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Antecedents of corporate sustainability performance in Turkey: The effects of ownership structure and board attributes on non-financial companies

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ABSTRACT

The discourse of corporate sustainability performance (CSP) has created an increasing motivation for companies to improve their competitive advantage. This study examines the drivers leading to a high level of CSP within non-financial Turkish companies listed in the Borsa Istanbul Sustainability Index. Drawing on both stakeholder and agency theories, we formulate a set of hypotheses that link CSP with ownership structure, board diversity, and firm-specific characteristics. Based on logit and probit models, the empirical results tend to confirm the positive influence of foreign and institutional ownerships in shaping CSP and indicate that CSP is positively linked with board size and the proportion of independent board members. Further, the findings show that companies with a leading level of CSP have a lower return than companies with mediocre CSP based on a market-based measure, Tobin's Q.

1. Introduction

Sustainability is acknowledged as a long-term vision that shapes socially and environmentally conscious companies. Corporate sustainability (CS) is a dynamic business strategy that employs the necessary sustainability practices to meet shareholders' goals and energize stakeholders. This necessitates the challenging task of providing competitive outcomes while embracing environmental, social, and governance (ESG) metrics to positively influence firm value and ensure a good public reputation. Moreover, the growing size of the impact investing and the ESG-conscious approach of global wealth management firms and other stakeholders drive companies to exhibit more accountability for sustainability (Braam et al., 2016). A 2014 global survey of over 3800 senior executives jointly undertaken by the Boston Consulting Group, the UN Global Compact, and the MIT Sloan Management Review noted that approximately 65% of companies identified sustainability as one of the key items in their management agenda.

The stakeholder theory (Freeman, 1983) has provided the foundation of corporate sustainability performance (CSP), which helps to build and solidify trusting relationships with stakeholders. Stakeholders require transparency and efficiency to increase their benefits and ensure the firm's future sustainability. Thus, they demand that environmental and social policies are integrated into corporate performance (Pava and Krausz, 1996). Agency theory, on the other hand, draws attention to how a board monitors management in the best interests of the shareholders (Fama and Jensen, 1983). Therefore, an effective board should have the right combination of capabilities and experience to evaluate business strategies and their impact on sustainability policies.

In this frame, the determinants of CS and their measurement become vital in explicitly proving companies' dedication to sustainability-related issues. Searcy and Elkhawas (2012) underline that companies should define and measure their CSP to create value. The sustainability indices linked to financial markets aim to provide investors with further insight into CSP. According to the Sustainable Stock Exchanges Initiative (2018), 40 stock exchanges, with a total of USD 81 trillion market capitalization, have a sustainability index. Besides these stock exchanges, several companies,

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including FTSE-Russell, Dow Jones, Standard & Poor's, MSCI, Thomson Reuters, and Stoxx, also develop sustainability indexes and frequently cooperate with stock exchanges to improve them. They are of immense help to pinpoint companies with notable CSP.

This study scrutinizes the relationships among CSP, ownership structure, and board attributes. Drawing on the arguments of agency and stakeholder theories, we formulate a set of hypotheses by linking ownership structure, board attributes, and firm-specific influences with CSP. Rather than investigating the association between CSP and financial performance, we focus on examining the effects of ownership structures and board attributes on CSP for two main reasons. First, the differences in the ownership structure of companies may have a significant impact on sustainability through the appointment of the board of directors and control procedures on management sustainability activities. Second, the board both crafts and executes the corporate strategy for sustainability, balancing the interest of shareholders, so its composition and commitment are vital to creating a culture of sustainability throughout the company.

We compare companies with a superior CSP, as proxied by their inclusion in the Borsa Istanbul Sustainability Index (BIST SI), launched in 2014, with companies possessing inferior CSP over the period of 2014–2018. Although prior studies (Ferrero-Ferrero et al., 2015; Mattingly, 2017,) have used alternative proxies to measure sustainability (e.g., Thomson Reuters Eikon ESG metrics, Asset4 ESG, KLD, and Innovest), the membership of a benchmark index is usually more advantageous as it incorporates a best-in-class methodology developed by a respected international institution (e.g., Dow Jones, Standard & Poor's and FTSE) and thus heavily used in previous studies (Artiach et al., 2010; Barnea and Rubin, 2010; Charlo et al., 2015; Hartman et al., 2007; Lourenço and Branco, 2013; Yilmaz et al., 2020).

Since Turkish capital markets are highly dominated by foreign investors with a high institutional ownership concentration, we included foreign ownership and institutional ownership, among others, in our analysis. We also incorporate board governance ingredients such as board size, gender diversity, independent board membership, and CEO duality into the analysis to underline their significance in sustainability. Thus, this study extends the literature and aims to fill the scholarly lacuna by exploring the antecedents of CSP in Turkish companies. As CSP varies across countries over time, this study is particularly called for; it is also valuable to obtain insights from an emerging market setting. Behind this thinking, there is a view that if companies in an emerging market are committed to implementing CS practices, then they could achieve a competitive advantage and may access to more institutional long-term capital over time. Thus, they prefer adopting realistic targets, timelines, and roadmaps in line with international standards. Their moves into sustainability activities are also accompanied by the establishment of measurement systems, indicators, and in many cases, a reporting system (Ali et al., 2017). Given the dearth of empirical research on CSP in emerging markets, investigating the antecedents of CSP in Turkey contributes to extant CS research enabling comparison with other emerging markets.

The remainder of the study is organized as follows. The next section gives a conceptual background and sets out the hypotheses. The data and methodology are provided in Section 3, while Section 4 presents the empirical findings, followed by a discussion and conclusion.

2. Conceptual background and hypotheses

Balancing social, environmental, and financial performance aspects of sustainability at the corporate level, the so-called "triple bottom line" performance is a challenging task (Henry et al., 2019). Researchers have investigated various aspects of CS, including the interaction of CSP with financial and non-financial determinants (e.g., Garcia et al., 2019; Gupta and Gupta, 2020; Harjoto et al., 2014; Jensen, 2001; McWilliams and Siegel, 2001; Waddock and Graves, 1997; Wood, 2010; Zhang et al., 2013). While most empirical studies have explored the relationship between CSP and corporate financial performance (CFP), few have simultaneously concentrated on investigating the relationship of CSP with ownership structure, board diversity, and firm-specific influences by using sustainability indices as a proxy for CSP.

