organisational groupthink risk, a common issue among homogeneous boards. Diverse racial backgrounds among directors can influence boardroom dynamics and decision-making by introducing distinct cognitive viewpoints (Fernandes, Kuzey, Uyar, & Karaman, 2023). More racially diverse boards can better comprehend the company's many stakeholders which are becoming more varied in today's market (Vairavan & Zhang, 2020).

2.1.2. Agency Theory

The agency theory evolved due to the separation of ownership and control, which resulted in agency problems. The agency theory indicates that the primary role of boards is to monitor managers on behalf of the shareholders (Do & Herbohn, 2024). Thus, the agency theory suggests that racially diverse boards may improve monitoring skills since they include directors from various racial backgrounds (Tawiah et al., 2024; Tee & Rassiah, 2020). Similarly, agency theory argues that ethnically diverse directors are typically less subservient to management and can promote autonomous and open decision-making (Cho, Antonini, MacLaren, Zaaqoq, & Lorusso, 2024; Karim, Naeem, & Ismail, 2023). Divergent opinions are scrutinised on these boards, and discussions, rather than merely reaching a consensus, are used to make choices (Tee & Rassiah, 2020). Racial diversity on boards can improve their ability to carry out their monitoring and fiduciary responsibilities (Leung & Sane, 2022).

2.1.3. Resource Dependency Theory

The resource dependency theory suggests that organisations are open systems that depend on external resources for survival. The resource dependency perspective suggests that boards provide resources and counsel critical to a firm's success (Chen, Lin, Lo, & Chen, 2023; Yuan, Shang, Yu, & Yu, 2024). Researchers argue that directors from racial minority backgrounds can bring more diverse experiences, skills, and knowledge to firms than homogeneous boards (Do & Herbohn, 2024; Wong, 2024). The resource dependency theory suggests that a racially diverse board can secure resources for the organisation and offer strategic guidance that helps the firm survive (Tee & Rassiah, 2020; Wong, 2024). Organisations with racially diverse boards may benefit from wider networks, improved resource access, and an excellent range of stakeholder groups. Thus, board racial diversity can lead to positive financial outcomes for these companies (Leung & Sane, 2022; Rixom, Jackson, & Rixom, 2023).

2.1.4. Resource-Based View Theory

The resource-based view (RBV) theory states that the firm's internal resources, which are valuable, rare, or non-substitutable by other firms could improve competitive advantages and firm performance (Mehedi, Akhtaruzzaman, & Zaman, 2024). The impact of board racial diversity on firms' performance can be explained from the theoretical perspective of RBV theory (Karim et al., 2023). The RBV hypothesis suggests that a company's varied racial or ethnic makeup on its board can be a helpful advantage that gives it a competitive edge (Khan, Khan, Khan, Suleman, & Ali, 2024). Racial diversity on the board could improve its comprehension of the goals and requirements of different stakeholders. Hence, this results in more sales and better financial outcomes (Paolone, Pozzoli, Chhabra, & Di Vaio, 2024). Additionally, directors from diverse ethnic origins can impact board decisions in ways that better meet the needs and expectations of stakeholders, improving the company's performance, standing and perception among its stakeholders (Dodd, Frijns, Gong, & Liao, 2024).

2.1.5. Tokenism Status Theory and Critical Mass Theory

Token status theory suggests that when racial minorities represent only a tiny fraction of a board, they may be seen as "tokens" or "solos that are unlikely to affect firm performance alone without the presence of other minority leaders" (Kanter, 1977a; Makkonen, 2022). Critical mass originates from nuclear physics and denotes the "quantity" required to initiate a chain reaction, leading to an irreversible "turning point." Critical mass theory states that one member of a racial minority group on a board is a token, two represent a presence, and three or more represent a voice (Abebe & Dadanlar, 2021). The critical mass theory indicates that having three or more racial minority directors on the board will improve their capacity to participate in organisational policy and board debates.

The critical mass theory of Kanter (1977b) highlights the significance of minorities' percentage representation within a group and their existence or absence. Kanter (1977b) categorises social groups into diverse types: skewed groups, which consist of 85% majority and 15% minority. Tilted groups comprising 65% majority and 35%

minority and balanced groups where the composition is evenly split at 50% majority and 50% minority. The numerical makeup of these various group types—uniform, skewed, tilted, and balanced can significantly influence social interaction (Kanter, 1977b). However, the potential advantages only become apparent when the minority group has enough members to offset tokenism and dismissive attitudes (Fredette & Sessler Bernstein, 2019; Salloum, Jabbour, & Mercier-Suissa, 2019). However, some researchers explain that directors from racial minorities may be chosen through tokenism to fulfil government-imposed requirements (Mustun & Abdul Wahab, 2023).

2.1.6. Social Categorisation Theory

The social categorisation theory suggests that people frequently divide people and themselves into several social groups based on demographic traits (Smith & De Leon, 2023). Social categorisation theory distinguishes in-groups and out-groups by using similarities and differences to group like and unlike individuals (Abebe & Dadanlar, 2021; Schaper et al., 2022). The social categorisation perspective argues that in-groups may take different actions to safeguard their identities, depending on how they view their relationship with the out-group (Groutsis, 2024; Weerasinghe, Chapple, & Williamson, 2024). As a result, disagreements among board members could lead to disputes and obstruct clear communication and relationships (Caillier, 2023; Mendiratta & Tasheva, 2024). Race is a universally relevant basis for social categorisation (Smith & De Leon, 2023). Racial diversity on boards could lead to divisions and disputes, ultimately resulting in dysfunctional team dynamics (Fredette & Sessler Bernstein, 2019). The social categorisation perspective argues that increased board racial diversity is likely to result in adverse performance outcomes because of the dissimilarities among individuals (Smith & De Leon, 2023).

2.2. Conceptual Literature Review

2.2.1. Board Racial Diversity

The term "race" refers to skin colour, a variable trait that has long been used to divide people into various categories (Mosca & Morrone, 2023). Race is a complex and often contentious topic that sparks passionate discussions and diverse perspectives (Smulowitz, Becerra, & Mayo, 2019). Racial categories are not static but shaped, reshaped, dismantled, and rebuilt through various processes. Thus, racial diversity in the boardroom has been identified as an essential parameter in understanding corporate outcomes and processes (Karim et al., 2023; Muniandy, 2022). Racial diversity on boards may have more excellent monitoring and disciplinary consequences for higher-quality decision-making under the economic value argument (Leung & Sane, 2022; Muniandy, 2022). Many companies have expanded the term “diversity” into diversity, equity and inclusion (DEI) (Smith & De Leon, 2023). Tolerance and respect for others, regardless of factors like ethnicity are part of the definition of DEI (Labarca, Sadi, & Álvarez Nobell, 2024; Rašković, Hurd, & Onaji-Benson, 2025). Businesses have continuously attempted to expand racial diversity on corporate boards in response to increasing external stakeholder calls for better minority representation (Garg, Lin, & Yang, 2023; Kolev & McNamara, 2020). It is thought that by including racially diverse members on company boards, strategic decisions based on the distinct viewpoints of minorities will be given more weight (Goenner, 2023). Additionally, compared to members of teams without diversity, members of racially diverse boards are more likely to have a broader range of task-relevant knowledge, skills, abilities, and unique, non-redundant opinions (Hakovirta et al., 2023).

