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Market responses to appointment of women and men as directors: A study of top 40 Johannesburg Stock Exchange-listed companies

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Background: This study investigates market reactions to the appointment of women and men as directors on the top 40 Johannesburg Stock Exchange (JSE)-listed company boards. Both the social and business rationale for the appointment of women is contextualised to evaluate the potential bias towards their appointment as directors. This research contributes to the literature by concurrently analysing both genders.

Aim: The primary objective of the study was to assess market reactions to the new appointment of women and men as directors of the top 40 JSE-listed companies using an event study.

Setting: This study focussed on companies from the top 40 JSE-listed companies' index. The period analysed was from the year 2015 to 2019.

Method: The event study methodology was used to analyse announcements of 17 women and 29 men as directors from companies across 12 sectors of the top 40 JSE-listed companies.

Results: The study identified a significant negative market reaction to the appointment of women as directors, potentially because of gender bias. The appointment of men as directors was met with positive market reactions, though the results were statistically insignificant. The results align with prior studies that gender bias may impact the negative reaction towards the appointment of women.

Conclusion: The study suggests gender is relevant to shareholders because of different market reactions. Companies should not disregard the benefits of board diversity despite negative reactions in the short term.

Contribution: This study informs boards of possible market reactions to gender diversity efforts. It emphasises the economic and ethical benefits and necessitates stakeholder engagement.

Keywords: event study; women; board appointments; directors; gender diversity; market reaction.

Introduction

Gender diversity on boards of directors has been extensively studied in recent years, and its relationship with stock market performance has been analysed (Lawrence & Raithatha 2023:4). Although there is an increase in the number of women serving on the board of directors, there is still a significant underrepresentation of women in these positions (Rixom, Jackson & Rixom 2023:679). The women serving on the board of directors is crucial because it is a company's most influential decision-making body. A high-quality board is essential for a company's appropriate performance, and diversity on the board is a crucial component of an effective board (Cox 2022:7).

Gender inequality is still prevalent and women face prejudice in remuneration, hiring, promotion, punishment for financial mismanagement, and investment opportunities (Egan, Matvos & Seru 2022:1). The 'glass ceiling' that limits women's advancement to executive positions hinders a company's bottom line because of the business acumen and professional competence of women who are directors (Dang, Nguyen & Vo 2014:909). The level of female participation in Johannesburg Stock Exchange (JSE)-listed companies, both as executive directors and non-executive directors, is very low (Buthelezi 2021:1).The 2020 Pricewaterhouse Coopers (PwC) research report shows that boards of directors are still lacking in their representation of the nation, particularly in terms of gender and the changing profile of stakeholders (Natesan & Du Plessis 2021:1). The PwC report revealed further that a mere 13% of executive directors serving on the boards of JSE-listed

businesses were women, while 22% of non-executive directors were women (PwC 2021:2).

Shareholders play a crucial role in achieving gender parity on boards of directors, as they have the authority to set the gender makeup of the board (Goyal, Kakabadse & Kakabadse 2019:126). The market may respond to the announcement of director appointments, and it is reasonable to anticipate that a shareholder's reaction may be reflected in the performance of shares on the stock exchange (Bhana 2016:276).

The primary purpose of this article was to use an event study to determine if there is a market reaction to the appointment of women and men as directors among the top 40 JSE-listed companies. The research seeks to address the existing gap in the literature regarding market responses to the appointment of women as directors in companies listed on the JSE. The study also considered the market reactions to the appointment of men as directors. Previous research on the short-term reactions of shareholders to the appointment of women as directors has yielded conflicting results, with some studies finding positive abnormal returns, and others finding negative abnormal returns (Ding, Chian & Chian 2018:246). There is a gap in the literature on the evaluation of appointment of men as directors.

The article follows a structured format, beginning with an introduction that presents the background to the research. It then proceeds to explore the literature on board gender diversity and the market reactions to the appointment of both women and men as directors. The research methodology and data utilised for the study are detailed in a subsequent section. Following this, the results are discussed, and a summary of findings, along with implications, limitations, and recommendations for future research, is provided.

Literature review

Gender diversity on board of directors has been a global issue for decades, with women underrepresented and facing a number of obstacles in their pursuit of boardroom positions (Sudeck & Iatridis 2014:73). Historically, the dominant discourse on this issue emphasises the necessity of redressing past injustices and promoting equal employment opportunities for women. However, there has been a shift in emphasis towards the potential economic benefits of board diversity. This shift has been most pronounced in discussions regarding membership to the board of directors (Solal, Snellman & Uhlmann 2015:1).