Some authors have posited a multi-perspective approach for an improved understanding of CSP (e.g., Aguinis and Glaves, 2012; Mellahi et al., 2016). External theories mainly concentrate on the link between businesses and society and include institutional theory, resource dependence theory, the resource-based view (RBV), and stakeholder theory. Particularly, stakeholder theory evaluates corporate activities as a direct outcome of pressures from stakeholders related to power dependence, legitimacy claim, or urgency (Clarkson, 1995; Freeman and David, 1983; Mitchell et al., 1997).

Internal theories, on the other hand, deal with internal processes, where CSP is postulated as either strategic or the result of managerial decisions and includes agency theory and RBV (Wissink, 2016). Diverse interests of principals and agents may lead to conflict since some agents may not always act in the principals' best interests. The subsequent miscommunication may result in problems (Eisenhardt, 1989; Jensen and Meckling, 1976). Accordingly, companies pursue CS activities to satisfy stakeholder demands (stakeholder theory), secure critical resources (resource dependence theory), meet managers' individual needs (agency theory), conform to institutional norms and pressures to raise their legitimacy (institutional theory), and develop valuable resources to pursue opportunities (RBV). In this frame, as sustainability issues become increasingly complex, global in nature and pivotal to success, companies are likely to behave in socially responsible and sustainable ways by the mediating effects of several institutional conditions including regulation, nongovernmental organizations, industry alliances, institutionalized norms, competitors, and dialogues among firms and their stakeholders (Campbell, 2007; Kiron et al., 2015).

Researchers have, most of the time, scrutinized the association between CSP and CFP and postulated that there is either a positive, negative, or neutral association between them. Most of these studies concentrate on analyzing the slack RBV, which puts forward that superior financial performance contributes to the resource availability that enables companies to invest in ESG activities (Waddock and Graves, 1997; Ziegler and Schröder, 2010). Some authors have tended to contradict this view, arguing that CS activities can negatively affect financial returns by increasing costs, confusing managers, and generating problems (Makni et al., 2008; McGuire et al., 1988). The critical point here is to view CS as a long-term investment in building the capacity to affect stakeholders, although it may not have a positive effect on CFP in the short-term. Wang and Choi (2013) note that good stakeholder relationships are influenced not only by companies with high CSP but also by companies' ability to deliver consistent CSP that interacts positively with CFP.

The relationship between CS and corporate governance (CG) has also been widely considered (Amran et al., 2014; Oh et al., 2011). According to the agency perspective, the interaction between these two concepts firstly hinges on the way owners can influence corporate decision-making by appointing board members (Fama and Jensen, 1983). Elkington (2006) indicated that appropriate CG systems should align the incentives of managers with those of stakeholders (Jo and Harjoto, 2012).

Further, Garcia-Torea et al. (2016) identified that active boards and specific ownership characteristics have a significant effect on CSP. Evidence from various studies shows that what affects a company's attitude towards ESG issues is not the composition of the board itself, but rather its commitment to CS principles (Ayuso and Argandona, 2009; Ricart et al., 2005; Spitzeck, 2009). De Villiers et al. (2011) examined the relationship between board characteristics and the environmental performance of US companies; they discovered a significant link between higher environmental performance, higher board independence, and larger boards.

Artiach et al. (2010) investigated the motivations behind US companies engaging in CS activities and concluded that leading CSP companies have a greater return on equity (ROE) and higher growth options. However, in contrast to their expectations, neither the company's leverage nor the level of its cash resources is a significant element in identifying CSP. Similarly, Ziegler and Schröder (2010) examined the antecedents of European companies' presence in the DJSWI and the Dow Jones STOXX Sustainability and indicated there existed a positive influence of company size, but no significant effect of the management's risk tolerance.

Lourenço and Branco (2013) investigated the factors that drive CSP in Brazil by using companies' membership of the Bovespa Sustainability Index as a proxy and detected that successful CSP companies have a lower ownership concentration and a higher ROE than their counterparts. Kilic et al. (2015) studied the nature, extent, and trend of corporate social responsibility (CSR) reporting in the Turkish banking industry. They revealed that there is a significant positive effect of board composition, board diversity, ownership diffusion, and size on the CSR disclosure. Memili et al. (2018) analyzed the CS practices of 195 family firms in the tourism and hospitality industry, indicating that family ownership negatively influences CS practices. They also noted that long-term orientation moderates the relationship between family ownership and the adoption of CS practices.

Gungor and Dincel (2018) examined the link between CS practices and financial performance based on a sample of companies listed in BIST 100 over the period of 2012–2017. They noted that companies incorporating CS issues into their business operations would better utilize their resources toward stronger financial performance. Akben-Selcuk (2019) investigated the impact of CSR on financial performance by analyzing the moderating role of ownership concentration in non-financial companies listed in the BIST 100 index from 2014 to 2018 and showed that CSR is positively associated with financial performance. She also indicated that this relationship is negatively moderated by ownership concentration. In a more recent study, Yilmaz et al. (2020) examined the relationship between CSP of the companies listed in BIST and market-specific company measures over the period of 2014–2017. They noted a positive and significant association between the companies' inclusion to the BIST SI and the level of institutional ownership. Their results also revealed that inclusion in the BIST SI reduces the total risk of the companies and protects them from stock declines in case of a severe crisis.

Previous studies suggest that there may be diverse motivations for investing in sustainability activities. Engaging in CS provides both internal and external benefits to the company, such as developing new resources and capabilities, using its resources more efficiently, improving corporate reputation, and strengthening its ties with stakeholders (Bowen, 2007; Branco and Rodrigez, 2006). Most of these benefits are closely related to the stakeholder theory, which proposes that companies should properly manage their relationship with stakeholders to stay competitive in the market (Marom, 2006). This issue is so important that both individual and institutional investors apply sustainability screening in their decision-making processes.

