Board diversity and export intensity: the moderating role of firm size

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Abstract

Purpose – Building on resource dependence theory and contingency theory (CT) and focusing on an emerging market setting, this study investigates how demographic board diversity (BD) influences the export intensity (EI) of firms listed on Borsa Istanbul (BIST), with the moderating effect of firm size, as a contingency factor, on this interaction.

Design/methodology/approach – Using a sample of 65 exporting firms listed on the BIST Industrials Index, this study explores how demographic attributes of board members, represented by the board diversity index (BDI), affects EI by employing panel data analysis over the period of 2016–2020.

Findings – The results suggest that there is a negative relationship between BD and EI, but firm size has a positive moderating effect on the association of BD and EI, indicating that large firms with diverse boards are more prone to access foreign markets and make export. The findings further indicate that board size and CEO duality have a negative and significant effect on EI, while marketing intensity has a positive and significant impact.

Research limitations/implications – The sample covers only public companies listed on the BIST Industrials Index, and the impact of board characteristics on the EI is analyzed for a limited time frame, i.e. from 2016 to 2020.

Practical implications – The findings help business executives better understand the contribution of the firm size on the interaction of BD and EI and offers valuable insights to companies to gain a competitive edge in international markets.

Originality/value – The study provides evidence on the effects of board attributes on the EI from the perspective of emerging countries. It also helps to gain a deeper understanding of how board dynamics contribute to the internationalization of companies.

Keywords Board diversity, Export intensity, Firm size, Internationalization

Paper type Research paper

1. Introduction

Internationalization plays a vital role in the growing stage of corporate life cycle contributing to global positioning. Growth-oriented companies and particularly companies in emerging markets struggle to develop a presence in international arena given the increasing competitiveness of emerging countries in the world trade (Buck *et al.*, 2007; Ilhan Nas and Kalaycioglu, 2016). On this respect, export stands to be the dominant mode of internationalization and helps companies to gain a competitive edge and build a global reputation. Thus, companies put more resources to boost export performance (Greenaway *et al.*, 2007; Nam *et al.*, 2018; Park *et al.*, 2010). These resources include firm and board-level human capital, financial resources and technological capacity among many others (Dharanaj and Beamish, 2003; Oviatt and McDougall, 2005).

Board-level influence associated with resource dependence theory is best presented by the composition of the board as a means of explaining differences in export intensity (EI). This

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internal resource is particularly firm-specific. Some studies label it as a managerial resource. Reuber and Fischer (1997) noted that board members with international knowledge and experience are more likely to engage foreign partners. Hambrick and Mason (1984) share the view that board diversity (BD) is relevant to the heterogeneity of the characteristics within a managerial group, leading to better decision-making, especially in unstable environment.

Most of the prior studies on BD investigate only a narrow set of corporate outcomes, typically focusing on the role of board members in enhancing financial performance and firm value (Chizema *et al.*, 2015; Hillman *et al.*, 2009; Liu *et al.*, 2014; Ntim, 2015; Ntim *et al.*, 2015), while they overlook the resource provision role of board members, particularly in supporting EI (Hillman *et al.*, 2009; Lopez-Rodriguez and Garcia-Rodriguez, 2005). In international business, this gap is important since the role of the board in accessing to international markets and getting resources for export is vital (Rivas, 2012). Another point is that many works have analyzed developed countries (Chizema *et al.*, 2015; Ntim *et al.*, 2013, 2015), while there are relatively few works on the effect of BD on EI in emerging markets. This is important since corporate governance mechanisms in developing countries differ from those in developed markets, and there have been many regulatory changes in corporate governance in these markets (Buck *et al.*, 2008; Chizema *et al.*, 2015; Ntim *et al.*, 2015).

This study aims to explore the impact of demographic board characteristics on EI by adopting resource dependence and contingency perspectives for a sample of firms listed on Borsa Istanbul (BIST) Industrials Index over the period of 2016–2020. We focus on EI to give an outlook of the dimension to which BD affects EI. Turkey presents a fascinating setting for exploring this relationship for two reasons. First, many Turkish companies have accelerated the internationalization of their operations since 2003, and Turkey has become the twenty ninth country in terms of product export in the world in 2020 (World Bank, 2021). During the last five reported years, the export figure of Turkey has changed from USD 166 billion in 2014 to USD 225 billion in 2021. Second, corporate governance has evolved rapidly in Turkey since 2003 and has helped companies to integrate their business with the global economy.