South Africa is considered a leader in its efforts to increase gender diversity on its board of directors (Viviers, Mans-Kemp & Fawcett 2017:1). However, women continue to be underrepresented in the workplace and management positions across all economic sectors, including the board of directors and top management positions (Mohatla & Bussin 2022:2). This is despite the fact that the proportion of women to men in South Africa is 51% (Mohatla & Bussin 2022:2). However, South African women serving companies listed on the JSE make up less than 20% of all JSE directors (Mohatla & Bussin 2022:2). The JSE requires listed companies to comply with the King IV Report on Corporate Governance. The King IV report encourages companies to pursue gender diversity, but is not prescriptive as to the targets. Although the constitution and various laws were enacted to rectify women's disadvantages, the rate at which they are appointed to boards remains a challenge (Viviers et al. 2017:1). The World Economic Forum (WEF 2021) concludes that a 30% proportion of women as directors in a board is considered to be crucial and an attainable foreseeable goal. In comparison, an equal balance between women and men is a long-term goal that the WEF is optimistic to be achieved in the year 2039.

The prevalent explanations suggest that shareholders are biased against women and ignorant of the advantages of gender diversity (Smith, Chown & Gaughan 2021:119). Women are stereotypically perceived as lacking leadership abilities, which causes shareholder bias against women who are directors and negative market reactions to appointees that are women (Dobbin & Jung 2011:809). Nonetheless, there have been significant positive stock market reactions to the announcement of women joining the board of directors, indicating that shareholders believe that directors who are women add value (Smith et al. 2021:119).

While no single theory directly explains the correlation between women's representation on the board of directors and stock market performance, studies on stereotypes and gender discrimination have suggested that the stereotypical traits of women and what is perceived to be a leader's traits and characteristics may cause shareholders to question the suitability of women as leaders (Pastore, Tommaso & Ricciardi 2017:66).

The social and business rationale are two arguments for improving representation of women on the board of directors. From an ethical standpoint, the practice of omitting women from corporate boards because of their gender is unjust. In order to promote a fairer society, companies should increase the number of women on their boards. The economic argument suggests that gender diversity on boards can lead to economic gains and businesses can benefit from the diverse perspectives and experiences that women can bring to the boardroom (Brammer, Millington & Pavelin 2007:393).

The social rationale for gender diversity in the board of directors

Gender stereotypes have led to the so-called 'glass ceiling' impeding women's ascent up the corporate ladder (Reich, King & Roukema 1995:26). Employers are not appropriately addressing gender disparities in the workplace, and thus these gender disparities continue to exist (Pienaar, Naidoo & Malope 2018:29). Companies are prepared to accept competent applicants who are women but are indifferent to diversity as a societal aim (Solal et al. 2015:2). Companies may hesitate to

make the appointment because of the possible penalty in the decrease in the market value of shares on account of a shift in priority from solely profit-driven decisions to more socially driven decisions. Solal et al. (2015:5) argue that another perspective on the negative reactions is that the decision to select a woman for the board of directors signals the company's stronger preference for social welfare goals. This can also indicate that there is a lesser preference for profit maximisation. Nevertheless, because of the historical background of South Africa, the stigma against women is a reality that cannot be disregarded.

The government of South Africa has enacted laws to encourage gender equality in the workplace. The *Employment Equity Act No. 55 of 1998* supports equal participation at all organisational levels. The Commission for Gender Equality was established in 1996 to assess the degree to which government and private sector initiatives promote gender equality. The Commission also evaluates relevant laws, provides legislative suggestions, and investigates complaints of gender discrimination. Parliamentarians play a crucial role in empowering women throughout the economic range. However, the effects of these laws have only resulted in marginal gains in achieving gender diversity at board level (Bosch, Van der Linde & Barit 2020:3).

The appointment of a director is subject to an assessment of a candidate's suitability based on what is perceived as the traits and characteristics of a leader. Capezio and Mavisakalyan (2016:772) assert that there is a misconception that a leader's success is tied to attributes reserved to male characteristics. These misconceptions about the characteristics and traits of a leader are in direct contrast to the stereotypical feminine nurturing, gentleness, and submission characteristics. This is the premise of the role congruence theory. Loy and Rupertus (2022:118) assert that the prejudice against women who are leaders is rooted in the perceived disparity between the traits commonly ascribed to women and the requirements of leadership roles. This misalignment diminishes the likelihood of women being accepted or considered for director roles. This study uses the precepts of role congruency theory in conducting an event study of the market reaction to the appointment of women and men as directors. This is founded on the premise of prevailing shortage of appointment of women to boards of JSE-listed companies.

