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Board characteristics and accounting value relevance: Insights from Saudi Arabia

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ABSTRACT

This study aims to determine the extent to which corporate governance affects the usefulness of financial information available to investors in Saudi Arabia. The research investigates the impact of board characteristics—including independence, size, and frequency of meetings—on the value relevance of financial statements. Data from 125 non-financial firms from 2018 to 2022 were analyzed. The results indicate that increases in both book value per share (BVPS) and earnings per share (EPS) significantly enhance share prices. Furthermore, board independence, size, and meeting frequency amplify the value relevance of EPS but not BVPS, highlighting the complementary role of these governance attributes in equity valuation. High-quality governance and financial reporting are crucial for accurate evaluation of financial statements, enabling investors to perform more precise equity valuations. This underscores the importance of robust corporate governance structures. These insights are valuable for regulators, firms, and investors. Regulators can use these findings to strengthen corporate governance frameworks, ensuring boards are independent, well-sized, and diligent, thereby enhancing financial transparency. Firms can improve their governance practices, boosting the credibility and usefulness of their financial reports, which fosters greater market trust and attracts investment. Investors benefit from more reliable financial information, allowing for better-informed decisions and more precise equity valuations.

Contribution/Originality: This study provides new insights into the impact of board characteristics on financial reporting in Saudi Arabia. The originality of this study lies in its focus on the moderating effects of board independence, size, and meeting frequency within the context of Saudi Vision 2030 reforms, which has not been extensively explored by other researchers.

1. INTRODUCTION

The Kingdom of Saudi Arabia (KSA) was chosen for this study because of its advantageous position in the Middle East, its currently robust and expanding economy, and its membership of the G20 (Piesse, Strange, & Toonsi, 2012). According to a World Bank report, the KSA had a total market value of approximately $452 billion in 2017, with the Tadawul stock exchange being the largest equities market in the Middle East, accounting for nearly 66% of the country's gross domestic product (GDP) (World Bank, 2018). The launch of Saudi Vision 3030 signaled the beginning of significant institutional changes in Saudi Arabia, providing a unique context for our research. One of the goals of Vision 2030 is to stimulate the economy by encouraging economic diversification and international investment, shifting from an oil-based economy to a knowledge-based one (Boshnak, 2021). Hence, in 2017, the Ministry of

Commerce and Investment introduced new corporate governance regulations to improve the investment climate and improve financial transparency (Capital Market Authority, 2017).

The accounting information on financial markets is a crucial research area, particularly in emerging economies such as Saudi Arabia. Although financial statements should provide investors with vital information, the actual relevance and value of such information can vary significantly depending on corporate governance structures (Collins, Maydew, & Weiss, 1997). This study looks at how the characteristics of the boards of Saudi listed companies affect the value relevance of accounting numbers, specifically focusing on book value and earnings. Although the developed markets have been the subject of extensive research, there is limited understanding of market dynamics in the Middle East, especially concerning recent governance reforms under Saudi Arabia's Vision 2030 (Boshnak, 2021). Despite a gradual decline in terms of significance, research on developed markets indicates that book values and earnings are still highly relevant to investors. In emerging Middle Eastern markets such as Saudi Arabia, studies also indicate that accounting amounts are value-relevant, although contextual factors may influence this relationship (Alkhtani, 2012; Zubdeh, 2016). However, very little research has been conducted to determine the moderating factors that may affect this relationship in the Saudi market.

The aim of this study is to address this research gap by investigating the moderating impacts of three distinct board attributes—the size of the board, its independence, and the frequency of meetings—on the connection between company valuation and accounting data. It is crucial to understand these moderating effects given Saudi Arabia's unique governance context, characterized by concentrated ownership and recent regulatory reforms intended to attract foreign investment.

This study has three interrelated objectives aimed at providing novel evidence on the usefulness of accounting numbers within Saudi Arabia's evolving governance context. Firstly, it examines the degree to which investors understand and incorporate book values and earnings into market value through share prices, thereby highlighting the usefulness of financial statements for firm valuation amid recent reforms. Secondly, it determines whether the 2017 corporate governance code changes enacted under Vision 2030 improve the usefulness of accounting numbers. Thirdly, and perhaps most importantly, it examines how particular board features impact the link between accounting values and company market value. This addresses the key gap regarding whether board monitoring and expertise complement financial information for equity valuation given Saudi Arabia's concentrated ownership structure. This study also directly responds to the recent call for an in-depth exploration of this issue within Saudi listed firms (Boshnak, 2021). By investigating these underexamined issues, this study will enrich the understanding of how governance interplays with financial reporting value relevance within Saudi Arabia's evolving context (Hearn, 2011).

The research findings illuminate the links between corporate governance, financial reporting, and firm valuation within the Saudi Arabian context. First of all, they show that, despite recent reforms, accounting number of book values and earnings are still favorably and significantly associated with share prices for Saudi listed companies, indicating that these financial statement amounts are value-relevant for investors amid recent reforms. Secondly, the findings demonstrate that the usefulness of earnings is strengthened by corporate board attributes such as size, frequency of meetings, and increased independence, but not book value. The positive moderating effects suggest that board monitoring and expertise play a complementary role in improving the value of earnings data when making valuation choices. Thirdly, it appears that changes to the governance code have not had a significant impact on value relevance. Overall, by reporting the results specifically pertinent to Saudi Arabia, the study emphasizes that transparent accounting information and effective governance mechanisms are crucial to improving the credibility and decision-making usefulness of financial information provided to shareholders.

These results can inform regulators' ongoing efforts to enhance companies' financial transparency and improve the usefulness of financial statements considered by investors when evaluating company performance (Effah, Kyei, Kyeremeh, & Ekor, 2022). Additionally, the findings inform Saudi listed firms on how their credibility is perceived by investors and the value relevance of their financial information based on corporate governance characteristics such as board structure. The study results provide insights that help firms to better understand investor decision making and optimize their financial reporting and governance practices to enhance market confidence in the financial information given to investors. Overall, by showing the interrelationship of governance, accounting quality, and value relevance, the study reveals, to both the regulators and the Saudi corporations, the importance of further strengthening the transparency and efficiency of the KSA's capital markets.