Our paper makes three main contributions. First, it assumes that demographic board characteristics are of equal importance, and it calculates a board diversity index (BDI) to measure diversity-in-board. Hence, it delineates resource dependence power of the board attributes on the EI. Second, the work is pertinent to emerging markets, particularly the unique setting of Turkey, where there are few studies. Thus, our study offers valuable insights on this perspective. Finally, the study discusses the moderating role of firm size in influencing the interaction of BD and EI, leading to significant results for a better exposition of the export.

We proceed through the discussion of the theoretical framework. Section 3 provides the data and methodology, while Section 4 reports the empirical findings, followed by a conclusion and discussion section.

2. Theoretical framework and hypotheses development

2.1 Theoretical framework

Corporate governance plays a vital role in the international expansion of companies (Ilhan Nas and Kalaycioglu, 2016). Companies that have good governance practices, including diverse boards, may perform better in foreign markets. Resource dependence theory (RDT) and contingency theory (CT) are two prominent theories that underline how BD effects EI. RDT suggests that the board of directors is a resource for a company, including experience, knowledge and networks. Companies seek to optimize the combination of these resources to increase firm value and enhance their international business (Carpenter and Westphal, 2001; Hillman and Dalziel, 2003; Pfeffer and Salancik, 1978). The board of director acts to facilitate access to various external resources and reduce environmental uncertainty. Given that

exporters need to obtain diverse resources from outside organizations to alleviate uncertainty, RDT provides a useful lens with which to examine the determinants of a firm's export performance (Nam *et al.*, 2018; Tesfom *et al.*, 2004). In this sense, as argued by Rivas (2012) and Spadafora *et al.* (2022), BD can lessen internationalization-related uncertainty by exploiting directors' diverse knowledge, skills and abilities. CT, on the other hand, argues that the effects of board attributes could be improved depending on the organizational factors (Boyd *et al.*, 2011). Robertson and Chetty (2000) use CT to show that the export performance of firms is related to the context in which they operate. Kaczmarek *et al.* (2014) assert that firm size is a contingent factor that may influence decision-making on EI. Zona *et al.* (2013) and Damanpour (2010) claim that the coordination problems faced by large boards are mitigated by the support provided by competent executives of larger firms, which may facilitate firms' decision-making, group information-processing and firm performance. In this work, we combine these two theories to empower the understanding of BD and its effect on EI.

Although there are numerous studies discussing the influence of managerial, financial and marketing factors, i.e. productivity, financial constraints, market opportunities, distribution channels, on export performance (Aaby and Slater, 1989; Berman and Hericourt, 2010; Leonidou *et al.*, 1998; Manova and Zhang, 2012), relatively few works were held on the influence of BD on EI. Given the association between export decision and investment decision, one may argue that good corporate governance may have significant effects on investment, and thus, on export decision. As dictated by the RDT, boards act as extensions to the executive management beside monitoring the firm (Zhang *et al.*, 2011). Filatotchev *et al.* (2007) analyzed the internationalization of the Polish and Hungarian firms and reported that the international vision of independent board members and board participation of foreign stakeholders assist firms to manage challenges in international expansion. Calabrò *et al.* (2009) asserted that board attributes are critical resources contributing to the international expansion of Norwegian firms. Thus, exploring how BD affects EI adds a new dimension to international trade and help explaining deviations in EI.

Studies provide different results on the interaction of BD and EI. Herrera-Echeverri *et al.* (2016) examined the association between export performance, and board composition for a sample of 33,249 Colombian firms from 2008 to 2013 and revealed that companies with higher non-executive members on board exhibit high level of export. Similarly, Nam *et al.* (2018) searched the influence of board directors on the export performance for a sample of 642 firms listed on Korean Stock Exchange for the years 2001–2007 and found a positive association between the outside board directors and export performance. They also indicate that firms with former multinational corporations' executives on board have better export performance. Ilhan Nas and Kalaycioglu (2016) searched the effects of board attributes on EI for 221 Turkish firms from 2007 to 2010 and indicated that board size has a positive impact on the EI, while a higher presence of outside directors and CEO duality are negatively associated with EI.