This is not the only factor to consider; CSP issues have also affected corporate boards. However, the effects of board attributes are relatively hard to identify. Although data are available concerning the proportion of foreign and institutional ownership as well as the number of female and independent board members, one should combine these factors to reflect the orientation of CG to the CSP.

The aforementioned discussion shows that investing in CSP could add value to certain parties but may be partially destructive for others. Hence, the companies should embark upon CS spending to maintain a balance between different parties and enhance their corporate reputation to make the company an appealing investment to sustainability-conscious investors. Here, differences in CSP across firms may stem from their changing investor base, board characteristics, and firm-specific influences.

One should note that most of the previous empirical studies have investigated fewer dimensional indicators of CSP. This study elaborates on how the companies in Turkish capital markets should engage in CS activities to fulfill the expectations of their various types of investors, board members, and to keep meeting the goals of shareholders.

2.1. Ownership structure

2.1.1. Family ownership

In emerging markets, most firms are family-owned organizations and have a dominant owner, in many instances, the founding family. Families, as owners of the firms, tend to seek their own interests. Since CSP influences company performance in the long-run and may decrease profitability in the short-term, family members are less likely to adopt CS practices (Faller and Knyphausen-Aufseß, 2018; Oh et al., 2011). Memili et al. (2018) investigated the impact of family ownership on CS practices for 195 companies in the tourism and hospitality industries and found that family ownership negatively affects CS practices. Moreover, while some researchers note that family ownership negatively affects CSP and reporting (e.g., Campopiano and De Massis, 2015; Rees and Rodionova, 2014; Shaukat et al., 2016), others were not able to identify any significant link between family ownership and environmental and social disclosures (Majeed et al., 2015). Therefore, we hypothesize that:

H1a. *There is a negative association between family ownership and corporate sustainability performance.*

2.1.2. Foreign ownership

It is essential to elaborate on the impact of foreign ownership in a company since foreign investors typically force companies to be more sensitive to CS activities. The resource dependence theory argues that heterogeneity in the resource capabilities of different owners with diversified experiences leads to a differential impact on company performance (Khan et al., 2013). Companies that have investors across different markets have more diversified stakeholder groups. Hence, they confront stronger and more diverse reactions, driving them to perform CS activities to protect their reputation.

Previous studies also noted a positive association between foreign ownership and CSP (Harjoto and Jo, 2011; Katmon et al., 2019; Khan et al., 2013; Oh et al., 2011). Regardless of the existence of either a positive or negative link between the extent of foreign ownership and ESG performance, we may claim that if the CSP of a company increases, it positively affects the equity ownership of foreign investors from countries with a strong CS awareness. This subject is crucial for BIST companies since foreign investors, on

average, own 60% of the free float shares in the market. Therefore, the following hypothesis is proposed:

H1b. *There is a positive association between foreign ownership and corporate sustainability performance.*

2.1.3. Institutional ownership

Institutional shareholders constitute a powerful group of stakeholders, and they usually consider CSP to be a vital factor in their decisions. They closely observe the company's management and drive them to release more information on their CS activities (Ntim et al., 2013). Graves and Waddock (1994) argued that institutional ownership positively affects CSP because institutional shareholders act as long-term investors. Similarly, Oh et al. (2011) expected a positive link between institutional owners and CSP as they desire to preserve their public reputation by investing in companies with high CSP.

Similarly, Alda (2019), Harjoto and Jo (2011), Majeed et al. (2015), and Punte (2013) found that CSP is positively associated with institutional ownership. Others argued that institutional owners tend to invest in companies characterized by a high level of CSP if they consider it mitigates the investment risk (Jo and Na, 2012; Mahoney and Roberts, 2007). Considering this discussion and confirming evidence, we propose the following hypothesis:

H1c. *There is a positive association between institutional ownership and corporate sustainability performance.*

2.1.4. Public ownership

It is vital to distinguish public versus non-public companies to measure the influence of traded shares on CSP. A high level of public ownership influences the CSP of firms since a variety of investors pay the price for CSP, and, therefore, they are more likely to prefer investments in ESG activities despite their costs. Relying on the agency perspective, one may claim that companies with highly dispersed ownership structures tend to reach a high level of CSP, indicating their commitment to sustainability matters. Companies successful at CSP have a highly diffused ownership structure to reduce agency costs (Fama and Jensen, 1983).

Publicly listed companies are more subject to external pressure. They are held responsible for their actions in managing social relations and environmental matters. As the company ownership becomes less concentrated, public accountability becomes more critical and requires additional efforts in CS activities. Sánchez et al. (2011) argue that management becomes more susceptible to social problems when its ownership is more diffused since impact investing funds may interfere in decision-making. Based on this discussion, we hypothesize that:

H1d. *There is a positive association between public ownership and corporate sustainability performance.*

2.2. Board attributes

2.2.1. Board size

A strong and efficient board enhances the performance and reputation of a company and may lead to proactive behaviors during CS activities. Clearly, board size depends on the complexity of a firm, so its industry and overall size are important factors influencing this variable. Larger boards are more efficient in terms of stakeholder representation when engaging in ESG practices and improving CSP (Cheng and Courtenay, 2006; Jizi et al., 2014). More members on a board may assist management by facilitating access to resources, skills, and experiences in particular fields (Amran et al., 2014; Katmon et al., 2019; Khan et al., 2013).