The remainder of this paper is organized as follows: Section 2 examines the characteristics of boards of directors in Saudi Arabia. Section 3 reviews the literature on corporate governance, board characteristics, and the value relevance of accounting information. Section 4 outlines the research hypotheses, and Section 5 describes the research design. The results and analysis are presented in Section 6, followed by a discussion of the findings in Section 7. Section 8 provides a summary of the results, and Section 9 discusses the research implications and contributions. Finally, Section 10 addresses the study's limitations and future research directions.

2. BOARD OF DIRECTOR CHARACTERISTICS IN SAUDI ARABIA

Over the past several years, Saudi Arabia has amended or added to its corporate governance regulations in order to strengthen companies' accountability and transparency and ensure the responsible stewardship of investors' capital. Since the Capital Market Authority's introduction of the Corporate Governance Regulations (CGR) in 2017, other important regulations have been introduced specifically pertaining to the boards of directors. These regulations are intended to improve the governance procedures followed by Saudi listed firms.

The CGR 2017 stresses the importance of board independence. According to the guidelines, a board must include at least two independent directors, and at least one-third of the board should comprise independent members (Capital Market Authority, 2017). As an instance of compliance, Almarai increased the percentage of its independent directors from 33% in 2016 to 44% in 2018 (Almarai, 2018). Alotaibi and Hussainey (2016) revealed a strong positive link between board independence and transparency measures implemented by Saudi Arabian companies, such as forward-looking disclosures. Also, the CGR 2017 restricts the size of the board to a maximum of 11 directors (Capital Market Authority, 2017). Subsequently, STC, a huge Saudi telecom company, reduced the number of its board members from 13 in 2015 to 11 in 2018 (Saudi Telecom Company, 2018). However, previous studies, including that conducted by Habbash and Alghamdi (2017) obtained mixed results for the impact of board size on Saudi companies.

Moreover, the CGR 2017 stipulates that the total number of annual meetings held by a board must be at least two (Capital Market Authority, 2017). Hence, Kingdom Holding increased its yearly board meetings from one in 2016 to two in 2017 (Kingdom Holding, 2017). Studies conducted by Habbash and Alghamdi (2017) and Alotaibi and Hussainey (2016) demonstrate that Saudi companies with more frequent board meetings have better outcomes in terms of governance. Furthermore, the CGR 2017 contains a greater number of disclosure requirements pertaining to directors' qualifications, expertise, and backgrounds (Capital Market Authority, 2017). As a result of these reforms, Savola, a Saudi food company, now includes detailed biographies and backgrounds of all its board members in its annual reports (Savola, 2018). In conclusion, the updates to the CGR in Saudi Arabia indicate a strong commitment to improving the professionalism, independence, and effectiveness of company boards. Despite the challenge of concentrated family ownership, these governance reforms signal a significant improvement, evidenced by the findings of empirical studies.

3. LITERATURE REVIEW

3.1. Value Relevance of Accounting Information

Over the last few decades, numerous studies have focused on the value relevance of crucial accounting metrics. Researchers have investigated the statistical relationships between financial metrics, such as earnings, or book value and market indicators, such as share prices and returns (Barth, Beaver, & Landsman, 2001). According to Ohlson (1995) value relevance measures the extent to which financial statement numbers capture information that determines equity values. Studies of value relevance can be divided into groups according to the time period from the adoption of the International Financial Reporting Standards (IFRS) and the geographical context. Geographically, studies have examined emerging economies in Asia, Africa, and the Middle East in addition to industrialized markets such as the United States and Europe. The temporal scope of these research efforts is particularly significant, since analyses were conducted in a number of countries both before and after the introduction of the IFRS.

Prior to the global adoption of the IFRS, studies consistently found evidence of value relevance for accounting figures, although the strength of this link varied. In emerging markets such as India (Purswani & Anuradha, 2017), Jordan (Khader & Shanak, 2023) and Kuwait (Alfaraih & Alanezi, 2011) earnings, book values, and dividends have a positive effect on share prices, indicating the important role of accounting information in determining value. Similar findings are reported for African countries such as Kenya (Gitahi, Nasieku, & Memba, 2018) and Nigeria (Okoye & Onuora, 2019). In developed markets such as the US (Collins et al., 1997) and the UK (Lennox, Schmidt, & Thompson, 2023), earnings and book value also have value relevance, although this relevance seems to decrease over time.

After the adoption of the IFRS, research conducted to determine its impact on value relevance produced mixed results across different regions. In Europe, some studies found that after the IFRS adoption, there was no improvement in relevance in countries such as Greece (Jenkins, Kane, & Velury, 2009). However, other European studies reported increased relevance of earnings or book values post adoption in Germany, France, and Romania (Mulenga, 2016). In emerging Asian economies, findings vary; some studies indicate declining relevance in the UAE and Iran after IFRS adoption (Khanagha, 2011; Khanagha, Mohamad, Hassan, & Sori, 2011), while others show improved relevance in Pakistan and Indonesia (Lestari & Takada, 2015; Shehzad & Ismail, 2014). In Australia, most studies have not found a significant increase in relevance post IFRS (Chalmers, Clinch, & Godfrey, 2008).

In conclusion, extensive research consistently finds that key accounting metrics, such as earnings and book value, are associated with equity market values across various countries and time periods. This suggests that financial statement numbers broadly capture useful information that impacts share prices and returns for investors. However, the influence of IFRS implementation on the relevance and usefulness of accounting information is inconsistent, with results varying across regions and over time within specific countries. An important omission in the literature is the limited research on how corporate governance elements influence value relevance. Specifically, there is a lack of studies analyzing how board structure attributes, such as independence, size, and the number of meetings, modify the association between financial information and market values.

This is a key omission because agency and resource dependency theories imply that board mechanisms are important for reporting quality and monitoring, which should improve the accounting figures' value relevance in the end. There is, however, a dearth of empirical data on the effects of corporate governance. As a result, this indicates a topic that requires more investigation. In order to close this gap, the current study looks at how board independence, size, and meetings affect how valuable financial information is in a particular institutional setting. By examining these moderating effects, new information about the association between governance and the importance of accounting information for equity valuation will be added to the value relevance and corporate governance literature.