The "business case for board racial diversity" comprises three key components (Bermiss et al., 2024): (1) Talent: The most skilled individuals come from diverse backgrounds. (2) Insight: Diverse groups offer unique perspectives and experiences that enhance problem-solving, leading to improved decision-making and performance. (3) Access: Members of specific groups possess a deeper understanding of their cultural nuances which allows companies to serve these markets better and increase returns. Previous studies indicate that directors from demographic minorities typically have different human resources, such as functional competence and educational backgrounds, than directors from demographic majorities. The presence of racial minority directors can induce

greater informational variety and processing into boards, making boards more effective in performing their advice and monitoring functions (Mendiratta & Tasheva, 2024; Zhang, Mooney, & Ozgen, 2025). Research has shown that including racial minority directors is associated with positive outcomes, favourable stock market reactions, and more significant innovation (Gillberg, 2024; Smith & De Leon, 2023).

Indeed, board racial diversity can present a double-edged sword. On one side, it enhances monitoring and oversight, leading to higher-quality decision-making (Nguyen & Muniandy, 2021). Previous studies indicate that racial diversity can be a strategic firm resource in line with the business case for diversity (Smulowitz et al., 2019). Racial diversity within corporate boards appears to be among the most effective strategies for driving corporate innovation and enhancing governance (Leung & Sane, 2022). Evidence has shown that compared to racially homogenous groups, racially heterogeneous groups may possess diverse norms, expectations, and preconceived notions (Adamovic & Leibbrandt, 2024; Richard, Triana, & Li, 2021). Directors with diverse racial and cultural origins are more likely to examine upper management's decisions closely (Mendiratta & Tasheva, 2024). Racially diverse boards may effectively perform their supervision and fiduciary obligations. Moreover, images of racially diverse boards may increase competition in the internal labour market because diverse community members feel included in leadership positions (Groutsis, 2024). Thus, Black directors, being a racial minority in terms of corporate governance in South Africa are invited to serve on several boards (Muniandy, 2022).

In contrast, the opposing "theory of heterogeneity, initially developed by Blau (1977) states that racial diversity within boards may lead to division and discord, resulting in dysfunctional team interactions and diminished financial performance. Board racial diversity fault lines are pertinent in board racial diversity research as they create imaginary dividing lines (Ali & Ayoko, 2020). Specifically, most previous studies have demonstrated that board racial and social category fault lines have negative consequences (Hartmann & Carmenate, 2021). Thus, racial diversity can negatively affect the board's performance by creating conflicts and lengthening decision-making. Numerous potentially detrimental behaviours in different groups are rooted in in-group favouritism and out-group discrimination (Groutsis, 2024). Yet, a group of people of the same race may have less conflict among them since they have similar experiences and beliefs which promotes better communication (Cheong, 2023). As a result, high levels of dissimilarity might cause board members to become less interested in one another, making diverse boards harder to manage and possibly less productive (Smulowitz et al., 2019). In a nutshell, it can be argued that board racial diversity has mixed results on company shareholder value creation (Wong, 2024).

2.2.2. Shareholder Value Creation

Good corporate governance is key to boosting shareholder value (Sivanandan, 2024). Shareholder value theory posits that the primary purpose of a company is to create value for its shareholders (Tripathi, Ghalke, & Kashiramka, 2024). This idea is rooted in agency theorists' work arguing that shareholder value solves the long-standing goal alignment problem resulting from the separation of ownership and control in listed companies (Christner & Sjögren, 2022). Making shareholder value creation the principal corporate objective is seen as the way of achieving this goal (Faiteh & Mohammed, 2023). Finance and accounting are well-established disciplines. Shareholder value creation refers to economic gain or monetary profit (Singla & Prakash, 2023). Shareholder value creation is measured in monetary units. Two indicators used in shareholder value measurement can be distinguished: traditional accounting-based measures and value-based management (VBM) measures (Hall, 2018; Makhija & Trivedi, 2021).

Traditional accounting-based measures to quantify shareholder value creation include return on assets (ROA), return on equity (ROE), return on investment (ROI), earnings per share (EPS), and dividend per share (DPS) (Hall, 2018; Sura, Panchal, & Lather, 2023). Generally, these measures are backwards-looking and primarily influenced by accounting practices, highlighting management's achievements (Singla & Prakash, 2023; Venugopal, Ravindar Reddy, & Bhanu Prakash Sharma, 2018). While traditional accounting-based metrics reflect an organisation's

internal efficiency, they may not accurately represent a firm's long-term performance (Istan, 2023; Oana Pintea, Pop, Dan Gavriletea, & Sechel, 2021). These measures face criticism for failing to incorporate considerations such as the total cost of capital, the time value of money, cash flows, and accrual-based accounting conventions (Brück, Knauer, & Schwering, 2023; Sura et al., 2023). Thus, the limitations of traditional accounting measures present a significant opportunity for adopting value-based management (VBM) measures (Kaczmarek, 2024).

The VBM encompasses a comprehensive approach to management that prioritises creating shareholder value by achieving specific goals (Singla & Prakash, 2023). Similarly, VBM highlights the short-term and long-term effects of generating more excellent value compared to previous periods. Various VBM measures include, among others, economic value added (EVA), market value added (MVA), cash value added (CVA), market capitalisation (MCAP), total shareholder return (TSR), the market-to-book (MTB) ratio and Tobin's Q (Hall, 2024; Makhija & Trivedi, 2021; Singla & Prakash, 2023). The VBM measures are rooted in economic profit, the primary performance or cash flow criterion. Financial statements are adjusted to reflect economic reality, thus avoiding distortions from the accounting policies adopted by the company (Mamilla & Vasumathi, 2020). VBM considers the risk cost of capital, and some organisations also feel the effects of inflation, effectively addressing many of the limitations associated with traditional accounting-based measures (Istan, 2023). Previous studies typically argue that VBM measures align managerial decision-making intending to create shareholder value (Brück et al., 2023). However, some scholars refrain from utilising VBM measures partly due to challenges in comprehension and the availability of standardised data (Singla & Prakash, 2023).

2.2.3. Empirical Literature Review and Hypotheses Development

There is still little and conflicting empirical data regarding the relationship between board racial diversity and shareholder value development. For example, Gyapong, Monem, and Hu (2016) investigated 245 listed companies in South Africa between 2008 and 2013. The study assessed board racial diversity (BRD) by measuring the proportion of Black directors, also referred to as the proportion of racial minority directors (P_RMD). It used dummy variables to indicate the presence of racial minority directors on the board: RMD1 for one racial minority director, RMD2 for two racial minority directors, and RMD3 for three or more racial minority directors, with a value of zero indicating their absence. Shareholder value creation (SVC) was represented by Tobin's Q (TBQ), return on equity (ROE), and return on assets (ROA). According to the linear results of the fixed effects models (FEM), all BRD measures had a positive effect on ROA, ROE, and TBQ, consistent with the resource dependency and critical mass theories. Curvilinear models, on the other hand, show that P_RMD and P_RMD^2 had positive and negative effects on all SVC measures highlighting inverted U-shaped impacts that are consistent with the glass ceiling and competency gap theories (Gyapong et al., 2016). In addition to BRD measurements, the current study incorporated skewed boards (SB), tilted boards (TB) and balanced boards (BB). Additionally, Tobin's Q (TBQ) and standardised market value added (SMVA) were included in the SVC.

