The current issue and full text archive of this journal is available on Emerald Insight at:
https://www.emerald.com/insight/1985-9899.htm

Received 16 February 2023
Revised 12 June 2023
Accepted 8 July 2023

The influence of board size and board independence on triple bottom line reporting

Ahmad Hakimi Tajuddin
School of Accounting and Finance, Faculty of Business and Law, Taylor's University, Subang Jaya, Malaysia and
Digital Economy and Business Transformation Impact Lab, Taylor's University, Subang Jaya, Malaysia
Shabiha Akter
Department of Business Administration, East West University, Dhaka, Bangladesh, and
Rasidah Mohd-Rashid and Waqas Mehmood
School of Economics, Finance and Banking, Universiti Utara Malaysia, Sintok, Malaysia

Abstract

Purpose – The purpose of this study is to examine the associations between board size, board independence and triple bottom line (TBL) reporting. The TBL report consists of three components, namely, environmental, social and economic indices.

Design/methodology/approach – This study's sample consists of top 50 listed companies from the year 2017 to 2019 on Tadawul Stock Exchange. Ordinary least squares, quantile least squares and robust least squares are used to investigate the associations between board characteristics and TBL reporting, including its separate components.

Findings – The authors find a significant negative association between TBL reporting and board independence. Social bottom line is significantly and negatively related to board size and board independence. Results indicate that board independence negatively influences the TBL disclosure of companies. Therefore, companies are encouraged to embrace TBL reporting. This suggests that businesses should improve the quality of their reporting while ensuring that voluntary disclosures reflect an accurate and fair view in order to preserve a positive relationship with stakeholders.

Originality/value – The present study explains the evidence for the determinants of the TBL in Saudi Arabia.

Keywords Board size, Board independence, Triple bottom line, Saudi Arabia listed companies

Paper type Research paper

1. Introduction

Sustainability reporting has become an essential element in corporate reporting, aiming to analyze a company's economic, environmental and social impacts resulting from its daily

© Ahmad Hakimi Tajuddin, Shabiha Akter, Rasidah Mohd-Rashid and Waqas Mehmood. Published in *Arab Gulf Journal of Scientific Research*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at http://creativecommons.org/licences/by/4.0/legalcode

The authors would like to acknowledge the research support from CIRI Seed Fund (CIRI-SEED/1/2022/SOAF/001) provided by the Taylor's University.

Since acceptance of this article, the following author(s) have updated their affiliation: Waqas Mehmood is at the School of Accounting and Finance, Faculty of Business and Law, Taylor's University, Subang Jaya, Malaysia.

Arab Gulf Journal of Scientific Research
Vol. 42 No. 3, 2024
pp. 1026-1043
Emerald Publishing Limited
e-ISSN: 2536-0051
p-ISSN: 1985-9899
DOI 10.1108/AGJSR-02-2023-0061

operations (Ligorio *et al.*, 2022; Pizzi *et al.*, 2022). The integration of sustainability into corporate beliefs and objectives has become commonplace in today's dynamic business environment, and sustainability reporting plays a crucial role in ensuring businesses analyze their impacts on sustainability concerns and promote transparency about the risks and opportunities they face. Triple bottom line (TBL) reporting, which combines financial and nonfinancial aspects, is a significant component of sustainability reporting (Jackson *et al.*, 2020; Kent and Monem, 2008; Nursimloo *et al.*, 2020). TBL reporting emphasizes the interconnectedness between profit, people and the environment, considering each dimension as a distinct bottom line with equal importance and benefits (Willard, 2012). The three bottom lines are interrelated, and if one dimension fails, the entire concept of TBL collapses. Therefore, it is crucial for businesses to maintain and balance all three dimensions to ensure long-term viability (Kent and Monem, 2008; Nursimloo *et al.*, 2020).

Developed countries such as Australia, New Zealand, the United Kingdom and the United States have shown significant attention to TBL reporting, with companies adopting extensive measures to disclose their TBL dimensions (Azevedo and Barros, 2017; Jennifer Ho & Taylor, 2007; Nursimloo *et al.*, 2020). These nations recognize that companies should be evaluated not only based on their financial performance but also on their contribution to society and the environment. However, it is important to conduct similar studies in emerging markets like Africa, Gulf countries, India and China to understand how developing nations have embraced TBL reporting. Such research can contribute to the establishment of transparent and accountable governance systems in top companies, enhancing stakeholder understanding (Roy and Mitra, 2015).

Using economic and financial measures alone to assess corporate performance may not be adequate for stakeholders such as the government and shareholders. They are concerned with the company's social responsibility, including aspects like avoiding child labor, sweatshops and operating in countries without human rights violations. Stakeholders also seek to ensure compliance with environmental regulations and reduction of carbon footprint and global warming (Roy and Mitra, 2015). TBL reporting addresses these concerns by increasing the transparency of business activities and providing a broader understanding to stakeholders for informed decision-making. It serves as a better measurement for the disclosure of meaningful nonfinancial aspects of a company (Roy and Mitra, 2015). To adopt TBL reporting, companies must disclose their performance in the environmental, social and economic dimensions transparently in their public reporting and communication. This transparency and accountability ensure stakeholders' understanding of the company's challenges and increase their involvement in the TBL process (Roy and Mitra, 2015).

While TBL reporting is a crucial aspect of sustainability reporting, its relationship with board independence and board size requires further examination. Corporate governance issues have gained significant public interest, particularly after various corporate scams and scandals. The board of directors plays a key role in monitoring management actions and ensuring they align with shareholders' interests (Jensen and Meckling, 1976). Independent board members contribute to reducing agency costs and preventing management from misusing company resources (Hillman and Dalziel, 2003). Board size also influences the monitoring system and decision-making processes, ultimately enhancing long-term company performance (Haniffa and Hudaib, 2006).

Institutional variations across nations, including political, legal, financial and regulatory systems, have a significant impact on agency costs resulting from ownership and control separation (Jensen, 1993). Ahmed *et al.* (2006) support this notion by highlighting the substantial effects of institutional differences on company performance, encompassing financial, legal, political and regulatory systems, as well as internal control systems (Alshetwi, 2017; Hamdan & Al Mubarak, 2017). Saudi Arabia, with its tribal structure and power concentrated in the hands of influential individuals, exhibits distinct characteristics that can lead to cronyism and nepotism, influencing the selection of board members based on

relationships rather than expertise (Haniffa and Hudaib, 2007). This pattern may increase board size quantitatively but diminish its quality, as individuals may not meet the position requirements. The higher remuneration paid to board members can also lead to decreased effectiveness and increased expenses (Haniffa and Hudaib, 2007).

Saudi Arabia, as one of the G20 countries, possesses abundant natural resources and heavily relies on the petroleum industry, making it a global energy superpower (Sarrakh *et al.*, 2020). The country is considered a top player in the Gulf region and has over $34 trillion worth of natural resources. Saudi Arabia's Vision 2030 emphasizes poverty eradication, balanced development and environmental concerns to achieve economic diversification and promote human well-being. The Tadawul, the Saudi Arabian stock exchange, is home to Saudi Aramco, the world's most valuable company (Paraskova, 2020). Although Saudi Arabia ranks 24th in global competitiveness, it remains vulnerable to information asymmetry, which is relatively higher in transitional markets compared to developed markets (Eldomiaty, 2008; Al-Tahqani and Boulanouar, 2017). Sustainability reporting has gained significant traction worldwide, including in Saudi Arabia, as companies are expected to disclose their social, environmental and economic performance (Kane, 2017). The Tadawul has introduced reforms to encourage Saudi companies to disclose their TBL elements and sustainable practices. However, the disclosure of TBL aspects by listed companies in Saudi Arabia remains inadequate, indicating room for improvement (Kane, 2017).