A large board may also lessen agency conflicts (De Villiers et al., 2011; Ntim et al., 2013). Finally, a large board may have more proficient directors who can efficiently deal with several pressing issues, including biodiversity, pollution, and media exposure. Previous literature reveals that board size is positively associated with CSP (De Villiers et al., 2011; Mahmood et al., 2018; Ntim et al., 2013). Subsequently, we anticipate the following hypothesis:

H2a. *There is a positive association between board size and corporate sustainability performance.*

2.2.2. Female board membership

The representation of female board members may have positive outcomes on CSP as women tend to think more positively of ethical issues and are more vulnerable to environmental and social issues than men (Bord & O'Connor, 1997; Kabongo et al., 2013). This view has been widely acknowledged by numerous scholars (e.g., Bear et al., 2010; Cordeiro et al., 2019; Galbreath, 2018; Glass et al., 2016; Katmon et al., 2019; Qureshi et al., 2019), who argue that CSP is positively linked to the percentage of female members on boards since such members can seek links with essential resources and access to more communication channels compared to male members. Hence, we assume the following hypothesis:

H2b. *There is a positive association between the proportion of female board members and corporate sustainability performance.*

2.2.3. Independent board membership

Independent board members generally control, supervise, and monitor management and offer useful suggestions for management's decisions on CSP (Chang et al., 2017; De Villiers et al., 2011; Oh et al., 2011). Johnson and Greening (1999) argue that independent board members are naturally long-term oriented and are thus more inclined to accept short-term losses for the sake of long-term gains.

In fact, the appointment of independent members to the boards may be regarded as a policy to manage the company's connection to its external environment to improve credibility, reputation, and legitimacy (Garcia-Meca and Palacio, 2018). Webb (2004) concluded that the boards of socially responsible companies have more outside members compared to non-socially responsible companies. Other scholars have also theorized a positive link between board independence and CSP (Chang et al., 2017; De Villiers et al., 2011; Ntim et al., 2013). Hence, based on the preceding evidence, we propose the following:

H2c. *There is a positive association between the proportion of independent board members and corporate sustainability performance.*

2.2.4. Chief executive officer (CEO) duality

CEO duality refers to instances when the CEO also retains the position of the board's chairman. When both positions are assigned to a single person, the CEO is granted superior authority. Therefore, the board cannot accurately appraise the top management's performance, and this may mean the board is less effective at fulfilling its monitoring and controlling functions (Mallette and Fowler, 1992; Rechner and Dalton, 1991). This may also decrease the extent of the board's independence, in addition to the company's accountability and transparency (Michelon and Parbonetti, 2012).

Although the relevant theories point towards an adverse effect of CEO duality on CSP, the literature reveals mixed results. While some of the researchers found a negative relationship (Forker, 1992; Samaha et al., 2015), others presented insignificant results (Barako et al., 2006). Still, several researchers noted a positive association between CEO duality and environmental performance (Jizi et al., 2014).

The negative association is consistent with the underlying

premises of extant theoretical perspectives as well as the common managerial rationale. Hence, we hypothesize the following:

H2d. *There is a negative association between CEO duality and corporate sustainability performance.*

2.3. Control variables

2.3.1. Financial performance

From the stakeholder theory perspective, financial performance is anticipated to be positively linked to CSP (Artiach et al., 2010; Ullman, 1985). When financial performance is high, the company is subject to less pressure from financial stakeholders and has the resources needed to allocate to CS activities (Waddock and Graves, 1997; Ziegler and Schröder, 2010).

However, the results may vary from one profitability measure to another. Artiach et al. (2010) discovered that companies with high CSP have more superior performance in terms of ROE. Ameer and Othman (2012) indicated that companies with high levels of CSP have greater financial performance based on return on assets (ROA). In line with Guenster et al. (2006), we adopt Tobin's Q to comprehensively evaluate the relationship between financial performance and CSP. This measure reflects the company's value to shareholders. Although the ROA and Tobin's Q are similar, they also have several dissimilarities. For instance, Tobin's Q is a forward-looking measure, whereas the ROA is based on contemporaneous incomes.

2.3.2. Leverage

Leverage shows the capital structure of a company. The amount of debt in the capital structure indicates the relative importance of the company's financial stakeholders. The more the company depends on debt financing, the more likely it is to consider the concerns of debtholders (Artiach et al., 2010; Barnea and Rubin, 2010). Companies characterized by low levels of debt may have more flexibility to fund CS practices (Ziegler and Schröder, 2010). Hence, we expect a negative relationship between a company's leverage and CSP.

2.3.3. Corporate governance index

The implementation of CG principles for companies is essential for growth and value creation. CSP requires good CG practices, grounded in high ethical standards, stakeholder engagement, transparency, and accountability (Salvioni and Gennari, 2016). Hussein et al. (2018) claimed that CS practices gain much support from the implementation of particular CG mechanisms. Sánchez et al. (2011) supported this view, indicating that there is a direct relationship between the firm's social sensibility of CG and its social behavior. Thus, companies that are successful in implementing CG increase shareholder values, and contribute to a sustainable society (Salvioni and Gennari, 2016).

2.3.4. Age

Although age is expected to positively affect CS activities, the results are mixed. According to Godos-Díez et al. (2011) and Moore (2001), older firms tend to have longer implementation times in ESG activities compared to younger firms. Thus, a positive association is estimated between age and CS practices; Godos-Díez et al. (2011) justify this fact by claiming that once the company implements CS activities, stakeholder demands increase, and the company feels obliged to meet them. However, other studies have failed to supply a significant association between age and adherence to CS practices (Hossain and Reaz, 2007; Trencansky and Tsaparnidis, 2014).

2.3.5. Industry

Globally, the industry receives much interest as a determinant of CSP. Results widely support that environmentally sensitive industries such as chemical, mining, transportation, and petroleum spend more efforts to increase their sustainability performance to strengthen their credibility and legitimacy (Braam et al., 2016; Brammer and Pavelin, 2004; Reverte, 2009). Thus, industry affiliation may have a significant impact on CSP.

3. Research methodology

3.1. Sample

The BIST 100 Index constitutes our sample frame. Consistent with previous studies, financial companies are omitted from the dataset due to their distinct financial reporting standards. After the elimination of financial companies, our sample eventually comprised of 63 firms. The timeframe for our dataset covers the period of 2014–2018. The data are amassed from the following sources: (1) Public Disclosure Platform, (2) Central Registry Agency; (2) company annual reports; (3) company webpages; and (5) individual direct connections through e-mail or contacting companies' investor relations departments. The data related to board attributes were mostly hand-collected.