In various studies, Salloum et al. (2019) examined 1,855 firm-year observations involving 371 board directors from nine Middle Eastern countries between 2010 and 2014. They measured BRD using P_RMD, RMD1, RMD2, and RMD3, while TBQ was employed as a proxy to assess SVC. Their FEM revealed that all BRD measures significantly influenced TBQ. RMD1 positive result is inconsistent with the token status theory, while the positive results of RMD2 and RMD3 support the critical mass theory and resource dependency theory. In subsequent studies, Tee and Rassiah (2020) investigated 770 companies listed on Bursa Malaysia from 2002 to 2012. The authors used the Blau index for board racial diversity (Bl_ BRD) metric to assess BRD and evaluated SVC through earnings quality (EQ). The FEM results indicated that BI_BRD positively impacts EQ, consistent with agency and resource dependency theories. Additionally, Vairavan and Zhang (2020) examined U.S. firms included in the Standard and Poor's 1500 from 2011 to 2015. They measured BRD using P_RMD, BI_BRD, and RMD1 while employing ROA and TBQ as proxies for SVC. The FEM analysis revealed that none of the BRD measures

significantly affected ROA or TBQ, which lends support to upper echelon theory. The current study will include RMD2, RMD3, SB, TB, and BB to measure BRD, while SVC will be evaluated through SMVA, MTB, and TBQ.

Furthermore, Cheong (2023) conducted a study involving 634 companies listed in Malaysia from 2015 to 2019. The research employed BI_BRD to assess BRD and utilised ROA, ROE, and TBQ as indicators of SVC. The two-stage least squares (2SLS) analysis results demonstrated that BI_BRD had a significantly positive impact on ROA and TBQ, while its effect on ROE was insignificantly positive. The positive outcome is consistent with upper echelons theory. Renz, Vogel, and Xie (2023) explored 284 companies in the S&P 500 for 2018, evaluating BRD through P_RMD and BI_BRD. ROA and TBQ are used as proxies for SVC. In this instance, both measures of BRD revealed insignificant positive effects on ROA and TBQ. Additionally, Khan et al. (2024) investigated 188 non-financial firms listed on the Pakistan Stock Exchange (PSE) from 2009 to 2020. The study measured BRD using BI_BRD, while SVC was measured through ROA, ROE, and TBQ. The results obtained through the random effects model (REM) and generalised method of moments (GMM) revealed that BI_BRD significantly impacted all measures of SVC, which supports the RBV theory. However, this study added RMD1, RMD2, RMD3, SB, TB, and BB to BRD measures. Furthermore, the current study measured SVC using multiple VBM measures, specifically SMVA, MTB, and TBQ.

Table 1. Empirical studies on board racial diversity and company shareholder value creation.

Author(s) and year	Sample and period	Board racial diversity measure(s)	Shareholder value creation measure(s)	Theoretical lens	Estimation method	Key findings
Gyapong et al. (2016)	245 South African listed firms over the period from 2008 to 2013	P_RMD, P_RMD^2 RMD1, RMD2 and RMD3,	ROA, ROE and TBQ	Tokenism theory, critical mass theory, resource dependency theory, competency gap theory and glass ceiling theory	FEM	FEM linear results show that all BRD measures significantly impact ROA, ROE and TBQ. The curvilinear model reveals that P_RMD and P_RMD^2 have positive and negative impacts on all SVC measures, highlighting an inverted U-shaped effect.
Salloum et al. (2019)	1,855 firm-year observations from nine Middle Eastern countries from 2010 to 2014	P_RMD, RMD1, RMD2 andRMD3	TBQ	Token status theory and critical mass theory	FEM	All measures of BRD have a significant positive impact on the TBQ.
Tee and Rassiah (2020)	770 companies listed on the Bursa Malaysia from 2002 to 2012	BI_BRD	EQ	Agency theory, resource dependency theory, and social psychology theory	OLS	BI_BRD is associated with higher earnings quality.
Vairavan and Zhang (2020)	US firms listed in the standard and poor's 1500 from 2011 to 2015.	P_RMD, BI_BRD, and RMD1,	ROA and TBQ	Upper echelon theory	FEM	All measures of BRD insignificance influence ROA and TBQ.
Cheong (2023)	634 companies listed in Malaysia from 2015 to 2019.	Bl_ BRD	ROA, ROE and TBQ	Upper echelon theory	2SLS	BI_BRD has a significant positive impact on ROA and TBQ while an insignificant positive impact on ROE.
Renz et al. (2023)	284 listed on the S&P 500 in 2018	P_RMD and BI_BRD	ROA and TBQ	Institutional theory	GMM	Both BRD measures have insignificant positive impacts on ROA and TBQ.
Khan et al. (2024)	188 non-financial firms listed in PSE from 2009 to 2020.	Bl_ BRD	ROA, ROE and TBQ	Resource-based view theory	REM andGMM	BI_BRD has a significant positive impact on all SVC measures.
Pajuste, Dzabarovs, and Madesovs (2024)	A sample of S&P 500 index companies as of 25 May 2020	P_RMD and BD1	CAR	Tokenism theory	OLS	Both measures of BRD have a positive impact on CAR.

Pajuste et al. (2024) conducted a study on a sample of S&P 500 companies as of May 25, 2020, during the Black Lives Matter (BLM) protests that ensued following the death of George Floyd. The research evaluated BRD through two metrics: P_RMD and RMD1. Concurrently, cumulative stock return (CAR) was a proxy for SVC. The ordinary least squares (OLS) regression analysis revealed that both measures of board racial diversity positively influenced CAR, which was inconsistent with the tokenism theory. Table 1 summarises key research exploring the relationship between board racial diversity and shareholder value creation.

The theoretical framework and empirical evidence previously presented support the following tenable assumptions regarding the possible connection between board racial diversity and shareholder value creation:

H1a: The percentage of Black (racial minority) directors on the board significantly influences shareholder value creation metrics for non-financial companies listed in South Africa, either positively or negatively.

H1b: The Blau index for board racial diversity has a considerable positive or negative impact on measures of shareholder value creation for non-financial companies listed in South Africa.

H1c: A Black director on the board significantly influences shareholder value creation metrics for non-financial companies listed in South Africa, either positively or negatively.

H1d: The presence of two Black directors on the board significantly influences shareholder value creation metrics for non-financial companies listed in South Africa, either positively or negatively.

H1e: South African-listed non-financial companies' shareholder value creation measures are significantly impacted, either positively or negatively, by having three or more Black directors on the board.

H1f: South African-listed non-financial companies' shareholder value creation metrics are significantly impacted by a skewed board, either positively or negatively.

H1g: The shareholder value creation metrics of non-financial companies listed in South Africa are significantly impacted by tilted boards, either positively or negatively.