In summary, sustainability reporting, including TBL reporting, has become essential for companies to assess their impacts on sustainability concerns and ensure transparency in disclosing risks and opportunities. TBL reporting combines financial and nonfinancial dimensions, emphasizing the interrelation between profit, people and the environment. Developed countries have widely embraced TBL reporting, but similar research is necessary in emerging markets to promote transparency and accountability. Stakeholders demand a broader understanding of a company's nonfinancial aspects, and TBL reporting serves as a proactive step to increase transparency and facilitate better decision-making. Board independence and size are important elements of corporate governance that can influence a company's TBL reporting. Further exploration of the relationship between board characteristics and TBL reporting can provide valuable insights and help address information asymmetry (Al-Tahqani and Boulanouar, 2017; Eldomiaty, 2008).

The remainder of this paper is organized as follows: Section 2 discusses the underlying theories and empirical literature, Section 3 describes the data and methodology, Section 4 provides the results and findings and Section 5 concludes the paper.

2. Literature review

In discussing the TBL reporting, several theories such as agency theory, legitimacy theory and stakeholder theory are brought forth to understand the TBL reporting of a company. Agency model is one of the most discussed theories in the literature on corporate governance. However, this study uses other relevant underlying theories which are discussed in this section to examine the relationships between the main independent variables and TBL reporting. The theories are stakeholder theory and legitimacy theory, both of which are prominent theories that have drawn the most attention of researchers. Furthermore, these theories provide insights into an important issue in TBL reporting.

Stakeholders encompass individuals or groups affected by a company's objectives and operations, such as investors, consumers, suppliers, the government, society and environmentalists (Sternberg, 2019). According to stakeholder theory, a company's success hinges on satisfying the needs of all stakeholders, rather than solely focusing on shareholders (Sternberg, 2019). Transparency and disclosure of a company's actions, be they financial or nonfinancial, are crucial for stakeholders to understand the company's goals and operations

(De Villiers and Alexander, 2014). Stakeholder theory assumes that all stakeholders, including shareholders, consumers, creditors and society, should be treated equally, emphasizing accountability to these groups (Parmar *et al.*, 2010). It is important to distinguish between business objectives and ethics, as they are not inherently equivalent (Parmar *et al.*, 2010). In recent years, transparency and accountability have gained prominence in the business world due to their significant impact on a company's profitability and reputation (Danker, 2013). The scale of modern corporations necessitates their accountability to various segments of society, not just shareholders (Danker, 2013). TBL reporting, aligned with stakeholder theory, allows corporations to transparently address the demands and concerns of diverse stakeholder groups, ensuring their activities are in line with stakeholder interests (Parmar *et al.*, 2010). Board independence and size serve as mechanisms to protect and represent stakeholder interests. Independent directors are more likely to consider a broader stakeholder perspective, while an appropriate board size facilitates efficient decision-making and oversight. The TBL concept, which encompasses social, environmental and financial aspects, aligns with stakeholder theory. It encourages businesses to integrate social and environmental considerations into their decision-making processes, acknowledging the impact on stakeholders beyond financial outcomes. Both stakeholder theory and the TBL concept share the goal of promoting corporate responsibility and long-term value creation.

Legitimacy theory asserts that a company's survival depends on its ability to ensure that its benefits outweigh its costs to society (Deegan, 2002). Corporate governance practices can be adopted by companies to enhance their legitimacy among society members. The TBL approach is closely aligned with legitimacy theory, as it enables companies to address societal expectations and concerns regarding economic, social and environmental impacts. By considering the interests of diverse stakeholders and integrating sustainability into their operations, companies demonstrate their commitment to maintaining legitimacy (Deegan, 2002). Legitimacy theory suggests that companies should act in ways that align with societal expectations, values and norms. Board independence and an appropriate board size contribute to transparent and accountable decision-making, enhancing the perceived legitimacy of a company's governance processes. The adoption of the TBL principles further strengthens a company's commitment to address societal concerns and sustainability, reinforcing its overall legitimacy. TBL reporting serves as a means to disclose pertinent information about these practices to society (Anner, 2012). For companies to sustainably achieve the TBL, they must effectively communicate and inform society about their practices. Failure to align the company's TBL with practices that negatively impact society and the environment can erode its legitimacy in the eyes of society. Therefore, the significance of legitimacy theory for companies in terms of TBL reporting cannot be underestimated, and companies must ensure that their TBL reporting meets society's standards (Crespin-Mazet and Dontenwill, 2012).

Several studies have examined various aspects of sustainability reporting and disclosure, including the comparison of reporting standards (Ligorio *et al.*, 2022; Pizzi *et al.*, 2022), examination of sustainability practices in specific sectors (Ligorio *et al.*, 2022) and investigation of the institutionalization of social and environmental accounting practices (Pizzi, Principale, Fasiello, & Imperiale, 2023). While these studies do not directly address the relationship between board independence and size and TBL reporting, they provide valuable insights into the broader context of sustainability reporting practices. In the current business environment, a company's sustainability is measured not only by economic aspects but also by its incorporation of environmental and social considerations into its operations. Stakeholder pressure has led companies to disclose their utilization of finite resources and adopt sustainable practices to ensure long-term viability and resource preservation for future generations. The TBL approach, as proposed by Elkington (1998), has been widely used to assess the sustainability of companies. It emphasizes the equal commitment of companies to the economic, social and environmental dimensions. Companies must pledge to all three

bottom lines to sustain their operations. Stakeholders are increasingly demanding companies to disclose both financial and nonfinancial information, aligning with the TBL concept (Hourneaux, Gabriel, da, & Gallardo-Vázquez, 2018). The economic bottom line focuses on a company's financial performance and the creation of value and growth, while ensuring fair distribution of profits to stakeholders to avoid financial problems (Jennifer Ho & Taylor, 2007). The social bottom line highlights the company's contribution to society and consideration of stakeholder impacts for sustainable development (Sanan, 2018). Companies need to positively contribute to human capital and society. The environmental bottom line involves protecting the environment during business activities, implementing sustainable practices and promoting efficient use of energy and waste reduction (Schroeder and DeNoble, 2014). These concepts and findings contribute to understanding the factors that shape TBL reporting practices, including the potential role of board independence and size.