The role congruence theory on the appointment of women to leadership positions

The seminal work of Eagly and Karau (2002:574) posits that the role congruency theory arises when there is a mismatch between a stereotyped group (like women) and a role typically not associated with them (such as a board-level directorship) in the minds of observers (like shareholders). Shareholders are often averse to appointing women in senior positions because of stereotypes about their leadership and business skills (Ding et al. 2018:251). However, many studies have shown that markets reward companies that nominate women to their boards with a higher market value, lower market risk, and lower capital costs because women are seen as a component of good governance (Olson & Currie 1992:49).

Shareholder prejudices and preconceptions of women as ineffective leaders reflect systemic gender inequalities and may hinder women's leadership integration. Consequently, women leaders may face more obstacles than men, hindering their performance. In order to provide women with leadership opportunities, society and the workplace must address gender disparities.

Smith et al. (2021:119) propose that market reactions to chief executive officer (CEO) appointments reflect shareholder expectations of other shareholders' responses. Consequently, society's biases and assumptions about women leaders must be changed to change market responses to appointments of women. By eliminating these biases, shareholders can make more impartial CEO recruitment decisions, improving results for companies and women leaders. A report by Credit Suisse highlights that the question at hand is whether diversity is advantageous not only to women but also to other invested parties such as corporations, shareholders, the economy at large, and other stakeholders (Credit Suisse 2014:4). For a company to improve the economic, social and governance performance indicators, the board of directors must gain access to resources that can aid the company in meeting its objectives such as recruitment and training of women that are to be appointed into the board of directors. This will aid to increase the representation of women on the boards of directors of companies. This is the premise of the resource dependency theory.

The resource dependency theory

Clarkson (1995:65) explains that in the resource dependency theory, a company's business and financial success may depend on its ability to recognise and prioritise its stakeholders' communities' interests, as businesses must form and maintain good partnerships to succeed. Private and public shareholders and investment funds have long been interested in board structure and composition because they affect strategic objectives and operational performance (Dobbin & Jung 2011:809). A study by Triana, Miller and Trezebiatowski (2014:609) presumed that higher board diversity, especially gender diversity, through more women directors, improves financial performance, image, problem-solving, and strategic decision-making in companies. Furthermore, having more women on boards improves transparency, ethics, stakeholder relations, and the diversity of viewpoints and ideas that come from different backgrounds and experiences (Singh, Terjesen & Vinnicombe 2008:48). In contrast to the pre-implementation of a gender quota system implemented in Norway, women were seen as unsuitable board members, with visions of unskilled spouses. These images and unfavourable opinions made it hard for women 'pioneers' to prove themselves in a critical and unfriendly atmosphere (Seierstad 2016:396).

An important aspect that a company needs to consider in pursuing a goal to achieve gender diversity is the positive effects on a company's financial performance. This is the business rationale for pursuing gender diversity.

The business rationale for gender diversity in the board of directors

Gender diversity and company success remain controversial. Research suggests that gender diversity on boards will directly affect profits and indirectly affect stock performance (Dobbin & Jung 2011:836). The governance of a company is an essential measure of the success of a company, and women that form part of a board influence the governance of a company.

Several studies suggest that gender balance improves corporate governance, board meeting attendance, innovation, and corporate social responsibility (CSR) (Galia & Zenou 2012:630). It also gives the organisation status and credibility, especially among workers, customers and shareholders (Lückerath-Rovers 2013:491). Research suggests that shareholders may reward a company's CSR programme if it affects customers in a way that boosts profitability and shareholder value (Servaes & Tamayo 2013:1045). However, directors that are women are often perceived to be nominated for social reasons; therefore, tokenism is common (Huse 2007:113).

Tokenism theory

'Tokenism' denotes a setting where a small minority, such as women on corporate boards, are perceived more as symbolic representations rather than as full participants (Torchia, Calabrò & Huse 2011:301). It is important to note that tokenism refers to the appointment of individuals solely to create the appearance of diversity, while role congruency theory describes the stereotypical gender roles and their misalignment with the leadership role. Being perceived as a token is considered unfavourable, as it suggests that the individual occupies the position primarily to fulfil diversity requirements rather than being the most skilled and qualified candidate for the role. Research also shows that shareholders are averse to CEOs that are women. The gender of the appointed director comes under scrutiny mainly because the news headlines often emphasise gender if women who are directors are appointed, whereas the appointment of men as CEOs rarely mentions the gender (Lee & James 2007:238). Women who are directors are under immense pressure to perform as they are faced with issues such as tokenism. Thus, the desire to prove that they are rightfully included can possibly become one of the drivers for performance. The consequence of low representation on boards results in the ineffective influence of women on the company board because of the lack of sufficient representation.