3.2. Corporate Governance and Board Characteristics

According to agency theory, by improved monitoring and a better caliber of financial reporting, corporate governance practices, including board independence, size, and meetings, can better align manager–shareholder interests and lower agency costs (Jensen & Meckling, 1976). One important element of corporate governance that might prevent managers from acting opportunistically is the board of directors (Bhagat & Bolton, 2008).

3.2.1. Board Independence

The percentage of non-executive, external directors on the board is referred to as board independence. More external directors can provide greater independence, which will improve management and executive oversight (Fama

& Jensen, 1983). Since they are not subject to management and have a motivation to establish a reputation as authorities in decision control, independent directors are considered more effective in their supervisory duties (Alzoubi, 2014). To decrease agency costs and ensure alignment between managers and shareholders in financial reporting, the board acts as a control mechanism (Vitolla, Raimo, & Rubino, 2020).

Research demonstrates that more board independence through improved scrutiny lowers anomalies and limits earnings management. For example, Klein (2002) discovered that, in US companies, increased board independence is associated with reduced earnings manipulation. Peasnell, Pope, and Young (2005) also found a negative correlation between income-increasing accruals in UK corporations and external directors. A large body of research suggests that greater board independence makes financial reporting seem more credible (Beasley, 1996). Imam and Jaber (2014) discovered that board independence increases the value relevance of accounting metrics, such as earnings and book values, for Bangladeshi companies. According to Alzoubi (2014) an increased number of independent directors seems to lead to superior financial reports that are deemed more credible by market participants.

However, some studies suggest that excessive independence may reduce the cohesion and advisory capabilities of a board if external directors lack sufficient firm knowledge (Adams & Ferreira, 2007). Therefore, an appropriate balance between internal and external directors may be optimal.

3.2.2. Board Size

The total count of directors is known as the board size. Larger boards, as per resource dependence theory, bring more diversity, experience, and resources, which boosts their monitoring capability (Pfeffer, 2019). Research by Xie, Davidson III, and DaDalt (2003) suggests that larger boards help to restrain manipulative practices, as indicated by the negative relationship between board size and earnings management in US corporations. Shehata, Salhin, and El-Helaly (2017) report a positive moderating effect of board size on the earnings–return connection for UK firms in terms of value relevance. Bigger boards seem to be better able to monitor management decisions and guarantee accurate financial reporting that serves the interests of shareholders (Alzoubi, 2014; Jaffar, Abu, Hassan, & Rahmat, 2023). Nevertheless, research also indicates that excessively big boards may cause coordination issues that weaken cohesiveness (Yermack, 1996). Thus, an optimal mid-range size seems most effective.

3.2.3. Board Meeting Frequency

Board meeting frequency is the number of times a board meets on a yearly basis. More meetings allow directors greater oversight opportunities (Abbott, Parker, & Peters, 2004). According to empirical research, board activity and profit manipulation in US companies are negatively correlated, as shown by Xie et al. (2003). This suggests that closer oversight through meetings can prevent manipulative behavior. In terms of value relevance, Ni, Cheng, and Huang (2021) found that more active boards increase intellectual capital disclosures in Taiwanese firms. Regular board meetings enhance the ability to address shareholder interests and oversee financial reporting (Florenzcia, Juniarti, & Christiawan, 2022). However, excessive meeting frequency can become unproductive (Vafeas, 1999). Moderately active boards that meet sufficiently but not excessively seem ideal. Extensive research indicates that appropriate levels of board independence, size, and meeting frequency can improve monitoring, reporting quality, transparency, and value relevance through closer oversight of management. However, excessive independence, size, or meetings may have diminishing returns. Optimal board structures are context-dependent.

4. HYPOTHESIS DEVELOPMENT

4.1. Board Independence and Firm Value

Increased board independence has been proposed to promote management control and monitoring while balancing the interests of managers and shareholders (Alzoubi, 2014). Research reveals that independent directors can effectively inhibit the manipulation of earnings and increase the reliability of financial reporting (Klein, 2002;

Peasnell et al., 2005). This suggests that accounting data is more transparent and credible when it is independent. The CGR 2017, which mandates that a minimum of one-third of directors should be independent, places a strong emphasis on the value of board independence in the Saudi environment (Capital Market Authority, 2020). It appears from this regulatory focus that independent directors are important for enhancing governance. Research demonstrates that, in a variety of situations, including in Bangladesh, board independence increases the value relevance of accounting information (Imam & Jaber, 2014). Even though family ownership prevents total independence, more board autonomy is nonetheless expected to improve the credibility of Saudi Arabian financial statements. Therefore, the hypothesis is:

H1: Independent boards play a positive moderating role in the connection between accounting information and firm value in Saudi listed companies.

4.2. Board Size and Firm Value

According to the theory of resource dependence, larger boards provide superior experience in terms of supervision (Pfeffer & Salancik, 2015). Studies have found that larger boards are linked to reduced earnings manipulation and better reporting quality (Xie et al., 2003) suggesting that financial information provided by larger boards may be more credible and therefore more relevant and valuable. In the KSA, while regulatory limits on board size are intended to improve efficiency, most boards are still relatively large, comprising nine members on average (Capital Market Authority, 2020). This suggests that larger boards are considered beneficial for governance. Also, empirical research reveals that the correlation between accounting information and market value is positively influenced by board size (Gandía, 2008). Although very large boards might be more difficult to coordinate, larger boards in Saudi Arabia are likely to improve the monitoring of company performance. Thus, the hypothesis is:

H2: Board size plays a positive moderating role in the connection between accounting information and firm value in Saudi listed companies.

4.3. Board Meetings and Firm Value

Directors are more likely to supervise financial reporting effectively when board meetings occur frequently (Abbott et al., 2004). Studies reveal that the more frequent the board meetings, the better the quality of reports and the value relevance of financial information (Ni et al., 2021; Xie et al., 2003) suggesting that regular meetings improve the reliability of financial data. Hence, in Saudi Arabia, a minimum number of board meetings is required in order to improve governance supervision (Capital Market Authority, 2020). This suggests that it is advantageous for boards to meet more frequently. According to empirical research, boards that are actively involved enhance the value relevance of accounting data (Barua, Rama, & Sharma, 2010). A reasonable increase in the number of board meetings is expected to strengthen governance in the KSA, even though too many meetings can become counterproductive. Hence, the third hypothesis is:

H3: Board meetings plays a positive moderating role in the connection between accounting information and firm value in Saudi listed companies.