Board size and board independence have garnered attention in corporate governance regulations globally. Research on their influence on TBL reporting yields inconsistent conclusions. Board size refers to the total number of directors, indicating a large or small board. A large board comprises diverse experts with extensive expertise, beneficial for problem identification. Studies on board size present varying findings. For instance, Potharla and Amirishetty (2021) find a nonlinear relationship between board size, board independence and firm performance in India. Kweh, Lu, Ting, and Thi My Le (2022) propose a cubic S-curve relationship between board independence and intellectual capital efficiency, considering firm size. Kilincarslan (2021) explores the impact of board independence on dividend policy in family firms. Other studies investigate the influence of board independence on corporate governance, including corporate and social responsibility (CSR) reporting (Al Fadli, Sands, Jones, Beattie, & Pensiero, 2020), CSR performance (Agarwala, Pareek, & Sahu, 2022), asset redeployability (Padungsaksawasdi, Treepongkaruna, Jiraporn, & Uyar, 2022) and financial reporting quality (Porter and Sherwood, 2023). The effects of board size and composition on CSR disclosure have been examined in the banking sectors of Bangladesh (Rouf and Hossan, 2021). Additionally, board composition's relationship with firm performance has been studied internationally (Pucheta-Martínez and Gallego-Álvarez, 2020), as well as the impact of board composition and ownership structure on dividend payout policy in Saudi Arabia (Boshnak, 2021). Literature emphasizes the context-specific nature and complexity of the relationship between board size, independence, composition and firm outcomes. Regarding TBL reporting, Khaireddine, Salhi, Aljabr, and Jarboui (2020) found a positive relationship between board size and TBL reporting, implying that organizations with larger boards are more likely to engage in comprehensive reporting. This finding is supported by Jizi (2017), Sankara, Lindberg, and Nowland (2017), Ahmad *et al.* (2019) and Nursimloo *et al.* (2020), who highlight the positive influence of a large board on TBL reporting. Nursimloo *et al.* (2020) emphasize the significance of board characteristics, particularly board size, in shaping sustainability reporting practices. Conversely, Ciampi (2015) suggests that a larger board may not necessarily facilitate TBL reporting as directors may prioritize monitoring and coordination instead. Overall, the literature showcases the nuanced nature of the relationship between board size, independence, composition and firm outcomes, with some studies indicating nonlinear or contingent effects. In terms of TBL reporting, larger boards are more likely to engage comprehensively, but other factors and priorities may influence the actual reporting practices. Moreover, a large board could hinder the TBL reporting due to misunderstandings and disagreements that could emerge, unlike with a smaller board size, rendering monitoring useless. In line with this, the following hypothesis is investigated:

H1. There is a significant relationship between board size and the TBL disclosure.

The literature on board independence examines its impact on firm performance and governance. Studies reveal mixed findings regarding the relationship between board

independence and firm performance (Potharla and Amirishetty, 2021). Other studies explore the influence of board independence on specific outcomes, such as CSR reporting (Al Fadli *et al.*, 2020), intellectual capital efficiency (Kweh *et al.*, 2022), dividend policy in family firms (Kilincarslan, 2021), asset redeployability (Padungsaksawasdi *et al.*, 2022) and financial reporting quality (Porter and Sherwood, 2023). The effects of board size, composition and independence on CSR disclosure are also examined (Rouf and Hossan, 2021), along with the relationship between board independence and firm value in state-owned enterprises (Sasidharan, 2020). Overall, the literature underscores the importance of board independence in driving firm performance and governance outcomes, albeit with variations depending on the context and specific measures. Independent directors, who are not employees but appointed board members, are more likely to prioritize TBL reporting as they analyze executive directors' behavior and work for the interests of stakeholders. They bring diverse skills and perspectives, enhancing credibility. However, Mahmood, Kouser, Ali, Ahmad, and Salman (2018) found no association between board independence and TBL reporting, while Baalouch, Ayadi, and Hussainey (2019) discovered neglect of nonfinancial reporting by independent board members, leading to improper disclosure of TBL reports. Conversely, Samaha, Dahawy, Hussainey, and Stapleton (2012) found a positive correlation between board independence and TBL disclosures. In line with this, the following hypothesis is examined:

H2. There is a significant relationship between board independence and TBL disclosures.

3. Data and methodology

The sample of this study consists of top 50 companies (Forbes) listed on Tadawul Stock Exchange (https://www.saudiexchange.sa/) for three consecutive years from 2017 to 2019. The starting point is set as such following the bold reform strategy by Saudi Stock Exchange (Tadawul). The regulators of the exchange and the overseer of the market are getting ready for a new phase of growth, which will lead to the Tadawul connecting more with international investments after allowing direct foreign involvement for the first time in June 2015. The one and half year gap between the reform's effective date and the beginning of the study period is to allow time for companies and investors, especially foreign investors, to adapt to the new rules. In addition, the latest improvements to the market have been based on the innovative changes that the Saudi Stock Exchange made in 2017.

The Tadawul Stock Exchange has implemented a number of strategies to improve market accessibility and performance, increase liquidity, strengthen investor protection, reduce risk and ensure that market activities are in line with international standards. This study uses content analysis of the yearly reports published on company websites to generate TBL indexes and data from Thompson Reuters for other variables. The content analysis procedure, which monitors the items in the checklist, is based on Roy and Mitra (2015) and Nursimloo *et al.* (2020). Following the approach of Muttakin, Khan, and Subramaniam (2015), information was gathered from different parts of the annual reports, such as corporate governance disclosures, directors' reports, chairman's statements and notes to the financial statements, to evaluate the environmental, social and economic aspects of TBL disclosures. If a company reported a particular item in the checklist, then they were given a score of 1, and 0 otherwise. The checklist for TBL reporting disclosures is as follows:

(1) Environmental disclosure

The company has demonstrated a dedication to environmental protection by incorporating environmental considerations into its business decisions, such as purchasing green products and promoting the use of renewable energy. Furthermore, they have provided information about what materials can be recycled or reused as well as details about environmental

regulations and policies. Lastly, they have also conducted environmental audits, management, and implemented environmental systems.

(2) **Social disclosure**

The company has expressed its dedication to its investors and the public, providing its staff with health examinations, disability allowances, pensions, education and training, a code of conduct, equal opportunities, the number of workers, the amount of minorities or women, and employee voluntary work.

(3) **Economic disclosure**

Obtaining data about the size and financial success of a company, as well as any investments in technology, research and development, physical assets, estimated future earnings and other intangible assets such as brand recognition and goodwill, is important for understanding social capital formation, such as charitable donations.

The TBL index is then calculated for each company as follows:

$$TBL = \sum_{j=1}^{n=50} \frac{dj}{n}$$

where $dj = 1$ if item j is disclosed and 0 if item j is not disclosed, and n is the number of items.