Torchia et al. (2011:299) observed that three women on the board increased corporate innovation from a study on 317 companies on the Oslo Stock Exchange. Joecks, Pull and Vetter (2013:61) identified empirical evidence in Germany that gender diversity initially has a negative impact on stock market performance and that stock market performance improves only after a board has 30% representation of women, compared to a board of only men. While the positive impact of gender diversity on corporate innovation and performance is well-established, the concept gains further relevance when examined in the context of the stakeholder theory and CSR.

The stakeholder theory

The stakeholder theory suggests that a company's ability to build and maintain multiple favourable partnerships is a strategic key to success; thus, including women on boards may improve CSR (Clarkson 1995:65). Women spend the most and know product markets well, making them more sensitive to consumer needs than men (Simpson, Carter & D'Souza 2010:27). Diverse companies are often driven by social ideals, showing that a for-profit company can demonstrate that it cares about more than just shareholder return.

However, numerous studies have suggested that demographic or behavioural factors, such as less experience and expertise, reluctance to sanction layoffs or a tendency to excessively monitor the CEO, may explain the negative impact of the appointment of women on performance (Adams & Ferreira 2009:291). Jonson et al. (2020:17) assert that gender diversity on boards not only enriches decision-making with a broader knowledge base, but fosters innovation and creativity. Despite the benefits of gender diversity, women are underrepresented on boards, with the argument that there are too few qualified women as candidates (Tinsley et al. 2017:160).

Prior studies on market reactions to the appointment of women as directors

Market responses to women on company boards have shown conflicting results (Pastore et al. 2017:68). Shareholders usually use company data and official documents in making investment decisions (Kang 2008:537). According to the seminal work by Warner, Watts and Wruck (1988:461), the market reaction to the appointment of women as directors may indicate that this published information is significant and warrants a cause for shareholders to re-estimate the value of a company.

Dobbin and Jung (2011:836) explored the possible causal relationship between appointing women as directors and market reactions in the top 400 US companies, finding negative abnormal returns. In contrast, Lucey and Carrona (2011:1225) discovered positive abnormal returns in the London Stock Exchange following appointments of women as directors. Further studies evidenced positive abnormal

returns on Singapore and New Zealand Stock Exchanges, as highlighted by Kang, Ding and Charoenwong (2010:888) and Ding et al. (2018:246). However, Loy and Rupertus (2022:123) reported negative abnormal returns in multiple countries, including Brazil, India, and Japan. These countries have either developing economies or have cultures that are conservative when it comes to the role of women in society.

Kang et al. (2010:888) conducted a study on the short-term reaction to an announcement of women as directors on companies listed on the Singapore Exchange (SGX). However, Lucey and Carron (2011:1225) pointed out that this study lacked a comparison to the appointment of men as directors, failing to provide a comprehensive picture of market reactions to director announcements, irrespective of gender.

Considering the diverse and often conflicting international findings, the upcoming section will delve into the research design and methodology of this study for the South African context. Viviers et al. (2017:393) observed that South Africa's distinct history of extended discriminatory practices has led to the exclusion of women from commercial and industrial activities. Van Der Schyff (2017:17) notes that the nation has implemented its constitution and various laws to rectify and tackle the economic and social inequalities women currently face because of historical reasons. However, persistent societal prejudices against women remain a significant issue, as highlighted by Mohale and Bain & Company (2017:5).

Research design and methodology

Research methodology

As pioneered by Brown and Warner (1980), this study applied the event study methodology. The event study methodology examined the stock market reaction to the announcement of women and men as directors to the board. The Ordinary Least Square (OLS) market model calculates abnormal returns (Strong 1992). An abnormal return is determined by calculating an expected return and comparing it with the actual return on the event date. Xiong, Zhang and Chen (2022:9) identify two periods used within a timeline leading to calculating an abnormal return. The first is the estimation period and the second is the event window period.

The estimation window period is a period within the timeline where a historical account of the returns of an index is used to estimate the return on the company share on the market. The estimation window period is between -161 to -11 trading days prior to the date of the announcement. Similar studies by Bhana (2016) and Kang et al. (2010) used the same window period. An event window is a period used exclusively to compare the actual returns on the market for each company share compared to the estimated shares from the estimation window period. The event window period is defined as 21 trading days surrounding the announcement date, with -10 trading days preceding and following the announcement date. The announcement date is set to day 0, corresponding to the company's official trading day. If the date falls on a weekend, a public holiday or the announcement was made after trading hours, the following trading day is considered day 0. The day following the proclamation date is designated as day +1, while the day before is designated as day -1. In order to determine the significance of the results, t-tests were also performed.

After detailing the methodology for defining the estimation and event windows, it is now necessary to explain the theoretical model that was used to calculate normal returns in these periods, which is the index market model.