In summary, the theories of agency and resource dependency suggest that board characteristics, such as independence, size, and frequency of meetings, can improve supervision and reporting quality, thereby increasing the relevance and value of financial information. The governance framework in Saudi Arabia mandates and supports these board characteristics, as their moderating effects are seen to benefit company performance and the economy in general.

5. RESEARCH DESIGN

To investigate the moderating effect of board attributes, a quantitative approach was adopted for this study. The quantitative methodology facilitates statistical analysis of numerical data, examining the association between financial reporting figures, governance variables, and firm value. Specifically, panel regressions are used to test the interactions between earnings, book values, board attributes, and share prices. This quantitative evaluation provides objective insights into how corporate governance complements financial reporting in influencing the market valuations of firms in the Saudi context.

5.1. Sample Selection and Data Collection

The study's five-year timeframe (2018 to 2022) was selected to include the introduction in 2017 of improved corporate governance laws and transparency mandates in Saudi Arabia. Prior to 2018, regulations did not require the disclosure of information pertaining to all board directors. Since 2018, Saudi corporate reporting aligns with international standards, ensuring the availability of data on directors' experience, backgrounds, etc. (Boshnak, 2022).

Between 2018 and 2022, 125 non-financial Saudi companies were listed, yielding a comprehensive sample of 625 firm-year observations. Financial firms were excluded as their governance standards are different. Also, to ensure consistency, Al-Abbas (2009) suggests that firms with non-standard fiscal years be omitted. A balanced panel comprising a consistent sample of 125 firms controls for firm-specific characteristics, improving comparability and control over subtle differences, which increases precision and addresses endogeneity concerns (Yildirim, 2021). The financial data was provided by Bloomberg, while the governance data was manually collected from the firms' annual reports.

5.2. Analytical Techniques

Following Ohlson (1995) the generalized linear model (GLM) and a panel price regression model (PRM) were adopted for this study. The GLM takes into account any patterns in residuals, changes in variance, and fluctuations (McCullagh, 2019) thereby offering more robust and reliable estimates. This approach differs from previous research methods (e.g., (Florenzcia et al., 2022; Jaffar et al., 2023)) that applied ordinary least squares (OLS), which is inadequate when dealing with non-normal residuals or heteroskedasticity and produces biased and inefficient estimates when encountering violated assumptions. OLS also assumes constant variance and cannot handle dynamic data, potentially producing inaccurate results. The book value of equity and earnings are the two factors that the price model uses to express the value of a company. The number of outstanding shares is used as a deflator, consistent with prior studies (Liu & García Lara, 2023). The panel data using the GLM technique allows the modeling of behavioral differences across firms and time periods (Barth, Li, & McClure, 2023). The basic model is represented by:

$$P_{it} = a_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it} \quad (1)$$

Where:

P_{it} is the share price of firm i four months after the end of a fiscal year.

$BVPS_{it}$ is the book value of equity per share reported for the firm at end year t.

EPS_{it} denotes the earnings per share that firm i reported for year t.

e_{it} is the error term.

An expanded price model is estimated with board characteristics acting as moderators; the interaction terms between board characteristics and accounting data are integrated to determine the moderating function of board features (Badu & Assabil, 2022). It is essential that the GLM technique be applied to the extended price model to understand whether and how board characteristics influence the significance and value of accounting data over time. The extended price model is written as:

$$P_{it} = a_0 + b_1 BVPS_{it} + b_2 EPS_{it} + b_3 BCHARA_{it} + b_4 BVPS_{it} * BCHARA_{it} + b_5 EPS_{it} * BCHARA_{it} + e_{it} \quad (2)$$

Where $BCHARA_{it}$ represents the moderating board characteristic variables for firm i at December 31 of year t; $BVPS_{it} * BCHARA_{it}$ and $EPS_{it} * BCHARA_{it}$ represent the interactions of board characteristics with $BVPS_{it}$ and EPS_{it} respectively.

The interaction coefficients b_4 and b_5 are significant, as they indicate whether board characteristics alter the relationship between accounting numbers and firm value compared to Model (1) without interactions. The results are significant and indicate a substantial moderating effect of board characteristics on the accounting–value relationship. Model (2) was estimated three times with different board characteristic variables—independence, size, and meetings—to test hypotheses 1, 2, and 3. Including interaction coefficients in Model (2) allows us to identify the impact of specific board characteristics on the relationship between a firm's accounting numbers and its market value.

5.3. Measurements of Variables

5.3.1. Dependent Variable

Market Value: Measured through the firm's share price (P), calculated as the share price as of April 30 after year-end, following Liu and García Lara (2023), Barth et al. (2023) and Ohlson (1995).

5.3.2. Independent Variables

Book Value of Equity Per Share (BVPS): The equity's book value, as reported, divided by the outstanding share count, following Badu and Assabil (2022), Barth et al. (2023), Chen, Kurt, and Wang (2020) and Ohlson (1995).

Earnings Per Share (EPS): The reported earnings per share, as used by Barth et al. (2023), Jara, López-Iturriaga, San-Martín, and Saona (2019), Kwon and Wang (2020) and Ohlson (1995).

5.3.3. Moderating Variables

Board Independence (BODIND): Determined as the proportion of independent directors on the board, obtained by dividing the number of independent directors by the total director count. This measurement is based on Benkel, Mather, and Ramsay (2006), Klein (2002), Ezat and El-Masry (2008), Habbash (2019), Jaggi, Leung, and Gul (2009) and Oba (2014).

Board Size (BODSIZE): Measured as the total number of directors on the board. This measurement is based on Ezat and El-Masry (2008), Habbash (2019), Kamolsakulchai (2015), Oba (2014), Xie et al. (2003) and Yu (2008).