Firm-specific factors also play a role on EI. Alvarez and Crespi (2007) indicated that technological innovation is positively related to export performance for Chilean manufacturing firms. Similarly, Rodriguez and Rodriguez (2005) and Lefebvre *et al.* (1998) asserted that technological capacity and R&D expenses have positive impacts on EI. Cieślik *et al.* (2017) studied the determinants of export performance in selected Middle East/North Africa countries and compared them with the performance of firms from countries in Central and Eastern Europe. The results showed that the export performance is positively associated with firm size and R&D expenses. Singh (2009) examined the export performance of firms in emerging markets by using 47,140 firm-year observations from 1990 to 2005 and identified that R&D expenses positively affect export performance, while advertising expenditure has negative effects.

Table A1 in the Appendix shows a summary of the selected studies on the relationship between BD and EI.

2.2 Hypotheses development

2.2.1 Board diversity index. Companies carefully structure the board of directors to enhance corporate governance and to optimize financial and operating performance for achieving long-term prospects (Kang *et al.*, 2007). Several studies have explored the effects of BD on corporate outcomes. Some searches consider BD as a demographic concept including age, education, gender, nationality and classifying these factors to produce a diversity-in-board index, while other works treat BD as a structural concept covering board size, board independence and CEO duality.

Forbes and Milliken (1999) claimed that the performance of demographic variables operate through some set of intervening processes. Boards that have members with different knowledge, and experience learn from each other and, enhance the quality of decision-making (Klein and Harrison, 2007). Rivas *et al.* (2009) analyzed 108 large-sized European and US companies and found that the international experience and the average tenure of the board are positively related, and the average age of the directors is negatively related to EI. Barroso *et al.* (2011) examined a sample of 562 board members of 45 listed Spanish companies and indicated that the managerial experience of board directors within the specific industry to which the firm belongs and a high level of academic achievement positively affects the firm's degree of international diversification. Lukason and Vissak (2020) analyzed 83,149 Estonian SMEs and provided mix results on the relationship between the BD and EI. These findings imply that experience and network-related efforts give rise to structures that safeguard internationalization (Verwaal and Donkers, 2002).

Some studies construct a BDI to investigate the effect of the multiple dimensions of BD on corporate policies (Baranchuk and Dybvig, 2009; Bernile *et al.*, 2018; Khan *et al.*, 2022). This work follows a similar approach and focus on the interaction of BD and EI by measuring BD through Blau Index composed of the following dimensions, i.e. age, education, experience, gender, nationality and tenure. The Blau (1977) is used in different studies for capturing the influence of the board attributes (Ararat *et al.*, 2010, 2015; Khan *et al.*, 2022). The logic is that the combined effect of different dimensions of diversity affects the well-functioning of the board, more than any individual dimension and moderate decision-making. Thus, we propose the following hypothesis:

H1. There is a positive association between demographic board diversity and EI.

2.2.2 Firm size. The impact of BD on EI may depend on several organizational factors. Firm size is one of them (Child, 1975; Li and Chen, 2018). Firm size can change the degree to which certain structures and tactics boost firm performance in consideration of different strategic goals, including internationalization (Raguseo *et al.*, 2020). Export is usually the first phase of firm internationalization as it has a relatively small investment risk and a small commitment of business resources to foreign markets. It allows firms to test a foreign market for the first time, to become familiar with different national market rules, to get in contact with clients with different preferences and to develop internal resources in serving international markets (Majocchi *et al.*, 2005). In this sense, export is the optimal mode of internationalization for small firms, and the international activities of these firms develop incrementally over time. On the other side, export is used by large firms in combination with other forms of international expansion (e.g. foreign direct investment, joint ventures). These firms use the accumulation of international experience to increase the international involvement. Consequently, there is a wide range of firms with export activity that differ significantly in terms of the business size.

Previous studies usually use firm size as a control variable. This study focuses on firm size as a moderating variable to assess the interaction of the BD and EI. The diverse vision,

knowledge and expertise on board in large companies increase the power of strategy formulation, and thus decision-making. Cavusgil (1976) considered firm size as one of the intervening variables of export performance. Other studies also find a positive relationship between firm size and export performance (Aaby and Slater, 1989; Sousa, 2004; Sousa *et al.*, 2008). Therefore, we argue that firm size influences the interaction of BD and EI, and we propose the following hypothesis:

H2. Firm size positively moderates the interaction of demographic board diversity and EI.