H1h: South African-listed non-financial companies' shareholder value creation measures are significantly impacted by balanced boards, either positively or negatively.

H2a: The percentage of Black directors on the board affects shareholder value creation metrics of non-financial companies listed in South Africa in either a U-shaped or inverted U-shaped manner.

H2b: The Blau index for board racial diversity affects shareholder value creation metrics of non-financial companies listed in South Africa in either a U-shaped or inverted U-shaped manner.

3. RESEARCH METHODOLOGY

The study employed a quantitative quasi-experimental method to examine how racial diversity on South African boards impacts shareholder value creation as variables are already present in the integrated annual reports and databases. The research methodology section encompasses sample selection, data collection, variable measurements, and the empirical models' specifications.

3.1. Sample Selection

The quantitative quasi-experimental method commenced by identifying non-financial companies listed on the JSE from the Who Owns Whom (WOW) database. A purposive sampling method was applied to obtain the sample size. The following criteria were taken:

i. The sample excluded non-financial companies headquartered outside of South Africa. Information regarding the location of the company headquarters can be found in the WOW database under the contact information section.

ii. The sample omitted non-financial companies that do not list the JSE as their primary stock exchange.

iii. Non-financial companies with incomplete data on shareholder value creation and directors' date of appointment and date of resignation or termination were also excluded from the sample.

The sample is assembled as a panel dataset. Table 2 shows the steps given to achieve the final data sample.

Table 2. Sample selection process for hypothesis testing.

Sampling criteria	Sample
Total number of non-financial companies listed on the JSE in 2013 – 2022	158
Less companies with a head office outside South Africa	21
Target population- South African non-financial companies	137
Less South African non-financial companies with missing data	42
Final sample	95
Company- year observations 10 years	950

3.2. Data Collection Sources

Integrated annual reports: Companies listed on the JSE must publish integrated annual reports. These reports undergo a thorough audit process before their release ensuring a high level of validity in the data presented, including the corporate governance report. The corporate governance report features profiles of the directors, detailing their names, race, date of appointment, and date of termination. Additionally, the directors' photographs are included in the corporate governance report. IRESS database. The IRESS database provides access to the companies' financial reports and results, all presented in a standardised reporting format. The standardisation of financial reports may enhance the reliability of the dataset used in this research study, as it avoids inconsistencies arising from various reporting formats. The IRESS database compiles essential shareholder value creation data for all non-financial companies listed on the JSE. Thus, shareholder value creation data is directly sourced from the IRESS database. Who Owns Whom (WOW) database. The WOW database was established in 1980 in Cape Town, South Africa, and delivers comprehensive and unique research concerning African companies and industries. This extensive database includes detailed industry research papers, company profiles that outline operations across Africa, corporate ownership structures, and biographies of directors and management. Notably, the WOW provides names of JSE-listed non-financial companies and directors' profiles. The WOW search engine is particularly useful for retrieving accurate director's race, appointment, and resignation or termination dates for directors.

In South Africa, individuals are categorised by the government into two main racial groups: White and Black. Black individuals are divided into four subgroups: African, Indian/Asian, Coloured, and Chinese under the B-BBEE Act (No. 53 of 2003). The researchers examine each director's photograph and their first and last names, classifying them as Black or White to ascertain a director's race. Table 3 provides a partially completed racial data collection sheet for directors of one of the selected companies used in this study which includes the company name, financial year-end, the directors' names, their race classifications Black (B) or White (W) as well as their dates of appointment (DA) and termination (DT).

Table 3. Directors' racial data collection sheet.

Company name: e.g., African Rainbows Mineral Ltd												
Financial year end: 30 Jun			**2013**		**2014**		**.**		**2021**		**2022**	
Director name	**DA**	**DT**	**B**	**W**	**B**	**W**	**.**	**.**	**B**	**W**	**B**	**W**
Patrice Motsepe	May- 2003		1		1				1		1	
Mike Schmidt	Mar- 2012			1		1				1		1
Dan Simelane	Jul-2013	Feb- 2015			1							
.	.	.	.	.			.	.		.	.	.

3.3. Variable Measurements

3.3.1. Dependent Variables

The dependent variables are measured using shareholder value creation measures, which include Tobin's Q (TBQ), market-to-book ratio (MTB), market value added (MVA)/ standardised market value added (SMVA). The

term MVA denotes the value of the shares less the shareholders' capital (Mohammed, Sutainim, Islam, & Mohamed, 2021; Pernamasari, 2020). SMVA refers to the MVA divided by the capital invested (Kurtaran, Günay, & Kurtaran, 2021). The MVA has a similar meaning to the MTB ratio. However, the MVA is an absolute measure. Thus, MTB refers to the market value of equity at year's end divided by the equity book value (Hall, 2024). TBQ is the ratio of the total market value of the firm to the total asset value of the firm (Cheong, 2023; Khan et al., 2024).

3.3.2. Independent Variables

The mixture of directors with various racial and ethnic backgrounds is called board racial and ethnic diversity (Leung & Sane, 2022). The South African government classifies race as either White or Black. Black people are divided into four categories: African, Indian, Coloured/Asian and Chinese as per the B-BBEE Act (No. 53 of 2003) (Tawiah et al., 2024). The racial diversity in the boardroom was measured using eight explanatory variables. First, the proportion of Black directors on the board is used to measure the racial diversity of the board (Muniandy, 2022). Second, the study uses the Blau index to quantify board racial diversity between two racial categories: white directors and Black directors (African, Coloured, Indian/Asian, or Chinese) (Tawiah et al., 2024). The Blau index for board racial diversity (BI_BRD is defined as $1-\sum_{i=1}^{n} P_i^{\,2}$ where P refers to the percentage of each category and i refers to the number of categories in the index with n = 2 (Black and White directors) (Vlas, 2024). A perfectly racially diverse board comprising 50% from each racial group would achieve a maximum Blau index rating of 0.50 for racial diversity. The formula for this index is BI_BRD.

$$BI\_BRD_{i,t}=1-\left(\left(\frac{Total\ Black\ director_{i,t}}{Total\ board\ member_{i,t}}\right)^2+\left(\frac{Total\ White\ director_{i,t}}{Total\ board\ member_{i,t}}\right)^2\right) \quad (1)$$

Applying the BI_BRD, for example, to a company with 10 members on its board (two Black directors and eight White directors), the resulting BI_BRD is as follows:

$$BI\_BRD_{i,t}=1-\left(\left(\frac{2^2}{10^2}+\frac{8^2}{10^2}\right)\right)=1-(0.04+0.64)=0.32 \quad (2)$$

Third, a dummy variable equal to one is used to measure board racial diversity if a company has one Black director; if not, it is equal to zero (Pajuste et al., 2024). Fourth, if a company has two Black directors on the board, a dummy variable is equal to one; if not, it equals zero (Salloum et al., 2019). Similarly, a dummy variable with a value of one if a company appoints three or more Black directors to its board and zero otherwise. Concerning board racial diversity categories, a uniform board has a dummy variable equal to one if the share of Black directors on the board is zero per cent and zero (Gyapong et al., 2016; Salloum et al., 2019; Tawiah et al., 2024). A skewed board takes a dummy variable equal to one if the board comprises a share of Black directors on the board, which is more significant than zero per cent but less than 20 % and zero otherwise. Then, a tilted board takes a dummy variable that equals one if the proportion of Black directors is greater than or equal to 20% but less than 40% and zero otherwise (Smith & De Leon, 2023). A balanced board takes a dummy variable that equals one if the proportion of Black directors is greater than or equal to 40 % but less than 60% and zero otherwise.