Board Meetings (BODMEET): Calculated by the frequency of board meetings in a year. This measurement is based on Kaaroud, Mohd Ariffin, and Ahmad (2020) and Al-Absy, Ku Ismail, and Chandren (2019).

The definitions and measurements for each variable used in this study are summarized in Table 1.

Table 1. Variable definitions and measurements.

Variable	Acronym	Measurement	References
Share price	*P*	Equity price four months subsequent to the end of the fiscal year	Liu and García Lara (2023); Barth et al. (2023) and Ohlson (1995).
Book value of equity per share	*BVPS*	Reported book values of equity per share	Badu and Assabil (2022); Barth et al. (2023); Chen et al. (2020) and Ohlson (1995).
Earnings per share	*EPS*	Reported earnings per share	Barth et al. (2023); Jara et al. (2019); Kwon and Wang (2020) and Ohlson (1995)
Board of directors' independence	*BODIND*	Ratio of independent directors to total board members	Benkel et al. (2006); Ezat and El-Masry (2008); Habbash (2019); Jaggi et al. (2009); Klein (2002) and Oba (2014)
Board of directors' size	*BODSIZE*	Aggregate number of board members	Ezat and El-Masry (2008); Habbash (2019); Kamolsakulchai (2015); Oba (2014); Xie et al. (2003) and Yu (2008)
Board meeting frequency	*BODMEET*	Aggregate number of board meetings in a year	Kaaroud et al. (2020) and Al-Absy et al. (2019)

5.4. Regression Assumptions Assessment

In this study, the dependent and independent variables are presumed to exhibit a linear relationship. The regression assumptions must therefore be evaluated. Given the number of predictors, the sample size of 625 firm-year observations is deemed sufficient (Cohen, Cohen, West, & Aiken, 2013). Scatterplots were used to verify and satisfy linearity and homoscedasticity (Cohen et al., 2013). Concerns regarding autocorrelation are lessened by the 5-year panel arrangement. By winsorizing the data with severe standardized residuals, outliers were dealt with (Barth et al., 2023). Based on the central limit theorem, we can assume that the residuals follow a normal distribution because of the high sample size (Cohen et al., 2013). Finally, multicollinearity was checked and found to be non-problematic based on the variance inflation factors and correlation coefficients between predictors (see Tables 3, 4, and 5). Overall, the necessary assumptions for valid linear regression models are reasonably met.

5.5. Robustness Tests

An additional robustness check is the estimation of the return model, which includes interaction terms between board characteristics and accounting numbers, as suggested by Easton and Harris (1991):

$$Ret_{it} = b_0 + b_1\frac{EPS_{it}}{P_{it-1}} + b_2\frac{\Delta EPS_{it}}{P_{it-1}} + b_3BCHARA_{it} + \ b_4\frac{EPS_{it}}{P_{it-1}} * BCHARA_{it} + \ b_5\frac{\Delta EPS_{it}}{P_{it-1}} * BCHARA_{it} + \ e_{it} \qquad (3)$$

Where:

Ret_{it} captures the stock returns per share across a 12-month period that commences eight months prior to and concludes four months following the fiscal year-end. It is measured by the ratio $[(P_{it} + DPS_{it}) - \ P_{it-1}]/(P_{it-1})$, where P_{it-1} denotes share price at time t-1 (eight months preceding year-end), and DPS_{it} signifies the dividend per share for firm i over the course of year t.

The interaction terms can be used to investigate how board attributes moderate the relationship between accounting numbers and stock returns (b4 and b5). Section 6.1 provides an in-depth analysis of the robustness test model's findings.

6. RESULTS AND ANALYSIS

Descriptive statistics for a sample of 625 firm-years are shown in Table 2 for the variables used in the analysis. The dependent variable, share price (P), has a mean of 31.47 Saudi Riyals (SAR) and a standard deviation of 22.60. The primary independent variables are BVPS and EPS. BVPS averages 14.91 SAR with a standard deviation of 7.60 SAR, whereas EPS averages 0.57 SAR but has a higher standard deviation of 2.49 SAR.

Board size (BODSIZE), board independence (BODIND), and board meetings (BODMEET) are the moderating variables that indicate board characteristics. BODSIZE averages eight members, BODIND averages 47% of independent directors, and BODMEET averages five meetings per year. The combined effects of accounting factors and board characteristics are illustrated by the interaction terms between them. To lessen the impact of outlier observations, all variables were winsorized at three standard deviations. The minimum EPS value of -12.37 SAR indicates that both profitable and loss-making companies are included in the sample. For the Saudi listed companies examined, the table offers summary data that depicts the main regression variables' central tendencies, variations, and interactions overall.

The correlation matrix in Table 3 offers initial evidence on the relationships between the variables. In line with expectations, the accounting variables book value per share (BVPS) and earnings per share (EPS) exhibit positive and strong correlations with the dependent variable, share price (P). Among the moderating variables, BODSIZE correlates positively with share price, while BODIND shows an insignificant relationship. Interaction terms combining accounting variables and board characteristics *(BVPS*BODIND, EPS*BODIND, BVPS*BODSIZE, EPS*BODSIZE, BVPS*BODMEET*, and *EPS*BODMEET)* mostly exhibit positive correlations with share price at the 1% level, indicating their complementary valuation effects. Importantly, all correlations are below 0.8, alleviating serious multicollinearity concerns for the regression analysis. Overall, the preliminary correlations suggest that BVPS, EPS, and board size are positively associated with firm value, while independence shows little relationship. The interactions between accounting and governance variables generally align with expectations.

Table 4 presents the baseline price regression results. The positive and significant coefficient on BVPS of 1.046 (Chi-Square = 29.048) at the 1% level indicates that a 1 SAR increase in BVPS is associated with a 1.046 SAR increase in share price. Similarly, the EPS coefficient of 3.265 (Chi-Square = 22.677) at the 1% level suggests that a 1 SAR rise in EPS corresponds to a 3.265 SAR increase in share price. The substantial explanatory power is evidenced by an adjusted R-squared of 35.9% (F-stat = 175.631) at the 1% level.