Similarly, an index is calculated for each subcomponent of TBL (environmental disclosure (ENV), social disclosure (SOC) and economic disclosure (ECO)). The model, which consists of four controlled variables, is represented by the following equations:

$$TBL_i = \beta_0 + \beta_1 BI_i + \beta_2 BS_i + \beta_3 PRO_i + \beta_4 TA_i + \beta_5 DEBT_i + \beta_6 AGE + \varepsilon_i \quad (1)$$

$$ENV_i = \beta_0 + \beta_1 BI_i + \beta_2 BS_i + \beta_3 PRO_i + \beta_4 TA_i + \beta_5 DEBT_i + \beta_6 AGE + \varepsilon_i \quad (2)$$

$$SOC_i = \beta_0 + \beta_1 BI_i + \beta_2 BS_i + \beta_3 PRO_i + \beta_4 TA_i + \beta_5 DEBT_i + \beta_6 AGE + \varepsilon_i \quad (3)$$

$$ECO_i = \beta_0 + \beta_1 BI_i + \beta_2 BS_i + \beta_3 PRO_i + \beta_4 TA_i + \beta_5 DEBT_i + \beta_6 AGE + \varepsilon_i \quad (4)$$

In the equations above, the dependent variable is TBL (sustainability index). The TBL index is determined by averaging the three aspects of disclosure. The three dimensions of TBL (ENV, SOC and ECO) are used for Models 2, 3 and 4, respectively. The first independent variable is the independence of the board of directors, which is represented by the proportion of nonexecutive members that are independent to the total board membership, following previous studies (Foo and Zain, 2010; Rajangam, Sundarasen & Rajagopalan, 2014). The second independent variable is board size which is represented by the total number of board members (Abdul Rahman and Haneem Mohamed Ali, 2006). There are four control variables in this study. The first control variable is company profitability (PRO), which is measured as the natural logarithm of net profit. Company total assets (TA) is the second control variable. The third and fourth control variables are total debt (DEBT) and company age (AGE), respectively. Specifically, the study uses four equations to model the relationship between board independence, board size and four aspects of sustainability performance (TBL, ENV, SOC and ECO), while controlling for company profitability, total assets, total debt and company age. The equations used in the study are multiple regression equations, where the dependent variable (TBL, ENV, SOC or ECO) is modeled as a function of the independent variables (board independence, board size, company profitability, total assets, total debt and company age), as well as an error term (ε). The coefficients of the independent variables ($\beta 0$ to $\beta 6$) represent the expected change in the dependent variable for a unit change in the corresponding independent variable, holding all other variables constant.

Fixed effects and random effects models are the second estimation method, and these models are frequently employed in panel data analysis. A fixed group effect model studies group differences in intercepts, assuming that all entities or subjects have the same slopes and constant variance. The Hausman specification test can be used to compare the fixed effect and random effect models, which assume different variances for groups or times and for errors, with identical intercepts and slopes. If the null hypothesis is accepted, the random effect model is considered to be more suitable; however, if it is rejected, the fixed effect estimator is preferable (Verbeek, 2017; Greene, 2003; Al-Malkawi and Abdullah, 2011). To estimate the coefficients of the equations, the study uses two econometric estimation approaches: pooled ordinary least squares (POLS) and fixed/random effects models. POLS is a standard regression method that pools all the data together and estimates a single set of coefficients for all the observations. Fixed or random effects models are panel data regression methods that account for the fact that the data are collected from multiple companies over time, and allow for company-specific intercepts and slopes. The Hausman specification test is used to determine whether the fixed or random effects model is more appropriate.

This research also evaluates model efficiency and incorporates quantile regression and robust regression models. Firstly, quantile regression is utilized to obtain a thorough picture of the influence of the predictor variables. Specified percentiles (or quantiles) such as the 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th and 90th are used to define the associations of the predictor variables in quantile regression since the specific percentile's parameter assesses the modifications by a unit change in the predictor variables following Koenker and Bassett (1978), Tajuddin, Mohd Rashid, Khaw, and Che Yahya (2019) and Wei, Mohd-Rashid, Mehmood, and Tajuddin (2022). Second, unlike OLS regression, robust regression analysis delivers superior regression coefficient estimates since it improves the coefficient of the outlier in the dataset, which is excluded in OLS regression.

4. Findings and discussion

Table 1 presents the descriptive statistics of the top 50 companies listed on Tadawul Stock Exchange from 2017 to 2019. The table shows that the average TBL index is 0.558, indicating that more than half of the sampled companies disclosed their information using the three dimensions of the TBL approach. Regarding board size (BS), the average is 9.56, and the minimum and maximum are 7 and 14, respectively. This finding is similar to the results of Abdul Wahab, Holland, and Soobaroyen (2015) and Yatim (2011) regarding the average and median values of the number of persons on the board of companies listed on Tadawul Stock Exchange. This finding is consistent with Abdul Wahab *et al.* (2015) and Yatim (2011)

Variable	Obs.	Mean	Std. dev.	Min	Max
TBL	150	0.558	0.404	0.32	0.82
ENV	150	0.435	0.226	0	1
SOC	150	0.541	0.156	0.38	0.88
ECO	150	0.529	0.155	0.29	0.86
BI	150	4.14	1.226	3	9
BS	150	9.56	1.368	7	14
PRO	150	4.886	8.123	−41.91	30.94
ASSET	150	69.493	109.743	1.103	507, 264
DEBT	150	100.752	620.302	0.245	7569.64
AGE	150	36.08	24.044	10	86

Source(s): Table by authors

Table 1.
Descriptive statistics

regarding the average and median values of the number of people on the board of companies listed on Tadawul Stock Exchange. In addition, 43.15% of the directors are nonexecutive directors. This result is consistent with the value reported in Abdul- Abdul Wahab *et al.* (2015) but higher than Yatim's (2011) reported figure of 53% nonexecutive directors among companies listed on Tadawul Stock Exchange.

The average rate of profitability was 4.89%, indicating that the sampled companies are very successful financially, with the least profitable one still having a return on assets of 69.49%. The minimum and maximum total assets amount to SAR1103.0 million and SAR507264.0 million, respectively. For company debt, the mean value is SAR53674.0 million, and the minimum and maximum values are SAR245.0 million and SAR7569.6 million, respectively. Finally, the youngest company is 10 years old, which is Nobile Telecom, whereas Saudi Aramco is the company with the longest age (86 years).

This study performs various diagnostic tests, such as normality tests, correlation statistics and variance inflation factor approaches, to assess the quality of the regression models and the degree of collinearity between the variables. The results of the Wald test indicate that the parameters in the regression equations are not all equal to zero, suggesting that there is a statistically significant relationship between the independent and dependent variables. To check for multicollinearity, a correlation matrix was created to identify the connection between the variables studied, as seen in Table 2. Most of the independent variables had a correlation of less than 0.8, apart from the correlation between TBL and ENV, which was 0.81. A further test using variance inflation factors (VIF) is needed to confirm the absence of a multicollinearity problem. Since the VIF values range from 1.54 to 3.92, multicollinearity is not an issue in this study (Kleinbaum *et al.*, 2013).

Table 3 highlights the estimation results of POLS regression and fixed effect and random effect regression. Based on the Hausman test results, TBLI (triple bottom line index) and SOCI are fixed effect models and ENVI and ECOI are random effect models. All the regression results reported are corrected for serial correlation and heteroscedasticity (robust result). In order to control for heteroscedasticity, the OLS regression is run with robust standard errors. In the regression analysis for Model 1 (POLS), the TBL analysis displays an R-squared value of 0.49, implying that 49% of the variance in the TBL of the Tadawul Stock Exchange can be explained by the variables studied. The F-test indicates a p-value at the 1% level, thus rejecting the null hypothesis that the sum of all the coefficients of the variables is equal to zero. Additionally, the coefficients of variation (β) show that board size (BS), leverage (LEV) and company age (AGE) have a positive effect on variability while board independence (BI), net profit (PRO) and total assets (TA) have a negative influence. However, only board independence (BI) and company age (AGE) are significant in influencing the TBL reporting (Model 1). The regression results show a negative impact at the 5% significance level for board independence (BI). The coefficients (p-value) for board independence (BI) are −0.0692 (0.0267), thus signifying the negative effect of the aforesaid variables on TBL reporting.