The proxy that we used for the dependent variable (i.e., the membership of BIST SI) offers a benchmark for Turkish companies with high CSP and boosts awareness, knowledge, and implementation of CS practices in Turkey. For a BIST SI membership, companies should perform over a particular threshold for each group of criteria in management, policy, and reporting. These criteria consist of several CS indicators, which, inter alia, include environmental pollution, the use of natural resources, biodiversity, human rights, employee relations, shareholder capital and rights, product safety, board information, and business ethics. However, it is not mandatory to measure and disclose the CSP for companies listed in BIST.

In our sample, companies with a high level of CSP comprise those that have been members of the BIST SI for one year or more during the 2014–2018 sample period. As a result, this study focuses on companies that have exerted significant effort in adopting CS practices. The annual reviews of the BIST 100 demonstrate that 24 unique non-financial companies[1] are represented in the BIST SI from 2014 to 2018. Of these, only seven[2] are persistently included in the index every year over the sample period, while 17 companies are only occasionally included. This generates a maximum sample of 92 company-year observations for the leading CSP companies. For the sample of other non-financial firms in the BIST 100, there are 223 company-year observations, involving all companies in the BIST 100 for each year they are not in the BIST SI in any other year of the study period. Regarding the sectoral breakdown of the companies, 29% operate in the service industry, while 71% are in the manufacturing industry.

3.2. Variable measurement

The definitions and measurements of the variables are provided in the ensuing subsections.

[1] The list of non-financial companies represented in the BIST SI during the sample period covering 2014–2018 includes: Anadolu Efes, Aksa Enerji, Anadolu Cam, Arçelik, Aselsan, Coca Cola, Ereğli, Ford Otosan, Kordsa, Migros, Netaş, Otokar, Pegasus, Şişecam, Soda Sanayi, Turkcell, Turkish Airlines, Tofaş Oto Fabrikalari, Turk Telekom, Türk Traktör, Tüpraş, Ulker Bisküvi, Vestel, and Zorlu Enerji.

[2] These companies are Arçelik, Aselsan, Migros, Turkcell, Tofaş Oto Fabrikalari, Turk Telekom, and Tüpraş.

3.2.1. Dependent variable

Corporate sustainability performance (CSP) is used as a dependent variable, as is consistent with prior research (Chih et al., 2010; Lourenço and Branco, 2013; Ziegler and Schröder, 2010). CSP is measured using a binary variable that assumes "1" if the company is a member of the BIST SI and "0" otherwise.

3.2.2. Independent variables

To estimate the determinants of CSP, we used two sets of independent variables for ownership structure and board attributes. While ownership structure involves family ownership, foreign ownership, institutional ownership, and public ownership, board attributes consist of board size, the presence of women on the board, independent board membership, and CEO duality.

Family ownership (FMOWN) is computed by a binary variable, where "1" indicates whether a person or a family member holds at least 20% of the shares and "0" otherwise.

Foreign ownership (FOWN) is measured using the proportion of foreign investor shares to total shares.

Institutional ownership (IOWN) is measured by the proportion of institutional investor shares to total shares.

Public ownership (POWN) is measured using the proportion of publicly traded shares to total shares.

Board size (BSIZE) is measured by the number of board members.

Female board membership (BFEM) refers to the existence of female members on the board, computed by the proportion of female members on the board.

Independent board membership (BIND) is the proportion of independent and non-executive board members. It is computed by the proportion of independent members on the board.

CEO duality (CDUAL) is defined when the CEO is also chairman of a board. CEO duality is measured using a binary variable, where "1" designates whether the CEO also holds a chairmanship position and "0" otherwise.

3.2.3. Control variables

The following control variables are incorporated into our analysis: financial performance, leverage, CG index, firm age, and industry.

Financial performance is measured using Tobin's Q. In line with prior research (e.g., Guenster et al., 2006; Ziegler and Schröder, 2010), we consider Tobin's Q to examine the effect of a company's financial performance. It is computed as follows:

$$\text{Tobin}'\text{s Q} = \frac{\textit{Market Value} + \textit{Total Debt} - \textit{Current Assets}}{\textit{Total Asset}} \tag{1}$$

Leverage (LEV) is computed by total liabilities divided by total assets.

Corporate governance index (CGI) is measured using a binary variable, where "1" signifies if a company is listed on the BIST Corporate Governance Index and "0" otherwise.

Age (AGE) is calculated by the total number of years elapsed since the formation of the company.

Industry (IND) is measured using a binary variable, where "1" indicates whether a company is in the manufacturing industry and "0" otherwise.

Fig. 1 outlines the research framework along with the hypothesized relationships.

3.3. Data analysis

Our dataset comprises both cross-sectional and time-series observations that fit panel data. In line with previous research (e.g., Artiach et al., 2010; Chih et al., 2010; Gamerschlag et al., 2011; Lourenço and Branco, 2013), we test our hypotheses by simultaneously estimating the logit and probit models to test the sensitivity of the results, as shown in Equations (2)–(5). A dummy variable is also included for each year to capture anything unique to the selected time period in Equation (6).