Index market model

In order to estimate a normal return during the estimation period when the event does not occur, the following index market model was employed as developed by Brown and Warner (1980) (see Equation 1):

$$R_{it} = \alpha + \beta(R_{mt}) + \epsilon_{it} \quad \text{[Eqn 1]}$$

R_{it} is the return on company i in period t, α is the intercept for company i, which can also be referred to as the risk-free rate derived from the R197 South African government bond (Van Heerden 2021:1). β depicts the systematic risk of company i in relation to the market index, which is the JSE All-Share Index. R_{mt} is the stock market's, the JSE All-Share Index, return in period t and ϵ_{it} is the prediction error, that is residuals of company i in t. This model is a widely used model in practice (Xiong et al. 2022:9).

Building upon the index market model, this study now turns our attention to the concept of abnormal return, which quantifies the difference between actual returns and expected returns during the event window period.

The abnormal return

The abnormal return (AR) from the announcements of the appointment of directors is calculated as the difference between actual returns on the day of the announcement and the expected returns over an event window period (see Equation 2):

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \quad \text{[Eqn 2]}$$

$AR_{i,t}$ is the AR of the company i on day t, $R_{i,t}$ is the actual return of company i on day t, and $E(R_{i,t})$ is the estimated return of company i on day t.

After establishing how to calculate the AR, it is appropriate to consider how these individual ARs are aggregated into a single measure, the average abnormal return.

The average abnormal return

The average abnormal return (ARR) for day t is calculated as in Equation 3:

$$AAR_t = \frac{1}{N}\sum_{I=1}^{N} AR_{i,t} \quad \text{[Eqn 3]}$$

$AR_{i,t}$ is as calculated in Equations 2 and 3 and N refers to the total number of announcements.

Once the AAR is calculated, a metric is needed to allow researchers to quantify the total impact of an event over a period of time rather than at a specific point in time. This is called the cumulative AARs (CAAR).

The cumulative average abnormal returns

The CAAR is the sum of the AARs from the day T_1 to T_2, and is calculated as follows (see Equation 4):

$$\text{CAAR}_{(T_1,T_2)} = \frac{1}{N}\sum_{t=1}^{T_2}\text{AAR}_t \quad \text{[Eqn 4]}$$

ARR_t is as calculated in Equation 4.

The CAAR was determined over the event window of -10 days prior and +10 days post the announcement day. Once these measures of abnormalities in returns are determined, it is necessary to assess whether the observed AAR and CAAR could be because of random chance or whether they can be attributed to the event. Therefore, the *t*-statistic for AAR and CAAR needs to be calculated.

The statistical significance of the average abnormal returns

In order to determine the significance of the AAR, the following *t*-statistic is used (see Equation 5):

$$t_{AR} = \frac{AR_t}{S} \quad \text{[Eqn 5]}$$

where *S* refers to the standard deviation of ARs during the estimation period *e*. The estimated period is over 150 days, counting –161 days to –11 days to the event window period; -10 days to day 0 and +10 days after the event date are not part of the estimation window period.

The statistical significance of the cumulative average abnormal returns

In order to determine the significance of the CAAR, the following *t*-statistics are used from day T_1 to T_2 (see Equation 6):

$$t_{T_1,T_2} = \frac{\text{CAAR}_{(T_1,T_2)}}{S\sqrt{\text{X}}} \quad \text{[Eqn 6]}$$

where X is the inclusive number of days from day T_1 to T_2.

Data collection and procedure

The data for this research were extracted from Integrated Real-time Equity System (IRESS) and the websites of publicly traded companies. Integrated Real-time Equity System provides financial data and analytical tools for market data, such as the JSE (IRESS 2022). This study's population consisted of announcements of women and men as directors for JSE-listed companies. The gender of the director is verified using the company's annual report. The disclosure of the composition of the board of directors according to gender proportions of the board was used as a basis for this study and no interview was conducted on whether the candidates identified as a man or a woman or non-binary. This study will need to be construed considering these conditions.

A distinction of the race of the directors appointed is a factor that is not the subject of study. This is even though there is legislation to promote the appointment of black people as defined in the *Broad-Based Black Economic Empowerment Act (B-BBEE)* 2006. The *B-BBEE* 2006 mandates the appointment of black, Indian and coloured people to management positions in companies, with preference for black women, in order to improve the scoring of a company to qualify to apply for government tenders. This may possibly affect the magnitude of the market reaction of shareholders towards the appointment of men and women to being directors. This factor, together with other factors such as the age, qualifications, experience, nationality, externally recruited or internally promoted are outside the scope of this study. This is a limitation of this study that is a potential area for future research.