The results are further analyzed using other models, namely the fixed effect models (Models 1 and 3) and random effect models (Models 2 and 4). Interestingly, both independent variables of board size (BS) and board independence (BI) have significant relationships with TBL reporting in Model 3 (social bottom line). When the size of the board and the independence of the board are sufficient, board members are in a better position to disclose information on the social elements of the TBL and can propose more effective actions. This could be due to the wider reservoir of knowledge, experience and stakeholder representation. This result is consistent with stakeholder theory and also supports the findings of Said, Hj Zainuddin, and Haron (2009), Dias, Lima Rodrigues, and Craig (2017) and Suyono and Farooque (2018), who examined the relationship between board size and CSR and discovered a positive correlation. Similarly, the recent study of Nursimloo *et al.* (2020) finds substantial positive relationships between profitability and firm size with TBL. Likewise, environmental bottom line and board size and

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) TBL	1.000									
(2) ENV	0.810*	1.000								
(3) SOC	0.708**	0.321*	1.000							
(4) ECO	0.711	0.328*	0.372	1.000						
(5) BS	−0.077*	−0.071	0.019	−0.117	1.000					
(6) PRO	0.154	0.139**	0.137**	0.060*	−0.248**	1.000				
(7) BI	−0.074	−0.022	−0.120	−0.040	0.569	−0.183	1.000			
(8) TA	0.014*	−0.019	−0.002*	0.067*	−0.009*	−0.226	−0.124	1.000		
(9) DEBT	−0.043	0.011	−0.079**	−0.048**	−0.031	−0.016**	−0.022**	0.096*	1.000	
(10) AGE	−0.031	0.016**	−0.027	−0.077**	0.040	0.138	0.004	0.017	−0.061*	1.000

Note(s): ** and * denote statistical significance at 5 and 10% levels, respectively. The TBL Index is measured using the TBL checklist, ENV Index is measured using the Environmental checklist, SOC Index is measured using the Social checklist, ECO Index is measured using the Economy checklist, Board Size is the total number of directors on the board of a company, Board Independence is measured as the percentage of the total number of independent nonexecutive members to the total number of board members, PRO is the natural logarithm of net profit, TA is the natural logarithm of total assets, DEBT is the natural logarithm of total debts and AGE is measured as the number of years a company has been operating

Source(s): Table by authors

Table 2.
Matrix of correlations

Variables	(1) TBLI	(2) ENVI	(3) SOCI	(4) ECOI
BI	−0.0692**	0.0100	−0.0576***	−0.0110
	(0.0267)	(0.0135)	(0.0155)	(0.0147)
BS	0.0118	−0.00763	0.0283***	−0.00398
	(0.0265)	(0.0171)	(0.00978)	(0.0122)
PRO	−0.00333	−0.00239	0.000142	−0.00120
	(0.00378)	(0.00171)	(0.00209)	(0.00187)
SIZEL	−0.205	−0.0440	−0.0705	0.00283
	(0.167)	(0.0285)	(0.0816)	(0.0164)
LEVL	0.0140	0.0211	−0.00452	−0.0129
	(0.0118)	(0.0129)	(0.00408)	(0.00825)
AGE	0.199***	0.00103	0.0856***	−0.000379
	(0.0254)	(0.00126)	(0.0110)	(0.000901)
Constant	−2.259	0.842**	−1.312	0.795***
	(2.651)	(0.419)	(1.418)	(0.251)
BP-LM test for random effects	33.82***	62.11***	7.18***	38.88***
Wooldridge test for autocorrelation	13.732***	24.261***	2.413	13.418***
Wald test for heteroskedasticity	12374.22***	4.40e+05***	2.9e+05***	1.63e+05***
Observations	150	150	150	150
R-squared	0.4900	0.0008	0.4300	0.0212
Number of companies	50	50	50	50

Note(s): ***, ** and * denote statistical significance at 1, 5 and 10% levels, respectively. TBL Index is measured using the TBL checklist, ENV Index is measured using the Environmental checklist, SOC Index is measured using the Social checklist, ECO Index is measured using the Economy checklist, Board Size is the total number of directors on the board of a company, Board Independence is measured as the percentage of the total number of independent nonexecutive members to the total number of board members, PRO is the natural logarithm of net profit, TA is the natural logarithm of total assets, DEBT is the natural logarithm of total debts, AGE is the number of years the company has been operating and BP-LM test stands for Breusch and Pagan Lagrangian multiplier test for random effects

Source(s): Table by authors

Table 3.
Regression outputs

profitability; social bottom line and board size, profitability and firm size; and economic bottom line and firm size. Based on the above discussion, this study demonstrates that prior studies that identified relationships between TBL, board size and board independence failed to demonstrate that board size and board independence were related to social disclosures rather than environmental and economic disclosures or the aggregate TBL index.

5. Robust analysis

The current research uses quantile least squares to check the stability of the empirical findings. To evaluate the robustness of the results, the study also uses quantile regression and robust regression models. Quantile regression is a method that allows for the estimation of regression coefficients at different points of the distribution of the dependent variable, and thus provides a more detailed picture of the relationship between the independent and dependent variables. Robust regression is a method that is less sensitive to outliers in the data and can provide more accurate coefficient estimates in the presence of extreme values. Table 4 shows the quantile regression combinations used to robustly analyze the most important determinants. If the differences at various levels of TBL (sustainability index) are combined together, they may not be explained or visible. Quantile regression has unique qualities that show the impact of independent and control factors on TBL in a real-world situation. Additionally, this methodology enables a complete explanation of variables'

Table 4.
Quantile least squares regression result

Variable	0.10 Coef	Prob.	0.20 Coef	Prob.	0.30 Coef	Prob.	0.40 Coef	Prob.	0.50 Coeff	Prob.	0.60 Coeff	Prob.	0.70 Coeff	Prob.	0.80 Coeff	Prob.	0.90 Coeff	Prob.
C	1.349	0.077	2.124	0.003	2.596	0.000	2.848	0.000	2.515	0.003	2.881	0.001	2.847	0.001	3.164	0.001	2.478	0.020
	1.780		3.042		3.629		3.780		3.056		3.379		3.290		3.332		2.363	
BI	−0.061	0.208	−0.030	0.385	−0.050	0.187	−0.052	0.184	0.009	0.863	−0.007	0.903	−0.020	0.725	−0.094	0.090	−0.040	0.689
	−1.265		−0.872		−1.325		−1.335		0.173		−0.123		−0.352		−1.706		−0.400	
BS	0.041	0.262	0.033	0.292	0.020	0.542	0.027	0.451	−0.004	0.917	−0.040	0.329	−0.045	0.259	−0.018	0.812	−0.020	0.805
	1.126		1.058		0.612		0.755		−0.105		−0.980		−1.134		−0.238		−0.248	
PRO	0.003	0.725	0.003	0.605	−0.001	0.916	0.002	0.670	0.003	0.603	0.005	0.431	0.003	0.735	−0.001	0.946	0.001	0.959
	0.353		0.519		−0.106		0.428		0.521		0.790		0.339		−0.067		0.052	
SIZEL	−0.061	0.156	−0.073	0.100	−0.071	0.163	−0.074	0.192	−0.031	0.597	0.007	0.915	0.024	0.685	0.039	0.479	0.089	0.073
	−1.427		−1.656		−1.402		−1.312		−0.529		0.107		0.407		0.710		1.808	
LEVL	0.037	0.114	0.009	0.744	−0.004	0.909	−0.016	0.649	−0.031	0.406	−0.057	0.086	−0.064	0.050	−0.086	0.003	−0.101	0.000
	1.589		0.327		−0.115		−0.456		−0.834		−1.726		−1.978		−3.064		−4.124	
AGE	−0.001	0.253	−0.002	0.302	−0.001	0.662	−0.001	0.712	−0.001	0.819	−0.002	0.500	0.000	0.883	0.001	0.861	0.001	0.855
	−1.148		−1.036		−0.438		−0.369		−0.230		−0.677		−0.147		0.175		0.183	
Pseudo	0.027		0.037		0.061		0.054		0.043		0.051		0.061		0.038		0.137	
R-squared																		
Adjusted *R*-squared	−0.014		−0.004		0.022		0.014		0.003		0.011		0.021		−0.002		0.017	