$$CSP_{i,t} = \alpha_1 + X_1 Tobin's\ Q_{i,t} + X_2 LEV_{i,t} + X_3 CGI_{i,t} + X_4 AGE_{i,t} + X_5 IND_{i,t} + \varepsilon_{i,t} \tag{2}$$

$$CSP_{i,t} = \alpha_1 + X_1 FMOWN_{i,t} + X_2 FOWN_{i,t} + X_3 IOWN_{i,t} + X_4 POWN_{i,t} + X_5 Tobin's\ Q_{i,t} + X_6 LEV_{i,t} + X_7 CGI_{i,t} + X_8 AGE_{i,t} + X_9 IND_{i,t} + \varepsilon_{i,t} \tag{3}$$

$$CSP_{i,t} = \alpha_1 + X_1 BSIZE_{i,t} + X_2 BFEM_{i,t} + X_3 BIND_{i,t} + X_4 CDUAL_{i,t} + X_5 Tobin's\ Q_{i,t} + X_6 LEV_{i,t} + X_7 CGI_{i,t} + X_8 AGE_{i,t} + X_9 IND_{i,t} + \varepsilon_{i,t} \tag{4}$$

$$CSP_{i,t} = \alpha_1 + X_1 FMOWN_{i,t} + X_2 FOWN_{i,t} + X_3 IOWN_{i,t} + X_4 POWN_{i,t} + X_5 BSIZE_{i,t} + X_6 BFEM_{i,t} + X_7 BIND_{i,t} + X_8 CDUAL_{i,t} + X_9 Tobin's\ Q_{i,t} + X_{10} LEV_{i,t} + X_{11} CGI_{i,t} + X_{12} AGE_{i,t} + X_{13} IND_{i,t} + \varepsilon_{i,t} \tag{5}$$

$$CSP_{i,t} = \alpha_1 + X_1 FMOWN_{i,t} + X_2 FOWN_{i,t} + X_3 IOWN_{i,t} + X_4 POWN_{i,t} + X_5 BSIZE_{i,t} + X_6 BFEM_{i,t} + X_7 BIND_{i,t} + X_8 CDUAL_{i,t} + X_9 Tobin's\ Q_{i,t} + X_{10} LEV_{i,t} + X_{11} CGI_{i,t} + X_{12} AGE_{i,t} + X_{13} IND_{i,t} + \sum_{k=1}^{5} \lambda_k Year + \varepsilon_{i,t} \tag{6}$$

where $CSP_{i,t}$ is computed by a binary variable, where "1" indicates if firm i represents a BIST SI company from the BIST 100 Index and "0" otherwise.

The main distinction between the logit and probit models is based on the assumption of the distribution of the error terms in the model. For the logit model, the errors are expected to follow the standard logistic distribution, while in the probit model the errors are assumed to follow a normal distribution. The logit and probit models offer a valuable framework through which to work with discrete choice models with continuous variables on the right-hand side.

After estimating the logit and probit models, we first assess the level of statistical significance of each specification with several tests. The null hypothesis, namely that every single indicator is zero, is tested with a z-test on each parameter. Thereafter, the joint hypothesis that all the coefficients are zero is tested via a chi-squared test. In the final step, the McFadden R square and LR statistic values are calculated to analyze the explanatory power of the model.

4. Empirical findings

Table 1 displays the descriptive statistics and the bivariate correlations among the variables. None of the correlations between predictor variables has a value above 0.55. The variance inflation factors (VIF) for the variables are also far lower than the cut-off value of 10, suggesting that multicollinearity is not a concern for

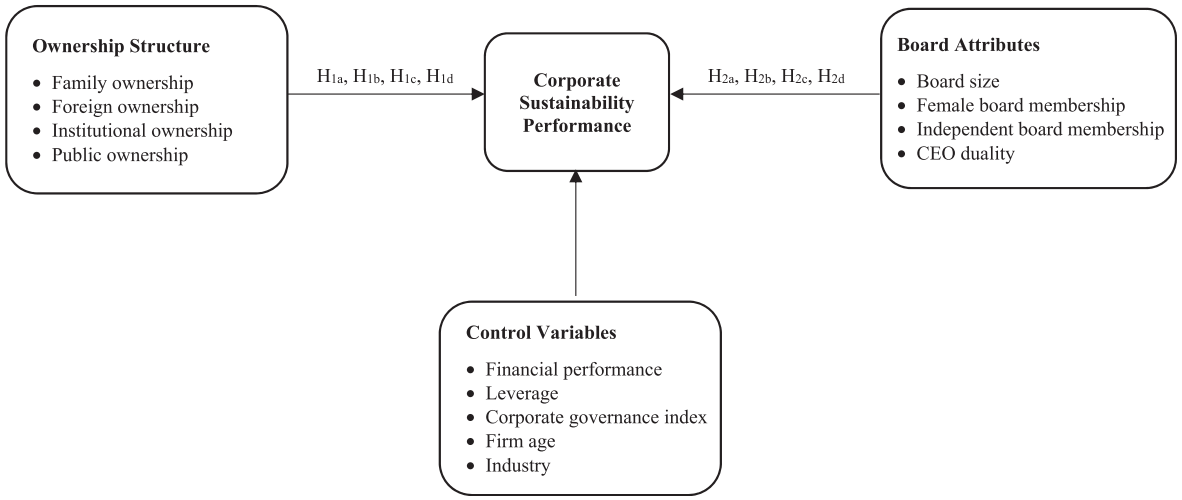

Fig. 1. Research framework.

Table 1
Descriptive statistics and correlation matrix.

Variables	Variable names	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CSP	Corporate sustainability performance	.29	.46	1.00													
2. FMOWN	Family ownership	.59	.49	.02	1.00												
3. FOWN	Foreign ownership	.19	.20	.37*	.01	1.00											
4. IOWN	Institutional ownership	.73	.26	.47*	.04	.39*	1.00										
5. POWN	Public ownership	.48	.27	-.23*	.03	-.08	-.55*	1.00									
6. BSIZE	Board size	8.03	2.29	.47*	-.01	.45*	.37*	-.27*	1.00								
7. BFEM	Female board membership	.10	.12	-.11	.10	-.18*	-.15*	.06	-.18*	1.00							
8. BIND	Independent board membership	.30	.09	.18*	-.14	-.12	-.14	.20*	-.11	-.04	1.00						
9. CDUAL	CEO duality	.03	.17	-.07	.06	-.04	-.28*	.12	-.01	.19*	.01	1.00					
10. TOBIN'S Q	Financial performance	1.05	.85	-.07	-.06	.18*	.05	-.01	.05	-.14	-.02	-.10	1.00				
11. LEV	Leverage	.63	.38	.08	-.09	-.07	-.03	.08	.08	-.18*	-.02	-.07	.41*	1.00			
12. CGI	Corporate governance index	.29	.45	.49*	.17*	.17*	.39*	-.29*	.48*	-.15*	.15*	-.02	-.08	-.04	1.00		
13. AGE	Firm age	41.08	16.68	.11	.10	.18*	.18*	-.05	.19*	.10	-.08	-.04	-.06	-.16*	.17*	1.00	
14. IND	Industry	.71	.45	-.04	.08	.04	-.05	.11	.11	.20*	-.23*	.11	-.18*	-.34*	.10	.44*	1.00

*p < .01.

our models. The VIF scores are given in Appendix 1.