The value relevance of both accounting variables for stock valuation is demonstrated by the data, which shows a substantial positive link between them and share price at the 1% significance level. When comparing EPS to BVPS, the higher coefficient and Chi-Square statistic on EPS suggest that EPS and share price have a better relationship in explaining business value. Over one-third of the fluctuation in share prices may be explained by BVPS and EPS, according to the explanatory power.

In line with theoretical assumptions, the baseline regression validates the positive and considerable value significance of book value and earnings per share at the 1% level. The valuation responsibilities of BVPS versus EPS are supported by the respective magnitude and significance of the coefficients.

The regression analysis that looks at the moderating impact of board composition on the correlation between share price and accounting data is shown in Table 5. With board independence taken into account, Panel A displays an adjusted R-squared of 38.8%. Panel C, which includes board meetings, generates an adjusted R-squared of 46.5%, while Panel B, which deals with board size, yields an adjusted R-squared of 45.9%. The inclusion of interactions between accounting and governance variables improves the valuation model, as shown by Table 4's better explanatory power when compared to the base model.

Panel A displays an insignificant BVPS*BODIND term but a substantial positive coefficient on the EPS*BODIND interaction term (Chi-Square = 6.362, $p < 0.01$). The EPS and share price association is positively moderated by board independence, while the BVPS relationship is not considerably impacted by it. In particular, an increase of one percentage point in the proportion of BODIND boosts the EPS coefficient by 7.777 SAR, thus supporting H1, that is, that board independence increases the relevance of earnings to value.

Panel B displays a negligible BVPS*BODSIZE term but a substantial positive coefficient on the EPS*BODSIZE interaction term (Chi-Square = 14.818, $p < 0.01$). This implies that while board size has no discernible impact on the BVPS association, it positively moderates the EPS–price link. In particular, an increase in board size of one member causes an increase in the EPS coefficient of 1.044 SAR, which is consistent with H2, that is, that board size enhances and supplements the valuation role of earnings.

Lastly, Panel C displays an insignificant BVPS*BODMEET term and a substantial positive coefficient on the EPS*BODMEET interaction term (Chi-Square = 9.923, $p < 0.01$). This suggests that although board meetings have no discernible impact on the BVPS relationship, they do positively moderate the EPS–price association. More specifically, the EPS coefficient is increased by 15.147 SAR by adding an extra annual board meeting.

Overall, the interactions demonstrate that corporate governance through board attributes positively moderates the usefulness of EPS for equity valuation, supporting hypotheses 1, 2, and 3, while BVPS remains unaffected. The findings emphasize the complementary valuation role of board characteristics with EPS.

Table 2. Descriptive statistics.

Variable	N	Minimum	Maximum	Mean	Std. deviation
P	625	2.02	133.40	31.47	22.60
BVPS	625	0.00	62.02	14.91	7.60
EPS	625	-12.37	24.41	0.57	2.49
BODIND	625	0.00	1.13	0.47	0.15
BODSIZE	625	4.00	11.00	8.07	1.52
BODMEET	625	0.00	25.00	5.36	2.18
*BVPS*BODIND*	625	0.00	38.38	7.01	4.36
*EPS*BODIND*	625	-8.24	17.43	0.26	1.29
*BVPS*BODSIZE*	625	0.00	540.42	122.26	68.70
*EPS*BODSIZE*	625	-85.46	170.84	5.28	19.63
*BVPS*BODMEET*	625	0.00	468.08	79.05	51.25
*EPS*BODMEET*	625	-57.70	126.50	2.84	13.48

Financial data is presented in Saudi Riyals (SAR). Variables have been adjusted to fall within three standard deviations.

Table 3. The correlation coefficients among the study's variables.

Variable	P	BVPS	EPS	BODIND	BODSIZE	BODMEET	BVPS*BODIND	EPS*BODIND	BVPS*BODSIZE	EPS*BODSIZE	BVPS*BODMEET	EPS*BODMEET
P	1											
BVPS	0.501**	1										
EPS	0.498**	0.437**	1									
BODIND	-0.072	-0.06	-0.037	1								
BODSIZE	0.156**	0.173**	0.182**	-0.193**	1							
BODMEET	0.056	-0.052	-0.039	-0.023	0.077	1						
BVPS*BODIND	0.194**	0.438**	0.208**	0.486**	0.091*	-0.071	1					
EPS*BODIND	0.511**	0.376**	0.706**	0.071	0.236**	0.02	0.338**	1				
BVPS*BODSIZE	0.395**	0.771**	0.388**	-0.118**	0.527**	-0.037	0.536**	0.411**	1			
EPS*BODSIZE	0.585**	0.396**	0.677**	-0.077	0.356**	0.035	0.192**	0.906**	0.470**	1		
BVPS*BODMEET	0.357**	0.630**	0.293**	-0.072	0.255**	0.468**	0.432**	0.344**	0.764**	0.380**	1	
EPS*BODMEET	0.581**	0.377**	0.640**	-0.041	0.271**	0.178**	0.200**	0.852**	0.425**	0.954**	0.423**	1

Note: Significant correlations are shown by ** and * at the two-tailed 1% and 5% levels, respectively.

Table 4. Summary of the GLM regression results of the value relevance of accounting information.

$P_{it} = a_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$						
Years	**N**	**Intercept**	**BVPS**	**EPS**	**Adj. R2**	**Max. VIF**
2018–2022	625	14.046	1.046	3.265	35.90%	1.235
		(21.863)**	(29.048)**	(22.677)**	{175.631}**	

Note: The Wald chi-square test values are shown in parentheses (), and the F-test values are in curly brackets {}.
** indicates a 0.01 significance level. All variables are adjusted to fall within three standard deviations and are deflated by the number of outstanding shares.

Table 5. An overview of the findings from the GLM model examining the moderating influence of board independence (Panel A), board size (Panel B), and board meetings (Panel C) on the value relevance of accounting information.