Source(s): Table by authors

relationships apart from the mean value of data. Therefore, it is more appropriate for outcomes in which the data is not normally distributed with a nonlinear relationship between the dependent and independent variables. Estimations based on quantile regression can look into how the median affects variables in an analysis in addition to the scope of the minimum and maximum percentiles of the dependent variable. Notably, quantile regression does not necessitate stringent distributional assumptions in order to illustrate the relations. Consequently, the 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th and 90th quantiles of TBL are included to approximate the linear connections between a large number of independent variables. The pseudo-*R*-squared of the 10th to 90th quantiles vary from 2% to 13%, which is consistent with Wei *et al.* (2022). Overall, the use of quantile regression methodology in the study enables a more nuanced understanding of the determinants of TBL reporting and their impact at different levels of the dependent variable, thus providing valuable insights for practitioners and researchers in the field of accounting and sustainability reporting.

On the other hand, Table 5 presents the results of robust regression to determine the influencing determinants of TBL (sustainability index). This study utilizes robust regression analysis after improving the outlier's coefficient in order to provide error-free findings. Robust regression works with fewer precautionary assumptions than least squares regression and is being investigated as the most suitable alternative method (Mehmood, Mohd-Rashid, Ahmad, & Tajuddin, 2023). Since the presence of outliers alters the assessment of normally distributed residuals, the robust regression technique is better than least squares regression in producing the regression coefficient estimates (Mehmood, Mohd-Rashid, Tajuddin, & Saleem, 2021). Furthermore, the presence of a large number of outliers in the dataset distorts the coefficients. The use of robust regression lowers the impact of outliers since it is an iterative technique that facilitates the identification of outliers and minimizes their influence on the estimated coefficients. Accordingly, only board independence (BI) and board size (BS) emerge as the main variables. Board size, profitability and AGE are negatively significant in explaining TBL. The results are consistent with those of the main model.

Variable	Coefficient	Std. Error	*z*-statistic	Prob.
C	5.1187	0.7264	7.0471	0.0000
BI	0.0352	0.0451	0.7798	0.4355
BS	−0.0515	0.0397	−1.8964	0.0848
PRO	−0.0138	0.0064	−2.1733	0.0298
SIZEL	−0.1152	0.0728	−1.7811	0.0839
LEVL	−0.0655	0.0547	−1.1971	0.2313
AGE	−0.0051	0.0018	−2.7513	0.0059
	Robust Statistics			
R-squared	0.1353	Adjusted *R*-squared		0.0990
Scale	0.4127	Deviance		0.1703
Rn-squared statistic	49.2235	Prob (Rn-squared stat.)		0.0000
	Non-robust statistics			
Mean dependent var	1.5053	S.D. dependent var		0.4042
S.E. of regression	0.4770	Sum squared resid		32.5351

Source(s): Table by authors

Table 5.
Robust least squares regression result

6. Conclusion

This paper examines the impacts of board independence and board size on TBL reporting using data from the top 50 listed companies on the Tadawul Stock Exchange between 2017 and 2019. The study is based on legitimacy and stakeholder theories, considering the growing demand for transparency in TBL reporting driven by various stakeholder groups. The findings highlight the positive correlation between reporting level and profitability, providing incentives for companies to embrace TBL reporting and ensure accurate and fair voluntary disclosures to maintain strong stakeholder relationships. Saudi Arabian listed businesses are also adopting TBL disclosure procedures to attract more investors, as evidenced by the partnership between Tadawul and the United Nations Sustainable Stock Exchange in December 2018. The study's findings can assist the Saudi Arabian Capital Market Authority in evaluating companies' TBL disclosures within the existing corporate governance framework. Moreover, this study contributes to the limited literature on TBL reporting by Saudi companies, enhancing the understanding of transparency levels in Gulf countries. In the effort to provide a meaningful interpretation of the descriptive statistics, the statistics for the top 50 listed companies on Tadawul Stock Exchange are compared to the statistics for corporations from other countries. Board size, with a mean of 10 directors, is comparable to those of American, British, Canadian and European corporations but larger than those of Singaporean and Australian corporations. The market prefers a larger board in order to eliminate information asymmetry and allow for unambiguously strong leadership.

This study has certain drawbacks. Firstly, the sample size is restricted to the top 50 publicly traded companies, potentially limiting the generalizability of the findings. While various sectors and industries are included, a larger and more diverse sample could provide a more comprehensive conclusion. Nevertheless, the inclusion of panel data with 50 company-year observations is considered sufficient for regression analysis. Secondly, the estimation of simultaneous equations may lead to potential misspecification issues, a common challenge in research of this nature. Lastly, the study's examination of three-year longitudinal data may not capture substantial fluctuations in descriptive statistics and cross-sectional regression results. Extending the study period by three more years would offer a clearer pattern and serve as a foundation for future research endeavors. To address this limitation, future studies could consider using a longer study period and a higher number of observations to increase the generalizability of the findings. A longer study period would provide more data and insights into the TBL reporting practices of the companies over time, while a higher number of observations would allow for a more representative sample of companies and a more comprehensive analysis of the TBL reporting practices in the Saudi Arabian market. In addition, future studies should consider other board characteristics such as gender and cultural diversity, activity and committee. Therefore, the relationship between these board characteristics and TBL reporting could provide a more comprehensive understanding of the role of the board in TBL reporting.

Despite its limitations, this study contributes to the knowledge of corporate governance concerns, with a focus on the board of directors and the proportion of executives in Saudi Arabia's publicly traded companies. Regardless of the findings, this research also contributes to the scant literature on the relationship between board of directors and TBL in Asian nations. This study makes significant contributions to the accounting profession. Firstly, it provides empirical evidence on the relationship between TBL reporting and board independence and size. The findings suggest that boards with sufficient independence and appropriate size are more effective in disclosing social aspects of the TBL and proposing actionable measures. This implies that companies can enhance their TBL reporting by ensuring the independence and size of their boards. Secondly, the study emphasizes the importance of TBL reporting in attaining sustainable development goals, a recognition that is growing among companies and stakeholders. Therefore, the study sheds light on how

accounting can contribute to sustainable development through improved TBL reporting. Lastly, the study identifies the need for further research to explore the relationship between TBL reporting and other accounting concepts, aiming to gain a deeper understanding of the role of accounting in achieving sustainable development goals.