3.3.3. Control Variables

The study's four control variables are firm size, firm age, board size and leverage. Firm size (Ln FSIZE) is the natural logarithm of its total assets (Renz et al., 2023). Firm age (Ln FAGE) is the natural logarithm of the years since its founding (Cheong, 2023). Board size (Ln BSIZE) is calculated as the natural logarithm of the total number of directors on the board (Vairavan & Zhang, 2020). Financial leverage (LEV) is calculated by dividing total assets by debts (Tee & Rassiah, 2020).

3.4. Empirical Models for Hypotheses Testing

The models developed for this study were based on fixed effects models. The study used STATA 18 to evaluate the following fixed effects models.

H1a to H1h: Board racial diversity and shareholder value creation measures (linear models).

$$SMVA_{i,t}/MTB_{i,t}/TBQ_{i,t} = \beta_0 + \beta_1 PBD_{i,t} + \beta_2 BI\_BRD_{i,t} + \beta_3 BD1_{i,t} + \beta_4 BD2_{i,t} + \beta_5 BD3_{i,t} + \beta_6 SB_{i,t} + \beta_7 TB_{i,t} + \beta_8 BB_{i,t} + \beta_9 LnFSIZE_{i,t} + \beta_{10} LnAGE_{i,t} + \beta_{11} LnBSIZE_{i,t} + \beta_{12} LEV_{i,t} + \varepsilon_{i,t} \quad (3)$$

Where

SMVA is the standard market value added and MTB is the market-to-book ratio. TBQ is Tobin's Q, PBD is the proportion of Black directors. BI_BRD is the Blau index for board racial diversity. BD1, BD2, and BD3 refer to dummy variables equal to one for corporate boards with one, two and three or more Black directors, and zero otherwise. SB, TB and BB are dummy variables equal to one for skewed board, tilted board and balanced board and zero otherwise, Ln FISIZE is the natural logarithm of firm size. Ln FAGE is a natural logarithm of firm age. Ln BSIZE natural logarithm of board size, LEV is leverage, $\beta_1 - \beta_8$ are coefficients of independent variables, $\beta_9 - \beta_{12}$ are the coefficients of control variables, i is the company, t is the year and ε is the error term.

H2a and H2b: Curvilinear quadratic effects of PBD and BI_BRD on shareholder value creation measures. The curvilinear u-shaped or inverted u-shaped effects are evaluated by adding squared terms. For instance, the impact is a u-shaped if $\beta_1 < 0$ and $\beta_2 > 0$ and an inverted u-shaped if $\beta_1 > 0$ and $\beta_2 < 0$ (Vlas, 2024). The curvilinear quadratic models appear as follows:

$$SMVA_{i,t}/MTB_{i,t}/TBQ_{i,t} = \beta_0 + \beta_1 PBD_{i,t} + \beta_2 PBD^2{}_{i,t} + \beta_3 BI\_BGD + \beta_4 BI\_BGD^2 + \beta_5 LnFSIZE_{i,t} + \beta_6 LnFAGE_{i,t} + \beta_7 LnBSIZE_{i,t} + \beta_8 LEV_{i,t} + \varepsilon_{i,t} \quad (4)$$

Where

SMVA is the standard market value added. MTB is the market-to-book ratio. TBQ is Tobin's Q. PBD is the proportion of Black directors. PBD^2 is the proportion of Black directors squared, BI_BRD is the Blau index for board racial diversity. BI_BRD^2 is the Blau index for board racial diversity squared. Ln FISIZE is the natural logarithm of firm size. Ln FAGE is the natural logarithm of firm age. Ln BSIZE is the natural logarithm of board size. LEV is the company leverage. $\beta_1 - \beta_4$ are coefficients of independent variables, $\beta_5 - \beta_8$ are coefficients of control variables. i is the company, t is the year and ε is the error term.

4. EMPIRICAL RESULTS AND DISCUSSION

4.1. Descriptive Statistics

The board's racial diversity variables' descriptive statistics and dependent, independent, and control variables for the ten years from 2013 to 2022 are displayed in Table 4. The mean standard deviation (SD), minimum (Min), and maximum (Max) of the chosen variables are included in the results. Concerning the dependent variables, SMVA has a mean value of 1.75 with a minimum value of 0.00 and a maximum value of 13.07. On the other hand, MTB has a mean value of 2.20 with a minimum value of -6.92 and a maximum value of 26.04. TBQ has a mean value of 1.38 with a minimum value of 0.00 and a maximum value of 11.96.

Concerning the independent variables, the results indicate that PBD has a mean value of 0.39, suggesting that less than half of the directors are Black directors with a minimum value of 0.00 to 1.00. However, a study by Groutsis (2024) of the top 10 listed on FTSE (UK) between October and December 2022 found that the proportion of racial minority directors had a mean value of 0.49, higher than 0.39. The BI_BRD has a mean value of 0.40 with a minimum value of 0.00 and a maximum value of 0.50, indicating an equal representation of Black and White directors on company boards. Similarly, a study by Vlas (2024) of 128 US firms between 2006 and 2011 found that BI_BRD had a mean value of 0.34, lower than 0.40. The mean values for BD1, BD2, and BD3 are 0.94, 0.87, and 0.75, respectively. However, a study by Tawiah et al. (2024) of 357 listed firms on the JSE from 2014 to 2018 found that BD1, BD2 and BD3 had mean values of 0.13, 0.10 and 0.28, respectively. Concerning categories for board racial

diversity, the SB has a mean value of 0.11. TB has a mean of 0.36 and the BB_RD has a mean of 0.33. These results reveal that most South African non-financial companies have unbalanced boards in terms of racial diversity.

Concerning control variables, the Ln FSIZE has a mean value of 15.58 and minimum and maximum values of 11.09 and 19.98. The FAGE has a mean value of 54.98 years with a minimum value of 10 years and a maximum value of 136 years. BSIZE has a mean value of 11.13, with a minimum value of 4.00 and a maximum value of 22.00. LEV has a mean value of 0.81 with a minimum value of 0.00 and a maximum value of 40.49.

Table 4. Descriptive statistics.