The selected companies are constituents of the top 40 JSE-listed companies index. The index is rebalanced quarterly, so the constituent companies to be selected was in the fourth quarter of the year. The nominated companies were included in the index as of 31 December 2019.

In 2020, companies listed on the JSE experienced a negative financial impact because of the coronavirus disease 2019 (COVID-19) outbreak (Da Silva 2021:2). For this study, the years after 2019 have been omitted to eliminate the effects of multiple instances of new shareholder information releases. These companies' JSE Stock Exchange News Service (SENS) were extracted between 01 January 2015 and 31 December 2019. This study requires a 5-year observation period to enhance the likelihood of an increase in announcements of women as directors. Because of the small number of women who are directors in the top 40 JSE-listed companies, the number of announcements of women who are directors is anticipated to be low. If a shorter period is used, it can lead to fewer appointments of women being part of the population of this study. Kang et al. (2010:890) extracted announcements of women who are directors over 5 years. A similar length of time was used for this study.

A search function was used in IRESS to search for JSE SENS news with either the title or the body of the message containing the words, director and appointment. This was limited to the top 40 JSE-listed companies over the 5 years. Only the announcements that met certain conditions were chosen to form part of the population from these announcements. The appointment should not be multiple announcements in one announcement. This can include more than one director being appointed, whether women or men. The appointment should not be made simultaneously with other news, such as the financial performance report, directors' resignation, dividend decisions. or any other matter the company intends to communicate to its clients. In total, there were 75 men and 44 women announcements of directors.

Another condition was identifying and isolating appointments before or immediately after the announcement date. These confounding events can interfere with isolating the market's reaction to a single event. These events involve a company directly and the information is available in the public domain through news outlets. This news can be initiated by the company or other stakeholders outside the company. A search function inside IRESS allows the search of news using keywords across multiple news outlets. Integrated Real-time Equity System has access to a database of published articles from local and international news outlets. A search for news about a company occurred 5 days prior and 5 days after the appointment of a director. Other sectors or related news will be reflected in the All-Share Index. This index is used in the market model of the study.

The event study was conducted using the 'eventstudy2' module designed by Kaspereit (2021). The module was imported into the STATA statistical software application. The module within STATA requires data in the form of index prices, share prices of companies, event dates, a risk-free rate, as well as companies that are being evaluated. A separate calculation for women who are directors as well as men who are directors was performed.

The final population comprised 46 announcements of 17 women and 29 men who are directors, as displayed in Table 1.

The announcements were from the 20 companies from the top 40 JSE-listed companies. These are exclusively the announcements that met the criteria for appointments that occurred within a period that did not have confounding events.

A total of 12 industries were identified and these announcements were made as depicted in Table 2. A majority of directors' announcements are in the banking sector, accounting for 41% of the total announcements. The banking sector simultaneously has the most significant portion of appointments of women who are directors even though the sector is perceived as a male-dominated sector.

The industries span a breadth of companies listed on the JSE. The appointments across the industries are also not a reflection of whether there is a preference for women or men as directors. The selected appointments have strict selection criteria that are based on the exclusion because of any identified confounding event.

Table 3 depicts the announcements over the years. The appointment of women and men as directors over the years has been obtained from strict announcements that did not have confounding events. As a result, the number of appointments over the years has excluded actual

TABLE 2: Industry list of director appointments of women and men.

Industry	Women	Men	Total
Apparel retailers	0	3	3
Banks	5	14	19
Chemicals	1	1	2
Diversified retailers	2	1	3
Food, beverage and tobacco	0	3	3
Health care providers	1	2	3
Industrial metals and mining	1	0	1
Life insurance	0	1	1
Personal care, drug and retail stores	3	1	4
Pharmaceuticals and biotechnology	1	0	1
Precious metals and mining	3	1	4
Real estate investments	0	2	2
Total	**17**	**29**	**46**

TABLE 1: Company list of announcements to the appointment of women and men as directors.

Industry	Company name	Appointments of women	Appointments of men	Total appointments
Financial services	Absa Group Ltd	2	7	9
Mining	Anglo American PLC	1	0	1
Mining	AngloGold Ashanti Ltd	1	0	1
Pharmaceuticals	Aspen Pharmacare Holdings Ltd	1	0	1
Services	BID Corporation Ltd	1	1	2
Conglomerate	Bidvest Ltd	1	0	1
Financial services	Capitec Bank Holdings Ltd	0	1	1
Retail	Clicks Group Ltd	1	0	1
Financial services	Discovery Ltd	0	1	1
Financial services	FirstRand Ltd	1	2	3
Mining	Gold Fields Ltd	2	1	3
Healthcare	Mediclinic International PLC	1	2	3
Financial services	Nedbank Group Ltd	0	3	3
Real estate	NEPI Rockcastle PLC	0	2	2
Chemicals	Sasol Ltd	1	1	2
Financial services	Standard Bank Group Ltd	1	1	2
Retail	The Foschini Group Ltd	0	3	3
Retail	The Spar Group Ltd	1	0	1
Food and beverage	Tiger Brands Ltd	0	3	3
Retail	Woolworths Holdings Ltd	2	1	3
Total	-	**17**	**29**	**46**

industry-wide changes that can reveal a trend. Because of the method of selecting the actual announcements for this study, no recognisable pattern can be reliably established as numerous announcements were excluded.