References

Abdul Rahman, R., & Haneem Mohamed Ali, F. (2006). Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal*, *21*(7), 783–804.

Abdul Wahab, N. S., Holland, K., & Soobaroyen, T. (2015). Do UK outside CEOs engage more in tax planning than the insiders? *Jurnal Pengurusan*, *45*, 119–129.

Agarwala, N., Pareek, R., & Sahu, T. N. (2022). Does board independence influence CSR performance? A GMM-based dynamic panel data approach. *Social Responsibility Journal*, *9*(6), 1003–1022.

Ahmad, S., Wong, K. Y., & Rajoo, S. (2019). Sustainability indicators for manufacturing sectors. *Journal of Manufacturing Technology Management*, *30*(2), 312–334.

Ahmed, K., Hossain, M., & Adams, M. B. (2006). The effects of board composition and board size on the informativeness of annual accounting earnings. *Corporate Governance: An International Review*, *14*(5), 418–431.

Al Fadli, A., Sands, J., Jones, G., Beattie, C., & Pensiero, D. (2020). Board independence and CSR reporting: Pre and post analysis of JCGC 2009. *International Journal of Law and Management*, *62*(2), 117–138.

Al-Malkawi, H. A. N., & Abdullah, N. (2011). Finance-growth nexus: Evidence from a panel of MENA countries. *International Research Journal of Finance and Economics*, *63*, 130–138.

Alqahtani, F., & Boulanouar, Z. (2017). Sharia compliance status and investor demand for IPOs: Evidence from Saudi Arabia. *Pacific-Basin Finance Journal*, *46*, 258–268.

Alshetwi, M. (2017). The association between board size, independence and firm performance: Evidence from Saudi Arabia. *Global Journal of Management and Business Research*, *17*(D1), 17–28.

Anner, M. (2012). Corporate social responsibility and freedom of association rights. *Politics and Society*, *40*(4), 609–644.

Azevedo, S., & Barros, M. (2017). The application of the triple bottom line approach to sustainability assessment: The case study of the UK automotive supply chain. *Journal of Industrial Engineering and Management*, *10*(2), 286.

Baalouch, F., Ayadi, S. D., & Hussainey, K. (2019). A study of the determinants of environmental disclosure quality: Evidence from French listed companies. *Journal of Management and Governance*, *23*, 939–971.

Boshnak, H. A. (2021). The impact of board composition and ownership structure on dividend payout policy: Evidence from Saudi Arabia. *International Journal of Emerging Markets*, (ahead-of-print).

Ciampi, F. (2015). Corporate governance characteristics and default prediction modeling for small enterprises. An empirical analysis of Italian firms. *Journal of Business Research*, *68*(5), 1012–1025.

Crespin-Mazet, F., & Dontenwill, E. (2012). Sustainable procurement: Building legitimacy in the supply network. *Journal of Purchasing and Supply Management*, *18*(4), 207–217.

Danker, M. (2013). Understanding stakeholder activism, managing transparency risk. In D. Crowther, & G. Aras (Eds.), *The Governance of Risk (Developments in Corporate Governance and Responsibility* (Vol. 5, pp. 33–72). Bingley: Emerald Group Publishing.

De Villiers, C., & Alexander, D. (2014). The institutionalisation of corporate social responsibility reporting. *The British Accounting Review*, *46*(2), 198–212.

Deegan, C. (2002). Introduction. *Accounting, Auditing and Accountability Journal*, *15*(3), 282–311.

Dias, A., Lima Rodrigues, L., & Craig, R. (2017). Corporate governance effects on social responsibility disclosures.

Eldomiaty, T. I. (2008). Determinants of corporate capital structure: Evidence from an emerging economy. *International Journal of Commerce and Management*, *17*(1/2), 25–43.

Elkington, J. (1998). Accounting for the triple bottom line. *Measuring Business Excellence*, *2*(3), 18–22.

Foo, Y. B., & Zain, M. M. (2010). Board independence, board diligence and liquidity in Malaysia: A research note. *Journal of Contemporary Accounting and Economics*, *6*(2), 92–100.

Greene, W. H. (2003). *Econometric analysis*. Mumbai: Pearson Education.

Hamdan, A. M. M., & Al Mubarak, M. M. S. (2017). The impact of board independence on accounting-based performance: Evidence from Saudi Arabia and Bahrain. *Journal of Economic and Administrative Sciences*, *33*(2), 114–130.

Haniffa, R., & Hudaib, M. (2006). Corporate governance structure and performance of Malaysian listed companies. *Journal of Business Finance and Accounting*, *33*(7-8), 1034–1062.

Haniffa, R., & Hudaib, M. (2007). Locating audit expectations gap within a cultural context: The case of Saudi Arabia. *Journal of International Accounting, Auditing and Taxation*, *16*(2), 179–206.

Hillman, A. J., & Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review*, *28*(3), 383–396.

Hourneaux, F. Jr., Gabriel, M. L., da, S., & Gallardo-Vázquez, D. A. (2018). Triple bottom line and sustainable performance measurement in industrial companies. *Revista de Gestão*, *25*(4), 413–429.

Jackson, A., Boswell, K., & Davis, D. (2020). Sustainability and triple bottom line reporting – what is it all about?. *International Journal of Business, Humanities and Technology*, *1*(3), 55–59.

Jennifer Ho, L. -C., & Taylor, M. E. (2007). An empirical analysis of triple bottom-line reporting and its determinants: Evidence from the United States and Japan. *Journal of International Financial Management and Accounting*, *18*(2), 123–150.

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, *48*(3), 831–880.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360.

Jizi, M. (2017). The influence of board composition on sustainable development disclosure. *Business Strategy and the Environment*, *26*(5), 640–655. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1002/bse.1943

Kane, F. (2017). Saudi Arabia's Tadawul stock exchange chief pledges more reforms, Arab News. Available from: https://www.arabnews.com/node/1183306/business-economy (accessed 24 Sep 2020).

Kent, P., & Monem, R. (2008). What drives TBL reporting: Good governance or threat to legitimacy?. *Australian Accounting Review*, *18*(4), 297–309.

Khaireddine, H., Salhi, B., Aljabr, J., & Jarboui, A. (2020). Impact of board characteristics on governance, environmental and ethical disclosure. *Society and Business Review*, *15*(3), 273–295.

Kilincarslan, E. (2021). The influence of board independence on dividend policy in controlling agency problems in family firms. *International Journal of Accounting and Information Management*, *29*(4), 552–582.

Kleinbaum, D., Kupper, L., Nizam, A., & Rosenberg, E. (2013). *Applied regression analysis and other multivariable methods*. Boston: Cengage Learning.

Koenker, R., & Bassett, G., Jr. (1978). Regression quantiles. *Econometrica: Journal of the Econometric Society*, *46*(1), 33–50.

Kweh, Q. L., Lu, W. M., Ting, I. W. K., & Thi My Le, H. (2022). The cubic S-curve relationship between board independence and intellectual capital efficiency: Does firm size matter?. *Journal of Intellectual Capital*, *23*(5), 1025–1051.