Variables	Obs.	Mean	SD	Min.	Max
Dependent variables					
SMVA	950	1.75	1.70	0	13.07
TBQ	950	1.38	1.36	0	11.96
MTB	950	2.20	2.55	-6.92	26.04
Independent variables					
PBD	950	0.39	0.21	0	1
BI_BRD	950	0.40	0.12	0	0.5
BD1	950	0.94	0.23	0	1
BD2	950	0.87	0.33	0	1
BD3	950	0.75	0.43	0	1
SB	950	0.11	0.32	0	1
TB	950	0.36	0.48	0	1
BB	950	0.33	0.47	0	1
Control variables					
Ln FSIZE	950	15.78	1.70	11.09	19.98
FAGE(In years)	950	56.94	32.71	10	136
Ln FAGE	950	3.84	0.70	2.30	4.91
BSIZE(Number)	950	11.13	3.30	4	22
Ln BSIZE	950	2.36	0.31	1.39	3.09
LEV	950	0.81	2.94	0	40.49

4.2. Panel Data Regression Results

Hypotheses H1a to H1h predict that the PBD, BI_BRD, BD1, BD2 and BD3, SB, TB and BB have significant positive, negative or no effects on shareholder value creation of South African listed non-financial companies on the JSE. Table 5 shows the panel data linear regression results. The results in Table 5 show that PBD has a significant negative impact on SMVA (β=-1.711 and p<0.01) and TBQ (β=-1.552 and p<0.01), while the insignificant positive effect on MTB (β=0.153 and p=n.s). Similarly, BI_BRD significantly negatively impacts MVA (β=-1.637 and p<0.05) and MTB (β=-3.601 and p<0.01). In contrast, BI_ BRD has an insignificant negative impact on TBQ (β=-0.846 and p=n.s). Concerning dummy variables of numbers for Black directors on board, BD1 has a significant positive impact on SMVA (β=1.662 and p<0.01) and TBQ (β=0.942 and p<0.05), while an insignificant positive impact on MTB (β=0.887 and p=n.s). Furthermore, BD2 has a significant positive impact on SMVA (β=0.436 and p<0.1) and MTB (β=0.837 and p<0.1), while the insignificant positive impact on TBQ (β=0.287 and p=n.s). On the other hand, BD3 has an insignificant negative impact on SMVA (β=-0.0333 and p=n.s) and TBQ (β=-0.0175 and p=n.s) while an insignificant positive impact on MTB(β=0.101 and p=n.s). Considering the dummy variables for board racial diversity categories, SB has an insignificant negative impact on SMVA (β=-0.707 and p<0.1). In contrast, SB has an insignificant negative impact on MTB (β=-0.0198, and p=n.s) and TBQ (β=-0.217 and p=n.s). Similarly, TB has a significant negative impact on MTB (β=-0.493 and p<0.05) and TBQ (β=-0.356 and p<0.1), while the insignificant positive effect on MTB (β=0.102 and p=n.s). Complementary to this, BB has an insignificant negative impact on SMVA (β=-0.112 and p=n.s) and TBQ (β=-0.0246 and p=n.s), yet an insignificant positive impact on MTB (β=0.142 and p=n.s).

Concerning control factors, all measures of shareholder value creation—SMVA (β = -0.477 and p<0.01), MTB (β = -0.742 and p<0.01), and TBQ (β = -0.260 and p<0.01) are significantly impacted negatively by company size (Ln FSIZE). There is a substantial negative correlation between firm age (Ln FAGE) and SMVA (β = -1.6657 and p<0.01), MTB (β = -1.434 and p<0.01), and TBQ (β = -1.9453 and p<0.01). Board size (Ln BSIZE) has an insignificant negative impact on MTB (β=-0.136 and p=n.s) and TBQ (β=-0.148 and p=n.s), yet insignificant positive impact on SMVA (β=0.0622 and p=n.s). On the other hand, leverage (LEV) has a significant negative impact on SMVA (β=-0.0911 and p<0.01), MTB (β=-0.0890 and p<0.05) and TBQ (β=-0.0381 and p<0.05).

Finally, the comparative data capability of board racial diversity measures collectively with control variables offers a conclusion by comparing the value of R squared. Model 1 for SMVA has the maximum R squared of 19.2 %, followed by model 3 for TBQ with an R-squared of 18.3 %, and then model 2 for TBQ with an R-squared of 9.6 %.

Table 5. Board racial diversity and shareholder value creation (Linear models).

Variables	(1)	(2)	(3)
	SMVA	MTB	TBQ
PBD	-1.711***	0.153	-1.552***
	(0.579)	(1.066)	(0.512)
BI_BRD	-1.637**	-3.601***	-0.846
	(0.743)	(1.368)	(0.657)
BD1	1.662***	0.887	0.942**
	(0.521)	(0.959)	(0.460)
BD2	0.436*	0.837*	0.287
	(0.232)	(0.428)	(0.206)
BD3	-0.0333	0.101	-0.0175
	(0.146)	(0.268)	(0.129)
SB	-0.707**	-0.0198	-0.217
	(0.317)	(0.583)	(0.280)
TB	-0.493**	0.102	-0.356*
	(0.225)	(0.414)	(0.199)
BB	-0.112	0.142	-0.0246
	(0.157)	(0.288)	(0.138)
Ln FSIZE	-0.477***	-0.742***	-0.260***
	(0.0667)	(0.123)	(0.0590)
Ln FAGE	-1.665***	-1.434***	-1.945***
	(0.271)	(0.499)	(0.240)
Ln BSIZE	0.0622	-0.136	-0.148
	(0.208)	(0.383)	(0.184)
LEV	-0.0911***	-0.0890**	-0.0381**
	(0.0187)	(0.0345)	(0.0166)
Constant	15.26***	19.44***	13.29***
	(1.221)	(2.248)	(1.080)
Observations	950	950	950
R-squared	0.192	0.096	0.183
No. of companies	95	95	95

Note: Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Hypotheses H2a and H2b predict that the PBD and BI_BRD have curvilinear u-shaped or inverted u-shaped effects on shareholder value creation measures of non-financial companies listed on the JSE. Table 6 shows the regression results. The results reveal that PBD negatively impacted SMVA, while PBD^2 also negatively impacted SMVA, suggesting an inverted U-shaped effect. PBD negatively impacted MTB, while PBD^2 positively impacted MTB, highlighting a U-shaped effect. PBD has a positive influence on TBQ, while PBD^2 has a negative influence on TBQ, suggesting an inverted U-shaped effect. BI_BRD positively impacted SMVA and MTB, while BI_BRD^2

negatively influenced SMVA and MTB, indicating an inverted U-shaped effect. On the other hand, BI_BRD and BI_BRD² negatively influence TBQ, suggesting an inverted U-shaped effect.

Table 6. Board racial diversity on shareholder value creation (Curvilinear models).

Variables	(1)	(2)	(3)
	SMVA	MTB	TBQ
PBD	-0.124	-1.216	0.383
	(8.273)	(15.14)	(7.296)
PBD²	-0.343	1.832	-1.261
	(8.283)	(15.16)	(7.304)
BI_BRD	1.034	2.098	-0.459
	(4.405)	(8.063)	(3.884)
BI_BRD²	-1.980	-4.162	-0.335
	(2.053)	(3.758)	(1.810)
Ln FSIZE	-0.480***	-0.723***	-0.255***
	(0.0665)	(0.122)	(0.0586)
Ln FAGE	-1.639***	-1.607***	-1.829***
	(0.269)	(0.492)	(0.237)
Ln BSIZE	0.155	0.130	-0.0895
	(0.191)	(0.349)	(0.168)
LEV	-0.0903***	-0.0894***	-0.0382**
	(0.0189)	(0.0346)	(0.0167)
Constant	15.36***	19.54***	13.00***
	(1.192)	(2.183)	(1.052)
Observations	950	950	950
R-squared	0.177	0.090	0.168
No. of companies	95	95	95

Note: Standard errors in parentheses.
*** p<0.01 and ** p<0.05.