Panel A: Moderating influence of board independence on the usefulness of accounting information: H1									
$P_{it} = a_0 + b_1 BVPS_{it} + b_2 EPS_{it} + b_3 BODIND_{it} + b_4 BVPS_{it} * BODIND_{it} + b_5 EPS_{it} * BODIND_{it} + e_{it}$									
Years	**N**	**Intercept**	**BVPS**	**EPS**	**BODIND**	**BVPS*BODIND**	**EPS*BODIND**	**Adj. R2**	**Max. VIF**
2018–2022	625	0.879	1.983	6.622	0.272	-0.02	7.777	38.80%	2.189
		(0.019)	(20.478)**	(15.698)**	(0.325)	(1.913)	(6.362)**	{79.969}**	
Panel B: Moderating influence of board size on the usefulness of accounting information : H2									
$P_{it} = a_0 + b_1 BVPS_{it} + b_2 EPS_{it} + b_3 BODSIZE_{it} + b_4 BVPS_{it} * BODSIZE_{it} + b_5 EPS_{it} * BODSIZE_{it} + e_{it}$									
Years	**N**	**Intercept**	**BVPS**	**EPS**	**BODSIZE**	**BVPS*BODSIZE**	**EPS*BODSIZE**	**Adj. R2**	**Max. VIF**
2018–2022	625	20.943	0.383	-4.729	-0.758	0.064	1.044	45.90%	4.141
		(2.876)*	(0.209)	(5.567)*	(0.242)	(0.369)	(14.818)**	{106.926}**	
Panel C: Moderating influence of board meetings on the usefulness of accounting information: H3									
$P_{it} = a_0 + b_1 BVPS_{it} + b_2 EPS_{it} + b_3 BODMEET_{it} + b_4 BVPS_{it} * BODMEET_{it} + b_5 EPS_{it} * BODMEET_{it} + e_{it}$									
Years	**N**	**Intercept**	**BVPS**	**EPS**	**BODMEET**	**BVPS*BODMEET**	**EPS*BODMEET**	**Adj. R2**	**Max. VIF**
2018–2022	625	7.115	1.188	2.86	1.352	-0.036	15.147	46.50%	2.934
		(1.548)	(8.371)**	(3.381)*	(1.722)	(0.221)	(9.923)**	{109.344}**	

Note: The Wald chi-square test values are shown in parentheses (), and the F-test values are in curly brackets {}. ** and * indicate significance at the two-tailed 1% and 5% levels, respectively. All variables are adjusted to fall within three standard deviations and are deflated by the number of outstanding shares.

6.1. Robustness Test

Additional tests were conducted with an alternative model specification using stock returns as the dependent variable to confirm the robustness of the findings. This model evaluated the moderating influence of board characteristics on the relationship between stock returns, changes in EPS (ΔEPS), and earnings per share (EPS). The results were consistent when stock returns replaced share prices, showing significant and positive associations for the interaction terms between EPS, ΔEPS, and board independence (EPS*BODIND: $B = 0.205$, $p < 0.001$; ΔEPS*BODIND: $B = 0.308$, $p < 0.001$), indicating that board independence enhances the value relevance of both EPS and ΔEPS. Similarly, significant positive coefficients for the interaction terms between EPS, ΔEPS, and board size (EPS*BODSIZE: $B = 0.071$, $p < 0.05$; ΔEPS*BODSIZE: $B = 0.202$, $p < 0.001$) suggest that a larger board size improves the utility of EPS and ΔEPS for equity valuation. Furthermore, the interaction terms between EPS, ΔEPS, and board meetings (EPS*BODMEET: $B = 0.025$, $p < 0.05$; ΔEPS*BODMEET: $B = 0.173$, $p < 0.001$) also yielded positive and significant results, providing further evidence that more frequent board meetings enhance the value relevance of both EPS and changes in EPS.

Across a range of model parameters that used share prices or returns, the direction and significance of the relationships between the value relevance of EPS and board attributes (size, independence, and meetings) remained unchanged. This consistency demonstrates that the findings hold true irrespective of the dependent variable in the model. The combined results of these studies demonstrate how beneficial board oversight, knowledge, and effort are in raising the importance of earnings for Saudi listed companies.

7. DISCUSSION

The results clearly show that the characteristics of corporate boards can greatly improve the usefulness of the financial reports of Saudi listed firms for the purpose of equity valuation. The positive links between EPS and board characteristics, such as independence, size, and meeting frequency, provide strong support for both the agency theory and resource dependency theory.

Specifically, greater board independence improves EPS value relevance since independent directors are more strongly motivated to ensure credible financial reporting through diligent oversight (Fama & Jensen, 1983; Jensen & Meckling, 1976). This aligns with the finding of extensive prior research that independence curbs earnings management and improves relevance in various international contexts, including Greece (Dimitropoulos & Asteriou, 2010), Portugal (Alves, 2014) and Taiwan (Chi, Hung, Cheng, & Lieu, 2015).

The findings, which highlight the importance of independent oversight, also align with those of studies focused on the Saudi context. Alotaibi and Hussainey (2016) found that the independence of boards improves the quality of disclosures made by Saudi firms, while Alzoubi (2014) linked it to a decrease in earnings manipulation, which is consistent with agency theory. In Saudi Arabia, where there is a concentration of family ownership of firms, it is crucial to have independent directors to protect minority shareholders (Eulaiwi, Al-Hadi, Taylor, Al-Yahyaee, & Evans, 2016). This is consistent with world-wide research which has found that independence can help to prevent controlling shareholders from profiting from private gains (La Porta, Lopez-de-Silanes, & Shleifer, 1999).

Similarly, the positive impact of board size supports resource dependence theories positing that larger boards offer more expertise, experience, and oversight capabilities, thereby improving financial reporting (Dalton & Dalton, 2005; Pfeffer, 2019). This finding is consistent with studies that show that bigger boards discourage deception and manipulation, raising value relevance generally in countries such as the US (Beasley, 1996) and more particularly in Saudi Arabia (Habbash, 2019). Larger boards in Saudi Arabia can offer a diverse range of perspectives that help to improve oversight. However, studies conducted by Yermack (1996) and others have found that that smaller boards might be more successful. Hence, there is a need for greater research in this area.

Furthermore, the positive impact of more frequent board meetings on EPS relevance supports the argument that diligence and scrutiny in meeting responsibilities improve the quality of reporting (Jensen, 1993). This is consistent with evidence linking board activity to timely reporting and a decrease in earnings management in Malaysia (Kaaroud et al., 2020), Saudi Arabia (Habbash, 2019), and globally (Xie et al., 2003).