Table 2 displays the parameter estimates of the effects of ownership structure, board attributes, and control variables on CSP measured by the probability of a firm being represented in the BIST SI. The results of the two estimating methodologies are highly consistent regarding the pattern of parameter significance. As illustrated in Table 2, we develop five models. Model 1 tests only the impact of the control variables, while Models 2 and 3 examine the effects of two sets of independent variables involving ownership structure and board attributes, respectively. Model 4 shows the full model containing the whole set of independent and control variables. To capture anything unique to the time period, a dummy variable for each year is added to Model 5.

Model 1 shows that, except for firm age and industry, the following control variables, including financial performance, leverage, and CG index, are significant ($p < .05$). Of these variables, leverage and CG index are positively associated with CSP, while financial performance is negatively related to CSP.

Table 2 indicates that H1a is not supported, as the coefficient of FMOWN is insignificant ($p > .1$) in all three models (Models 2, 4, and 5). FOWN is positive and significant in Models 2, 4, and 5 ($p < .01$) and provides support for H1b, suggesting that a high level of foreign ownership increases the probability of inclusion in the BIST SI. In a similar vein, the coefficient of IOWN is positive and significant ($p < .01$) in all three models (Models 2, 4, and 5), which confirms H1c. This finding indicates that a high level of institutional ownership tends to increase the probability of inclusion in the BIST SI.

On the other hand, H1d is not supported, as POWN is insignificant ($p > .1$). Thus, the level of public ownership does not affect the probability of inclusion in the BIST SI.

As for the effects of board attributes on CSP, the coefficients of both BSIZE and BIND are positive and significant ($p < .05$), as demonstrated in Models 3, 4, and 5, confirming H2a and H2c, respectively. These results reveal that board size and independent board membership are positively linked to CSP.

In contrast, no support has been found for either H2b or H2d concerning the effects of both female board membership and CEO duality, respectively, on CSP, as the coefficient of BFEM is insignificant in all three models (Models 3, 4 and 5), with that of CDUAL being insignificant ($p > .1$) in two models (Models 3 and 5). These results are also in line with those of previous studies (Allegrini and Greco, 2013; Muttakin and Subramaniam, 2015; Samaha et al., 2012).

Table 3 presents a summary of the hypotheses with the level of support for each.

Table 2
Logistic regression results.

Variables	Variable names	Model 1		Model 2		Model 3		Model 4		Model 5	
		Logit	Probit	Logit	Probit	Logit	Probit	Logit	Probit	Logit	Probit
Independent variables											
Ownership structure											
Family ownership	FMOWN			-.21	-.18			.01	-.04	.15	.00
Foreign ownership	FOWN			4.11**	2.35**			3.78**	2.20**	4.88**	2.77**
Institutional ownership	IOWN			12.06**	6.57**			10.88**	6.03**	14.75**	8.32**
Public ownership	POWN			.20	.09			-.17	-.11	-.45	-.20
Board attributes											
Board size	BSIZE					.57**	.32**	.27*	.16*	.35*	.20*
Female board membership	BFEM					.78	.53	-.97	-.75	−3.49	−2.20
Independent board membership	BIND					10.36**	6.04**	10.11**	5.82**	12.25**	6.80**
CEO duality	CDUAL					−2.04	−1.15	−3.48*	−2.07*	−3.07	−1.80
Control variables											
Financial performance	TOBIN'S Q	-.53*	-.30*	−1.52**	-.87**	-.63*	-.38*	−1.43**	-.86**	−1.77**	−1.07**
Leverage	LEV	1.17*	.67*	3.49**	1.94**	1.29*	.73*	3.37**	1.91**	3.64**	2.08**
Corporate governance index	CGI	2.41**	1.44**	1.97**	1.14**	1.46**	.84**	1.16*	.66*	1.42**	.83**
Firm age	AGE	.01	.01	.00	.00	.01	.01	-.01	.00	-.02	-.01
Industry	IND	-.69	-.42*	-.64	-.36	-.63	-.34	-.13	-.05	-.17	-.08
Constant		−2.12**	−1.26**	−12.79**	−7.00**	−9.69**	−5.59**	−16.74**	−9.42**	−23.31**	−1.07**
LR statistic		85.19	85.63	190.52	189.66	133.12	133.44	205.83	206.60	241.19	242.42
McFadden R^2		.22	.23	.50	.50	.35	.35	.54	.54	.63	.64

*p < .05, **p < .01.

Table 3
Summary of hypotheses.

Hypothesis	Variable name	Expected sign	Actual sign	Level of support
Ownership structure				
Hypothesis 1a: There is a negative association between family ownership and corporate sustainability performance.	FMOWN	(−)	(+)	Not supported
Hypothesis 1b: There is a positive association between foreign ownership and corporate sustainability performance.	FOWN	(+)	(+)*	Supported
Hypothesis 1c: There is a positive association between institutional ownership and corporate sustainability performance.	IOWN	(+)	(+)*	Supported
Hypothesis 1d: There is a positive association between public ownership and corporate sustainability performance.	POWN	(+)	(+)	Not supported
Board attributes				
Hypothesis 2a: There is a positive association between board size and corporate sustainability performance.	BSIZE	(+)	(+)*	Supported
Hypothesis 2b: There is a positive association between the proportion of female board members and corporate sustainability performance.	BFEM	(+)	(−)	Not supported
Hypothesis 2c: There is a positive association between the proportion of independent board members and corporate sustainability performance.	BIND	(+)	(+)*	Supported
Hypothesis 2d: There is a negative association between CEO duality and corporate sustainability performance.	CDUAL	(−)	(−)	Not supported
Control variables				
Financial performance	TOBIN'S Q	(+/−)	(−)*	
Leverage	LEV	(−)	(+)*	
Corporate governance index	CGI	(+)	(+)*	
Firm age	AGE	(+)	(+)	
Industry	IND	(+)	(−)	

*p < .01.