4.3. Graphical Analysis of Curvilinear Quadratic Models

Figure 1 illustrates the PBD curvilinear effects on shareholder value creation measures. The results indicate that PBD has an inverted U-shaped effect on all measures of shareholder value. Specifically, SMVA and TBQ peak when PBD is between 20% and 40% of the board size. However, if PBD exceeds 40% of the board size, further increases in PBD may lead to a decline in SMVA and TBQ. Furthermore, MTB experiences a maximum pointing as PBD approaches 40% of the board size. These findings suggest that PBD has varying effects on the measures of shareholder value creation.

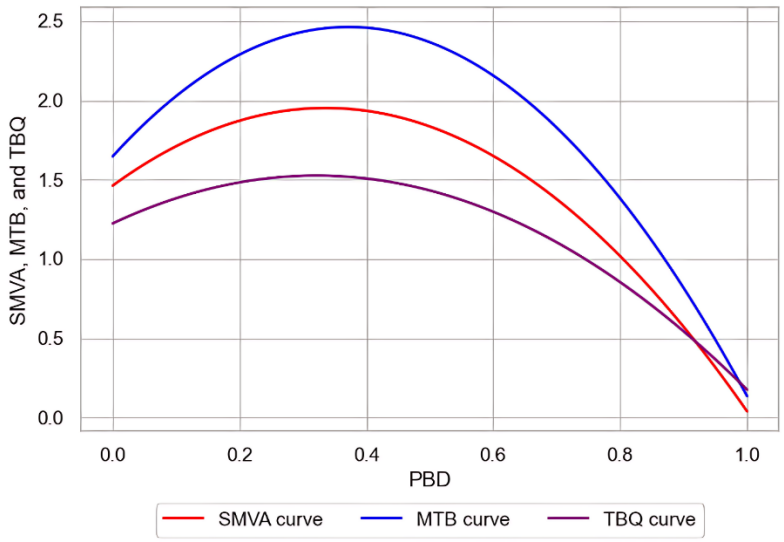

Figure 1. PBD curvilinear effects on shareholder value creation measures.

Figure 2 illustrates the graphical representation of the panel data quadratic regression analysis concerning BI_BRD and measures of shareholder value creation. The results indicate that BI_BRD exhibits an inverted U-shaped effect across all measures of shareholder value creation. Specifically, shareholder value creation measures reach their maximum values when BI_BRD is within the range of 0.3 to 0.4. An increase in BI_BRD beyond 0.4 may lead to a decline in measures of shareholder value creation.

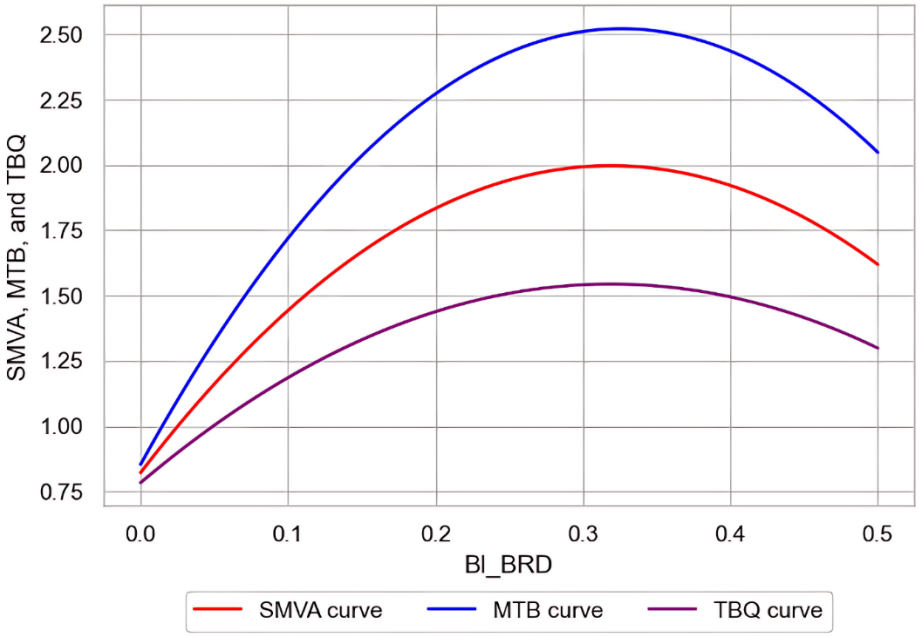

Figure 2. BI_BRD curvilinear effects on shareholder value creation measures

Table 7 provides an overview of the tested hypotheses. Board racial diversity (BRD) measurements, predicted independent variable signs (β), and significance (sig), denoted by yes or no are all included in the summary.

Table 7. Summary of hypotheses tested.

Shareholder value creation measures								
			SMVA		MTB		TBQ	
H	BRD measures	Expected sign.	Sign.	Sig.	Sign.	Sig.	Sign.	Sig.
H1a	PBD	±	−	Yes	+	No	−	Yes
H1b	BI_BRD	±	−	Yes	−	Yes	−	No
H1c	BD1	±	+	Yes	+	No	+	Yes
H1d	BD2	±	+	Yes	+	Yes	+	No
H1e	BD3	±	−	No	+	No	−	No
H1f	SB	±	−	Yes	−	No	−	Yes
H1g	TB	±	−	Yes	+	No	−	Yes
H1h	BB	±	−	No	+	No	−	No
H2a	PBD	±	−	No	−	No	+	No
	PBD^2	±	−	No	+	No	−	No
H2b	BI_BRD	±	+	No	+	No	−	No
	BI_BRD^2	±	−	No	−	No	−	No

4.4. Discussion of Panel Data Regression Results

The main objective of this study was to examine the influence of board racial diversity on shareholder value creation of South African non-financial companies listed on the JSE from 2013 to 2022. Hypotheses H1a to H1h predict that PBD, BI_BRD, BD1, BD2, BD3, SB, TB and BB have significant positive, negative, or no effect on shareholder value creation in the South African non-financial companies listed on the Johannesburg Stock

Exchange (JSE). The results of linear FEM presented prior indicated that SMVA was positively influenced by BD1 and BD2 while adversely influenced by PBD, BI_BRD, BD3, SB and TB. MTB was positively impacted by PBD, BD1, BD2, BD3, TB and BB while negatively influenced by BI_BRD and SB. On the other hand, PBD, BI_BRD, BD3, SB, TB and BB adversely influenced TBQ, while TBQ positively impacted BD1 and BD2. The positive results are consistent with several previous studies (Salloum et al., 2019; Cheong, 2023). For instance, the upper echelons theory suggests that compared to a homogenous board, a racially diverse board can enhance its capacity for information due to the members' wider network and viewpoints (Vairavan & Zhang, 2020). From a resource-based view, racial diversity on the board aids in comprehending the requirements and expectations of various stakeholders, which boosts sales volume and the company's financial success (Khan et al., 2024). On the other hand, the social categorisation theory and social identity theory can explain the negative results. The social categorisation approach grounded in social identity theory contends that people create "in-groups" and "out-groups" according to social categories (Abebe & Dadanlar, 2021). The social categorisation approach argued that greater broad racial diversity may adversely influence shareholder value creation (Smith & De Leon, 2023). However, most previous studies believe it is crucial to view board racial diversity optimistically (Cheong, 2023; Khan et al., 2024; Tee & Rassiah, 2020). The tokenism status theory can explain the lack of effect. The tokenism status theory suggests that racially minority directors may be viewed as "tokens" or "solos" if they make up a small portion of a board and significantly influence shareholder value creation.