Ligorio, L., Caputo, F., & Venturelli, A. (2022). Sustainability disclosure and reporting by municipally owned water utilities. *Utilities Policy*, *77*, 101382.

Mahmood, Z., Kouser, R., Ali, W., Ahmad, Z., & Salman, T. (2018). Does corporate governance affect sustainability disclosure? A mixed methods study. *Sustainability*, *10*(1), 207.

Mehmood, W., Mohd-Rashid, R., Ahmad, A. H., & Tajuddin, A. H. (2023). IPO initial return in Pakistan: Influence of country-level institutional quality. *South Asian Journal of Business Studies*, *12*(1), 1–24.

Mehmood, W., Mohd-Rashid, R., Tajuddin, A. H., & Saleem, H. M. N. (2021). Shariah-compliance and IPO underpricing: Evidence from Pakistan stock exchange. *International Journal of Islamic and Middle Eastern Finance and Management*, *14*(5), 1081–1098.

Muttakin, M.B., Khan, A., & Subramaniam, N. (2015). Firm characteristics, board diversity and corporate social responsibility: Evidence from Bangladesh. *Pacific Accounting Review*, *27*(3), 353–372.

Nursimloo, S., Ramdhony, D., & Mooneeapen, O. (2020). Influence of board characteristics on TBL reporting. *Corporate Governance: The International Journal of Business in Society*, *20*(5), 765–780.

Padungsaksawasdi, C., Treepongkaruna, S., Jiraporn, P., & Uyar, A. (2022). Does board independence influence asset redeployability? Evidence from a quasi-natural experiment. *Corporate Governance: The International Journal of Business in Society*, *22*(2), 302–316.

Paraskova, T. (2020). Saudi Aramco retakes crown from apple as world's most valuable company, OilPrice.com. Available from: https://oilprice.com/Latest-Energy-News/World-News/Saudi-Aramco-Retakes-Crown-From-Apple-As-Worlds-Most-Valuable-Company.html (accessed 24 Sep 2020).

Parmar, B. L., Freeman, R. E., Harrison, J. S., Wicks, A. C., Purnell, L., & de Colle, S. (2010). Stakeholder theory: the state of the art. *The Academy of Management Annals*, *4*(1), 403–445.

Pizzi, S., Principale, S., & de Nuccio, E. (2022). *Material sustainability information and reporting standards. Exploring the differences between GRI and SASB*. Meditari Accountancy Research. (ahead-of-print).

Pizzi, S., Principale, S., Fasiello, R., & Imperiale, F. (2023). The institutionalisation of social and environmental accounting practices in Europe. *Journal of Applied Accounting Research*, (ahead-of-print).

Porter, C., & Sherwood, M. (2023). The effect of increases in board independence on financial reporting quality. *Accounting Research Journal*.

Potharla, S., & Amirishetty, B. (2021). Non-linear relationship of board size and board independence with firm performance–evidence from India. *Journal of Indian Business Research*, *13*(4), 503–532.

Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2020). Do board characteristics drive firm performance? An international perspective. *Review of Managerial Science*, *14*(6), 1251–1297.

Rajangam, N., Sundarasen, S. D. D., & Rajagopalan, U. (2014). Impact of governance on profitability, liquidity and gearing of companies. *Asian Social Science*, *10*(10), 13.

Rouf, M. A., & Hossan, M. A. (2021). The effects of board size and board composition on CSR disclosure: A study of banking sectors in Bangladesh. *International Journal of Ethics and Systems*, *37*(1), 105–121.

Roy, S. S., & Mitra, S. (2015). Corporate triple bottom line reporting: An empirical study on the Indian listed power companies. *SDMIMD Journal of Management*, *6*(2), 33.

Said, R., Hj Zainuddin, Y., & Haron, H. (2009). The relationship between corporate social responsibility disclosure and corporate governance characteristics in Malaysian public listed companies. *Social Responsibility Journal*, *5*(2), 212–226.

Samaha, K., Dahawy, K., Hussainey, K., & Stapleton, P. (2012). The extent of corporate governance disclosure and its determinants in a developing market: The case of Egypt. *Advances in Accounting*, *28*(1), 168–178.

Sanan, N. K. (2018). Influence of board characteristics on CSR: A study of Indian firms. *International Journal of Corporate Governance*, *9*(3), 300–315.

Sankara, J., Lindberg, D., & Nowland, J. (2017). Are board governance characteristics associated with ethical corporate social responsibility disclosures?. *Journal of Leadership, Accountability and Ethics*, *14*(3), 103–116.

Sarrakh, R., Renukappa, S., Suresh, S., & Mushatat, S. (2020). Impact of subsidy reform on the kingdom of Saudi Arabia's economy and carbon emissions. *Energy Strategy Reviews*, *28*, 100465.

Sasidharan, A. (2020). Does board independence enhance firm value of state-owned enterprises? Evidence from India and China. *European Business Review*, *32*(5), 785–800.

Schroeder, B., & DeNoble, A. (2014). How to design a triple bottom line organization: A start-up case study. *Journal of Organization Design*, *3*(2), 1–12.

Sternberg, R. J. (2019). Enhancing people's creativity. *The Cambridge Handbook of Creativity*, 88–103.

Suyono, E., & Farooque, O. A. (2018). Do governance mechanisms deter earnings management and promote corporate social responsibility?. *Accounting Research Journal*, *31*(3), 479–495.

Tajuddin, A. H., Mohd Rashid, R., Khaw, K. L. H., & Che Yahya, N. (2019). Shariah-compliant status and investors' demand for IPOs: The effects of information asymmetry. *International Journal of Islamic and Middle Eastern Finance and Management*, *12*(4), 489–508.

Verbeek, M. (2017). *A guide to modern econometrics*. Rotterdam: John Wiley & Sons.

Wei, H., Mohd-Rashid, R., Mehmood, W., & Tajuddin, A. H. (2022). Institutional quality and initial public offering underpricing: Evidence from Hong Kong. *Journal of Public Affairs*, *22*(4), e2676.

Willard, B. (2012). *The new sustainability advantage: Seven business case benefits of a triple bottom line*. New Society Publishers.

Yatim, P. (2011). Underpricing and board structures: An investigation of Malaysian initial public offerings (IPOs). *Asian Academy of Management Journal of Accounting and Finance*, *7*(1), 73–93.

Further reading

Al Nasser, Z. (2020). The effect of royal family members on the board on firm performance in Saudi Arabia. *Journal of Accounting in Emerging Economies*, *10*(3), 487–518.

Almashhadani, M., & Almashhadani, H. A. (2022). The beneficial of firm size, board size, ownership structure, and independence in developing markets' firm performance: Evidence from Asia. *International Journal of Business and Management Invention*, *11*(7), 88–92.

Alregab, H. (2023). The role of corporate governance in attracting foreign investment: An empirical investigation of Saudi-listed firms in light of vision 2030. *International Journal of Finance and Economics*, *28*(1), 284–294.

Jensen, M. C. (1983). Organization theory and methodology. *Accounting Review*, *58*(2), 319–339.

Corresponding author
Ahmad Hakimi Tajuddin can be contacted at: ahmadhakimi.tajuddin@taylors.edu.my

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: **permissions@emeraldinsight.com**