Discussion

The results of the event study are discussed in this section. The AAR was calculated using Equation 3 and it was over a 21-day event window period, as depicted in Table 4. The AAR that was calculated for women as directors resulted in a negative reaction on day -10 of -1.58% at a significance level of 1%. While on day -9, a further negative reaction of -1.28% at a significance level of 5% occurs. On day -7, there is a further negative market reaction of -0.86% with a statistical insignificance. The notable pattern is that up to the day of the announcement, day 0, the negative market reaction started very high on day -10. Subsequently, the negative reactions occur with decreasing values in a day, -9 and -7, all with corresponding significance levels that change in step with the two categories of significance at 5% level. On day -3, the AAR for women as directors is -0.86% negative reaction, similar to day -7. The AAR for all the women as directors is consistently negative until the appointment is announced on the stock market. After the announcement date, there are no statistically significant reactions and only on day +9 there is a significant negative reaction at a 5% level of -1.05%.

The AAR for men who are directors has a negative reaction -2 days before the announcement day, which is statistically insignificant. However, immediately after, on -1 day, there is an opposite positive reaction that is statistically significant at 5% level. The market seems to have reversed the initial reaction in the subsequent days leading up to the announcement of the appointment of men as directors. On the days after the announcement day, no significant AAR linked to the announcement of men as directors is statistically significant at either 1% or 5%.

The CAAR was calculated using Equations 2, 3 and 4 for women as directors over the 21-day event window period. The CAAR result was -6.41% as depicted in Table 5. The CAAR result indicated a negative reaction to the announcement of the director appointments of the 29 women that formed part of this study. The negative reaction is statistically significant at 1% level according to the t-test by Serra (2002:4). The CAAR for men who are directors over a period of a 21-day event window period was 1.15%, as depicted in Table 5. The positive CAAR indicates a positive reaction to the appointment of men as directors. Even though the results are not statistically significant, the results are notable.

TABLE 3: Director announcements from the year 2015 to 2019.

Year	Women	Men	Total	Women (%)	Men (%)
2015	2	5	7	28.57	71.43
2016	2	9	11	18.18	81.82
2017	6	7	13	46.15	53.85
2018	4	2	6	66.67	33.33
2019	3	6	9	33.33	66.67
Total	**17**	**29**	**46**	**36.96**	**63.04**

Summary of findings, implications and limitations of the study

Outline of the results

This study's results indicate a significant negative market reaction to the appointment of women as directors at the 20

TABLE 4: The average abnormal return for the appointments of women and men as directors.

Days	Appointments of women				Appointments of men			
	No. of appointments	AAR (%)	*t*-test	Significance	No. of appointments	AAR (%)	*t*-test	Significance
-10	17	-1.58	-3.1461	***	29	0.16	0.4400	-
-9	17	-1.28	-2.5372	**	29	-0.20	-0.5560	-
-8	17	-0.46	-0.9049	-	29	0.50	1.3819	-
-7	17	-0.86	-1.7067	*	29	0.02	0.0593	-
-6	17	0.00	0.0061	-	29	0.49	1.3687	-
-5	17	0.72	1.4334	-	29	-0.12	-0.3222	-
-4	17	-0.34	-0.6712	-	29	0.14	0.3814	-
-3	17	-0.86	-1.6991	*	29	0.21	0.5709	-
-2	17	-0.11	-0.2176	-	29	-0.62	-1.7154	*
-1	17	-0.14	-0.2841	-	29	0.72	1.9968	**
0	17	0.38	0.7514	-	29	0.19	0.5419	-
1	17	-0.33	-0.6618	-	29	0.03	0.0886	-
2	17	0.43	0.8551	-	29	-0.28	-0.7781	-
3	17	-0.22	-0.4465	-	29	0.25	0.7028	-
4	17	0.05	0.0993	-	29	-0.17	-0.4692	-
5	17	-0.47	-0.9316	-	29	-0.36	-0.9930	-
6	17	-0.78	-1.5440	-	29	0.06	0.1792	-
7	17	0.48	0.9478	-	29	0.31	0.8744	-
8	17	0.33	0.6588	-	29	0.09	0.2639	-
9	17	-1.05	-2.0831	**	29	-0.35	-0.9729	-
10	17	-0.32	-0.6406	-	29	0.06	0.1628	-

AAR, average abnormal return; No., number.