However, the significance of book value per share remained unchanged, indicating that the primary focus of independent directors' monitoring incentives appears to be earnings that can be manipulated rather than balance sheet metrics that are more difficult to control. This is in line with the agency theory which postulates that performance indicators based on profit are more susceptible to manipulation of earnings (Healy, 1985). However, Barth et al. (2023) found that governance can also boost the relevance of book value, suggesting the need for more research.

8. CONCLUSION

This study investigated the moderating impact of corporate board attributes on the usefulness of accounting information of Saudi listed firms. The study aimed to determine if board independence (H1), size (H2), and frequency of meetings (H3) improved the book value and earnings contributions to stock valuation.

The results clearly show that, for Saudi listed companies, book value per share (BVPS) is not as valuable as earnings per share (EPS), but rather EPS value relevance is enhanced by corporate board independence, size, and diligence. The correlation between share price and earnings is strengthened and information asymmetry is lessened by governance structures such as boards, as seen by the positive interactions observed between EPS and board characteristics. This is in line with notions of resource dependency, which hold that board expertise increases relevance, and agency theory, which holds that governance monitoring increases transparency. Overall, the results highlight the complementary roles that more active, bigger, and more independent Saudi boards have in improving the value of earnings for equity valuation, highlighting the interdependence of corporate governance and financial transparency.

9. RESEARCH IMPLICATIONS AND CONTRIBUTIONS

9.1. Research Contributions

This work makes several important contributions to the literature. Regarding the Saudi context, it offers new proof that the independence, size, diligence, and experience of the board significantly increase the value relevance of earnings data, improving financial transparency and providing more informational value for local investors. This underscores the crucial complementary role that corporate governance plays in strengthening the credibility and decision-making usefulness of financial reporting in a jurisdiction with concentrated ownership and limited transparency. The results highlight the need for ongoing governance reforms to strengthen board monitoring and expertise to further improve reporting quality and value relevance amid information asymmetry. This study highlights the global significance of both efficient boards and transparent reporting, which contributes to the body of knowledge on the link between accounting and governance.

9.2. Research Implications

The implications of the study's findings carry substantial significance for a diverse range of stakeholders. For regulators, the results highlight the need for ongoing governance reforms to improve board independence, size, expertise, and diligence requirements to strengthen the credibility of financial reporting in alignment with the goals of Vision 2030. Such reforms are a crucial means of boosting market trust and integrity, as they ensure that corporate boards are well-equipped to oversee financial reporting processes effectively and transparently.

For investors, this research highlights the criticality of thoroughly examining disclosures related to board characteristics. Such assessments are essential for gauging the effectiveness of oversight mechanisms and the credibility of reported earnings, particularly in the presence of information asymmetry. By carefully noting the governance structures of firms, investors can make more informed decisions and better evaluate the potential risks and returns associated with their investments. This heightened scrutiny helps investors to identify companies with strong governance practices that are likely to produce more reliable and accurate financial reports.

For corporate boards, the findings emphasize the reputational benefits of ensuring adequate independence, diligence, experience, and skill. Improving these features can tangibly enhance investors' perceptions of financial reporting quality and transparency. Therefore, the corporate boards of Saudi listed firms should focus on strengthening their governance practices by appointing independent directors with relevant expertise, ensuring regular and diligent board meetings, and fostering a culture of accountability and transparency. By doing so, they can build greater confidence among investors and other stakeholders, ultimately contributing to the overall health and stability of the financial markets.

10. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

While this study offers insightful information, there are a few important points to be aware of. Firstly, as a single-country study concentrating exclusively on Saudi Arabia, the generalizability of the findings is limited. The distinct governance context in Saudi Arabia, characterized by concentrated family ownership and inadequate transparency, may restrict broader applicability of the results. Secondly, this study focused solely on non-financial firms, neglecting the potentially different governance dynamics within financial firms, which were not captured in the analysis. Additionally, the study relied on a narrow set of proxy measures to evaluate board effectiveness, overlooking the intricate aspects of board governance.

To advance our understanding of the connection between board characteristics and better-quality financial reporting, future research can explore several avenues. First, a more comprehensive data set comprising primary data collected via surveys and interviews would facilitate a deeper understanding of board dynamics, expertise, and activities. This approach would enable researchers to gather detailed information about the internal functioning of boards, the specific skills and backgrounds of board members, and how these factors shape financial reporting practices. Second, it would be beneficial to explore alternative indicators of governance quality beyond the commonly-examined factors of independence, size, and frequency of meetings. An investigation into the impact of board diversity, the presence of financial experts, or the structure of board committees could offer a more holistic perspective of the way governance influences the quality of financial reporting. By adopting these approaches, future research can offer a more nuanced and comprehensive insight into the relationship between corporate boards and financial reporting. Third, a comparative analysis of the relationship between the board and financial reporting across multiple jurisdictions can improve the generalizability of findings. By comparing different regulatory environments, cultural contexts, and market conditions, researchers can identify universal principles of effective governance as well as context-specific factors that determine the quality of financial reporting. Finally, causality can be explored more effectively by using quasi-experimental approaches leveraging policy shocks. For example, analyzing the impact of sudden regulatory changes or unexpected governance reforms can help isolate the effects of specific governance practices on financial reporting outcomes. These quasi-experimental designs can provide stronger evidence of causal relationships by controlling for confounding variables and mitigating endogeneity issues.

In conclusion, the suggested research directions have the potential to significantly enhance our understanding of the intricate connection between corporate governance practices and financial reporting quality. Continuing to explore how board composition, activities, expertise, and dynamics intersect with financial accounting quality and transparency remains a crucial and ongoing research focus. This study makes a meaningful contribution by providing empirical evidence that corporate boards play a complementary role in enhancing the value relevance and decision usefulness of financial reporting for shareholders in Saudi Arabia. While acknowledging the research limitations, the findings underscore the crucial interconnections between governance mechanisms and the quality and transparency of financial accounting information. Subsequent research can expand upon these findings to obtain deeper insights into this relationship, both within Saudi Arabia and internationally.

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