2.3 Control variables

2.3.1 Board specific variables. Risk preference, flexibility, commitment and dynamism of the board are likely to show a strong relationship with EI. In this study, we used three board specific variables, i.e. board size, board independence and CEO duality.

2.3.1.1 Board size. The complexity associated with internationalization may have implications for board size which may be a function of business environment complexity (Sanders and Carpenter, 1998). Companies could manage dependencies associated with sophisticated international operations by inserting more influential board members that have particular expertise and networks in international trade. Gabrielsson (2007) detected a positive relationship between board size and export activities for a sample of 135 Swedish firms. Likewise, Ilhan Nas and Kalaycioglu (2016), in their study on Turkish firms, indicated that board size has a positive impact on the export performance.

2.3.1.2 Board independence. Non-executive board directors monitor companies to ensure that they pursue right policies for the interests of shareholders. They are also able to address uncertainties faced in challenging business environment by using their networks, knowledge and experience (Hillman *et al.*, 2000; Hillman and Dalziel, 2003; Pfeffer and Salancik, 1978). Filatotchev *et al.* (2001) found a positive relationship between risk-taking and the extent of internationalization in emerging markets, reporting a positive association between outside board members and export-promoting strategies. Lien *et al.* (2005) and Lu *et al.* (2009) provided similar evidence for Taiwan and China. Thus, having more independent members on board may have a positive impact to enhance EI (Gabrielsson, 2007; Rivas, 2012; Sanders and Carpenter, 1998; Spadafora *et al.*, 2022).

2.3.1.3 CEO duality. Empirical evidence provides mixed results on how CEO duality affects EI. Some scholars argue that CEO duality may help foster decision-making authority (Finkelstein and D'Aveni, 1994), while others claim that CEO duality may not be effective in complex environments, i.e. high degree of internationalization, where companies need more delegation of authority and show higher risk-taking behavior (Boyd, 1995; Rhoades and Rechner, 2001). Consequently, more internationally diversified firms are expected to be less likely to consolidate the CEO and chairman positions compared to less internationally diversified ones to infuse more power into a firm and strengthen the information-processing capacity. This view is also supported by many studies providing evidence on the serious obstacles of CEO duality in export-promoting strategies (Filatotchev *et al.*, 2001; Filatotchev and Wright, 2011).

2.3.2 Firm-specific variables. In this study, we used five firm-specific variables that may influence EI, including R&D intensity, marketing intensity, firm size, leverage and age. We also incorporate sector as a dummy variable in conducting the regression analysis.

2.3.2.1 R&D intensity. R&D and innovative capabilities are important resources for long-run competitiveness, particularly in international markets (Alvarez and Crespi, 2007). R&D capabilities also act as a key factor in EI by enhancing a firm's technical efficiency leading to higher productivity. Baldwin and Gu (2007) reported a high incidence of exporting among producers or intensive users of technology. Brancati *et al.* (2018) showed that the percentage

of exporters engaged in R&D activities is five times greater than domestically oriented firms in Italy. Zehir *et al.* (2015) found that innovation capability has a partial mediator effect on export performance in the Turkish SMEs. Thus, the ability of accessing to foreign markets and R&D activities are positively related.

2.3.2.2 Marketing intensity. Marketing capabilities have a vital impact on the success of companies in international markets. Companies advertise to increase demand and set up a unique position for their products. All these attempts help increase export sales. In addition, some of the branding effort held in the new media serves local as well as international markets (Singh, 2009).

2.3.2.3 Firm size. Firm size plays an influential role on EI. Relatively small companies may have difficulties in reaching international markets due to insufficient capacity and efficiency, while large firms may have the ability to easily cope with international operations and may accumulate necessary resources to direct greater efforts to export (Bonaccorsi, 1992). Earlier studies show that large companies could better manage the risks of internationalization by employing more experienced human and financial resources and using higher production capacity (Calof, 1994; Erramilli and Rao, 1993; Serra *et al.*, 2012). Thus, larger companies have advantages in export activities (Gao *et al.*, 2010; Lu *et al.*, 2009; Selcuk and Tapki, 2016).

2.3.2.4 Firm risk. Firm risk affects the capacity of the companies for international expansion given that they highly depend on debt financing for internationalization, particularly in emerging markets.

2.3.2.5 Firm age. Firm age shows the preserved practices pertaining to exporting in the company. It is defined as the number of years since the company's incorporation. There may be a curvilinear relationship between firm age and EI.