*, statistical insignificance; **, significance at 5% level; ***, significance at 1% level.

TABLE 5: The cumulative average abnormal return for directors who are women and men.

Period	Women			Men		
	No. of appointments	CAAR (%)	*t*-test	No. of appointments	CAAR (%)	*t*-test
[-10;10]	17	-6.41	***	29	1.15	-

***, significance at 1% level.
CAAR, cumulative average abnormal returns; No., number.

JSE-listed companies considered during the research period. The CAAR over this period is statistically significant and indicates the likelihood that these abnormal reactions are directly because of the gender of a director being appointed being women. The women who are appointed as directors are from the top 40 JSE-listed companies, and these ARs' monetary implications can result in high-value losses. Even though the market reactions are significantly linked to the gender of the director being appointed, the exact reason for the negative market reaction cannot be restricted to only being a possible bias towards women being appointed to the board of directors. However, considering the role of the congruency theory, the market may disregard the gender of the women who are directors as there are predominantly men as directors in the market. The market reaction to the appointment of men as directors is positive even though it is not statistically significant. The appointment to the board appears to be not significant or adverse when men are appointed as directors. The CAAR results from the appointment of men as directors can be arbitrarily interpreted as the gender of the appointed candidate is considered to be crucial by shareholders. A positive and a market reaction that is not significant to the appointments of men as director may indicate that the addition to the board is considered normal and it is expected that the company will perform according to the initial evaluations by shareholders. Shareholders are not revising their expectations of how the company will perform.

The negative market reactions to the appointment of women as directors are similar to the findings by Kang et al. (2010:888) on New Zealand-listed companies. This study highlights that the role congruency theory may cause a negative market reaction.

Practical implications

The board of directors of the large JSE-listed companies should take note of the possible market reactions to pursuing gender diversity at the company board level. The effects of a prolonged decline in the market value of companies are a matter that may be the immediate consequence of the pursuit to achieve gender diversity at the board of directors' level.

Limitations and implications

The study was conducted over 5 years, beginning in 2015 and ending in 2019. The short period may have resulted in a smaller number of appointments being part of the data for this study. The search for confounding events was performed through the IRESS database and there can be other unofficial media platforms where information regarding the appointment of directors is published. This can result in selecting appointments that are not free from confounding events. The selection of appointments that form part of the top 40 JSE-listed companies restricts the applicability of the study results. Other companies listed on the JSE stock market may have opposite reactions to the results of this study. Further studies can be done to expand on the selection of companies that are eligible for the study.

The study has not considered the long-term market effects of appointing women as directors. The valuation of companies can change after the women who are directors have spent sufficient time in their capacity at the board level to influence a company's financial results. Further research can benefit the board of directors who nominate candidates not to be reluctant to appoint women as directors as long-term market reactions may be opposite to their short-term market reactions.

The number of appointments of men as directors is more than the appointments of women as directors. It is not easy to compare market reactions between the two genders directly. Nevertheless, the results indicate that further research that aims to make a direct comparison can contribute new insights into the market reactions to specific genders.

The race, age, qualifications, experience, nationality, external recruitment or internal promotion are outside the scope of this study. This is a limitation of this study that is a potential area for future research.

Conclusion

There is a significant negative market reaction to appointing women as directors to the board of directors of companies that form part of the top 40 JSE-listed companies from the year 2015 to 2019. Shareholders have an insignificant reaction to the appointment of men as directors. The results from this study allude to the fact that the gender of the director that is appointed is important to shareholders. The short-term negative market reactions should not discourage companies from the positive long-term effects of having a diverse board of directors. The social rationale is established from existing literature and contends the ethical benefits of a gender-diverse board. From the review of existing literature, the economic benefits form a case for a business rationale of appointing women as directors to the board. There are thus both economic and social benefits towards a gender-diverse board.

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Competing interests

The authors have declared that no competing interest exists.

Authors' contributions

M.J.M. is the principal author, responsible for conceptualisation, methodology, formal analysis, investigation, writing original draft, visualisation, project administration, software, validation, data curation, resources including funding acquisition, as well as writing, review and editing of the article. O.S. and B.M.v.d.N. were responsible for supervision and for the writing, review, and editing.

Ethical considerations

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Data availability

The data used in this study are available on the IRESS database, company websites, the South African Treasury, and Yahoo Finance.

Disclaimer

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