Hypotheses H2a and H2b predict that PBD and BI_BRD exert non-linear effects on measures of shareholder value creation for non-financial companies listed on the JSE, demonstrating either u-shaped or inverted U-shaped relationships. The results indicated that PBD positively impacted all shareholder value creation measures (SMVA, MTB, and TBQ). In contrast, PBD^2 negatively affected these measures, suggesting an inverted U-shaped effect. Both graphs exhibited an inverted U-shaped shape with various turning points. The curvilinear models revealed that shareholder value creation measures peak when PBD is 40% of the board size, inconsistent with the previous research (Cheong, 2023). If PBD was more than 40% of the board's composition, it led to declining shareholder value creation measures. Similarly, BI_BRD and BI_BRD^2 positively and negatively impacted shareholder value creation measures, highlighting U-shaped or inverted U-shaped effects. The results indicated that shareholder value creation measures reached their maximum when BI_BRD is 0.3 to 0.4 while going beyond 0.4 decreased these measures. Blau's heterogeneity theory suggests that opportunities for social contact are more significant in both homogeneous and heterogeneous groups than in moderately diverse groups. For instance, managers foster strong racial solidarity under homogeneous leadership and overcome cultural obstacles to social activity (Vlas, 2024). These inverted U-shaped effects are consistent with social categorisation, resource dependence, resource-based view, and social categorisation theories. Thus, the results imply that racial diversity on boards may be beneficial but also a drawback.

These findings complement a study by Vemala, Seth, and Reddy (2018), in which 2,020 firm-year observations from the S&P 500 span from 2001 to 2011. It revealed that the proportion of racial minorities significantly positively affected TBQ, ROA, and ROE. In addition, Cheong (2023) investigated 634 companies listed in Malaysia from 2015 to 2019 and found that board diversity (BI_BRD) positively influenced ROA and TBQ, although it had an insignificant positive effect on ROE. Renz et al. (2023) examined 284 companies on the S&P 500 in 2018, discovering that the proportion of racial minority directors and BI_BRD showed an insignificant positive impact on ROA and TBQ. Furthermore, Khan et al. (2024) suggested that diverse racial representation on a company's board may offer valuable insights into the needs and expectations of different stakeholders, potentially enhancing sales volume and improving financial performance (Khan et al., 2024; Vairavan & Zhang, 2020). The results further build upon the conclusions drawn by Salloum et al. (2019) based on 855 firm-year observations across nine Middle Eastern countries from 2010 to 2014. Their research indicates that corporate boards featuring one, two or three or more directors from racial minority backgrounds significantly impact TBQ. Similarly, a study by Kabara and

Modibbo (2020) involving 67 non-financial firms listed in Nigeria between 2012 and 2017 revealed a notable positive correlation between TBQ and the presence of at least one racial minority director while indicating a significant adverse effect on ROA.

5. CONCLUSION

The study examines the influence of board racial diversity on shareholder value creation of South African non-financial companies listed on the JSE for the 10 years from 2013 to 2022. The linear models show that PBD and BI_BRD negatively influence all shareholder value creation measures (SMVA, MTB and TBQ). The negative results are consistent with social categorisation theory. The social categorisation perspective suggests that greater racial diversity on boards may lead to poorer performance outcomes due to individual differences (Smith & De Leon, 2023). On the other hand, BD1 and BD2 positively impact all shareholder value creation, which is inconsistent with the tokenism theory (Pajuste et al., 2024). Yet, BD3 had an insignificant influence on all shareholder value creation measures inconsistent with the critical mass theory (Fredette & Sessler Bernstein, 2019). SB has a negative influence on all shareholder value creation measures. However, TB negatively influences SMVA and TBQ while positively influencing MTB. Similarly, BB has adverse effects on SMVA and TBQ yet positive impacts on MTB. The curvilinear models show that PBD and BI_BGD positively and negatively influence shareholder value creation measures, highlighting an inverted U-shaped effect. The inverted U-shaped effects demonstrated that board racial diversity was a double-edged sword. The results revealed that the claim of the "one size fits all" board racial diversity mechanism in creating and maximising shareholder value, often implicitly stated by regulators and advisors, may be misleading.

6. PRACTICAL IMPLICATIONS

The findings of this research have important practical implications. First, the results linking board racial diversity to shareholder value creation have been mixed. Second, the results indicate that corporate executives should foster a climate of inclusion and tolerance towards racial minority directors within the company's upper echelons to promote effective team functioning. Third, corporate executives should integrate DEI initiatives into the business strategy and establishing clear, quantitative key shareholder value creation indicators is crucial. Fourth, the findings suggest that corporate executives should adopt a balanced perspective on board racial diversity, aiming for an optimal mix of Black and White directors to maximise shareholder value. Fifth, it is also essential to implement appropriate metrics for measuring shareholder value creation, as these are vital for understanding the benefits of board racial diversity. Sixth, corporate executives must allocate resources to embrace DEI actively. They should develop recruitment, hiring, and promotion strategies that reflect racial DEI initiatives within the organisation. Analysing potential barriers to providing equal opportunities for all candidates is necessary, including reviewing whether current mentorship policies favour specific groups or are absent altogether. Seventh, DEI issues are firmly embedded in the socio-cultural contexts. Thus, racial diversity in corporate boards would benefit by focusing on social justice (the moral case) rather than the business case to reach its original goals. Finally, an international perspective is needed to comprehensively understand the implementation and assessment of board racial DEI initiatives.

7. LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

There are some limitations to this study. First, due to the sample selection criteria, not all non-financial companies listed on the JSE were included in the analysis. Secondly, this study acknowledges that racial diversity in directors' cognitive abilities is not the only factor to consider. Therefore, the results pave the way for new directions in future studies and simultaneously corroborate current requests for several board demographic diversity characteristics. Future research could use surveys and interviews of diverse boards to obtain data on board

interactions and dynamics, allowing for a direct test of those underlying mechanisms. The sample comprises companies operating in various sectors, so future studies may investigate how board racial diversity influences the creation of shareholder value by the industry. Future studies should further evaluate the interactive effects of board racial diversity with dimensions such as gender, education level and tenure. Furthermore, future research could conduct a comparative study between South African and non-South African companies, especially companies from countries with mandatory quotas for racial minority directors. Finally, future research could consider investigating the application of the cubic regression model while the current research employs linear and curvilinear quadratic regression models.

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