5. Discussion and conclusion

Sustainability is one of the key components of the strategic vision that motivates socially and environmentally conscious companies. In this sense, CSP is a diverse, complex, and challenging process. This study offers insights into the determinants of CSP in Turkish companies. We investigated a sample of companies quoted in the BIST 100 Index and focused on two sets of CG variables, including ownership structure and board attributes, as well as a number of company-specific characteristics, including financial performance, leverage, CG index, age, and industry.

Using logit and probit models, our results reveal that both foreign and institutional ownership are positively linked with CSP, which tend to support the arguments of stakeholder theory. Thus, a high degree of such ownership increases the probability of inclusion in the BIST SI. These results corroborate the findings of earlier studies (e.g., Harjoto and Jo, 2011; Majeed et al., 2015; Oh et al., 2011; Punte, 2013) and encourage companies to have a more sensitive relationship with their foreign and institutional investors on sharing the outcomes of the CS activities. In fact, this finding should not be surprising since most foreign and institutional investors, especially in terms of mutual funds, are particularly keen on investing in sustainability-conscious firms (see Appendix 2 for some selected blue-chip Turkish companies listed in the BIST SI), and they closely evaluate their CSP besides financial performance.

We were unable to find support for an association between CSP and family or public ownership. These results confirm the findings of previous studies (Rees and Rodionova, 2014; Shaukat et al., 2016). One reason for this may be that families, as owners of the

firms, tend to pursue their own interests and are less compliant with social and environmental responsibility standards, corroborating the arguments of agency theory. Since CS activities may decrease profitability in the short-term, family members are less likely to invest in these activities, treating them as a cost item. Another reason may be a low level of free float in BIST companies; the average free float in BIST 100 companies is 34%.

The finding that board size and the proportion of independent board members are positively associated with the CSP of Turkish companies may be due to the diverse views and backgrounds of independent board members (i.e., education, professional experience, international affiliation). They typically view CS activities as part of the overall corporate strategy for managing the company's relationship with its external environment to improve reputation, legitimacy, and credibility. These findings support the descriptive and normative perspectives of the stakeholders theory. In contrast, no support has been found concerning the effects of both female board membership and CEO duality on CSP. Although female board members think more favorably of environmental and social issues than men, the proportion of women on boards in Turkish companies is still low compared to developed countries.

The findings also indicate that while financial performance is negatively and statistically significant, leverage is positively and statistically significant for firms with a high level of CSP. When we scrutinize CG performance, inclusion in the BIST CG Index is positively related to CSP. Thus, the orientation towards CG promotes CSP by ensuring fair treatment and accountability in the company.

5.1. Managerial implications

This study offers several practical implications for companies and policymakers. Our findings generally prove that CS oriented policies increment financial and non-financial benefits to Turkish companies, providing them with competitive advantages such as attracting foreign and institutional investors. Furthermore, foreign and institutional investors drive company managers to consider more proactive social and environmental performances and disseminate more CS-related information to their stakeholders. The findings also encourage companies to structure their boards meticulously by involving more independent board members, having different backgrounds to improve their CSP and contribute to the welfare of society.

As noted earlier, previous scholarship has placed less emphasis on CS practices in emerging countries than developed countries and has largely failed to distinguish the determinants of CSP between developed and emerging countries. Therefore, this study contributes to the literature by extending its findings to other emerging markets since the companies operating in these countries want to attract forward-looking institutional investors and to enhance their social and environmental reputation in the society by acting in line with the imperatives of the global business environment.

In the face of poor regulatory measures, the existence of institutional voids, and the greater relevance of CS practices for wider human development, an understanding of the key antecedents of CSP in emerging countries becomes crucial for public policy. Nonetheless, our study suggests that even in the lack of strong public pressures, or the absence of effective government regulations on CSR reporting, understanding the relationships among CSP, ownership structure, and board attributes is vital within the context of emerging countries. Therefore, we suggest that company managers, policymakers and regulatory bodies should make a greater effort to unlock these intricate linkages for an improved understanding of CSP determinants.

5.2. Limitations and future research

It should be acknowledged that our study has certain limitations. Hence, its findings should be treated with caution. First, the dataset only stretches five years from 2014 to 2018 because the BIST SI has only been available since 2014. Second, only volunteer firms among companies other than BIST 50 Index are evaluated by the BIST for their eligibility to be included in the index, which might have kept the number of companies with a superior CSP low in the sample. Third, other factors might affect the CSP of the companies, such as growth opportunities, cash flow, and innovation, all of which could be investigated in future research as additional potential drivers of CSP. Moreover, conducting a survey among either companies or investors may be a complementary approach to further analyze the perceptions of these parties on board attributes and foreign and institutional investors in CS applications for companies to reevaluate their strategies. Finally, there is a need for properly designed case studies as well as global comparisons along with some additional control variables such as international pressures and regulatory obligations. We still need more detailed comparative studies by using large global datasets to study the intra-regional and inter-regional dissimilarities regarding the determinants of CSP in both developed and emerging countries.

Author contribution

Mine Aksoy: discussion of the results, Visualization, Supervision, Writing - original draft, Writing - review & editing, Methodology, Formal analysis, Data curation, Conceptualization and research design, Mustafa K. Yilmaz: discussion of the results, Writing - original draft, Writing - review & editing, Conceptualization and research design, Ekrem Tatoglu: Writing - original draft, Writing - review & editing, Visualization, Supervision, discussion of the results, Merve Basar: Writing - original draft

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jclepro.2020.124284.

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