2.3.2.6 Industry. The EI of companies differs from one sector to another. Companies in manufacturing and technology-based industries export relatively more. Therefore, we incorporate sector dummies in our models to control this sectorial effect.

3. Data and methodology

3.1 Sample

In our sample, there are 65 companies listed on the BIST Industrials Index for the years 2016–2020. The companies in the sample have been on the top 1,000 list of the Turkish Exporters Assembly at least once in the last 5 years. We choose non-financial companies as a sample since they contribute 25% of the gross domestic product and account for 94% of Turkey's exports. These 65 companies also constitute 62% of the BIST Industrials Index in terms of market capitalization by 2020. We collected the company-wise data from the Central Depository of Turkey and annual reports of companies. The list of companies by sectors was shown in Table 1. To create the BDI, the data that include information on age, education,

Table 1. Distribution of firms across industries

Name of sector	Number of firms	Percentage
Metal products and machinery	19	29
Chemical, petroleum and plastic	9	14
Food and beverage	9	14
Basic metal	9	14
Textile, apparel and leather	8	12
Non-metal mineral products	7	11
Wood, paper and printing	4	6
Total	65	100

Source(s): Table created by Author

experience, gender, nationality and tenure were collected manually from the annual reports of the companies. We have 325 firm-year observations.

3.2 Variables

The BDI is the independent variable in our analysis. Following Ararat *et al.* (2015), BDI was calculated by summing the Blau (1977) values of demographic board attributes, i.e. age (DAge), education (DEdu), experience (DExp), gender (DGen), nationality (DNat) and tenure (DTen). As a first step, the Blau Index values were calculated for each attribute and then summed to create a composite BDI based on the following formula:

$$\text{Blau Index} = 1 - \sum_{i=1}^{n} p_i^2 \tag{1}$$

The n represents the number of possible categories, and p represents the percentage of members of the board of directors in the nth category. The high index values show high diversification. The definition of the variables and the calculation method were presented in Table A2 in the Appendix.

Following prior studies (Buck *et al.*, 2007; Fernandez and Nieto, 2006; Gao *et al.*, 2010; Lu *et al.*, 2009), we used EI as a dependent variable to measure export performance and calculated it by the ratio of export sales to total sales. Since our sample covers only companies that export, we did not use export propensity as a dependent variable.

We use three board specific and five firm-specific control variables. We assess board diversity by structural characteristics of the board, i.e. board size (BSize), board independence (BInd) and CEO duality (BCeod), while we examine R&D intensity (RDI), marketing intensity (MRI), firm size (FSize), firm risk (FRisk) and firm age (FAge), as firm-specific variables. Table A2 in the Appendix provides the measurement of the control variables, and Figure 1 provides the conceptual framework of the study.

3.3 Methodology

The following regression models were estimated to analyze the effect of the BD on EI. There are sector dummies (Sector) and year dummies (Year) in the models to control for differences in EI through sector and time.

$$EI_{i,t} = X_1 BDI_{i,t} + X_2 BSize_{i,t} + X_3 BInd_{i,t} + X_4 BCeod_{i,t} + X_5 RDI_{i,t} + X_6 MRI_{i,t} + X_7 FSize_{i,t} + X_8 FRisk_{i,t} + X_9 FAge_{i,t} + X_{10} \sum_{k=1}^{7} Sector_{i,t} + X_{11} \sum_{k=1}^{5} Year_{i,t} + e_{i,t} \tag{2}$$

$$EI_{i,t} = X_1 BDI_{i,t} + X_2 BDI_{i,t} * FSize_{i,t} + X_3 BSize_{i,t} + X_4 BInd_{i,t} + X_5 BCeod_{i,t} + X_6 RDI_{i,t} + X_7 MRI_{i,t} + X_8 FSize_{i,t} + X_9 FRisk_{i,t} + X_{10} FAge_{i,t} + X_{11} \sum_{k=1}^{7} Sector_{i,t} + X_{12} \sum_{k=1}^{5} Year_{i,t} + e_{i,t} \tag{3}$$

4. Empirical results

4.1 Descriptive statistics

Table 2 summarizes the descriptive statistics. The EI value ranges from 0% to 98% with a mean of 40%, revealing that the average EI value of the firms in the sample is moderate. This

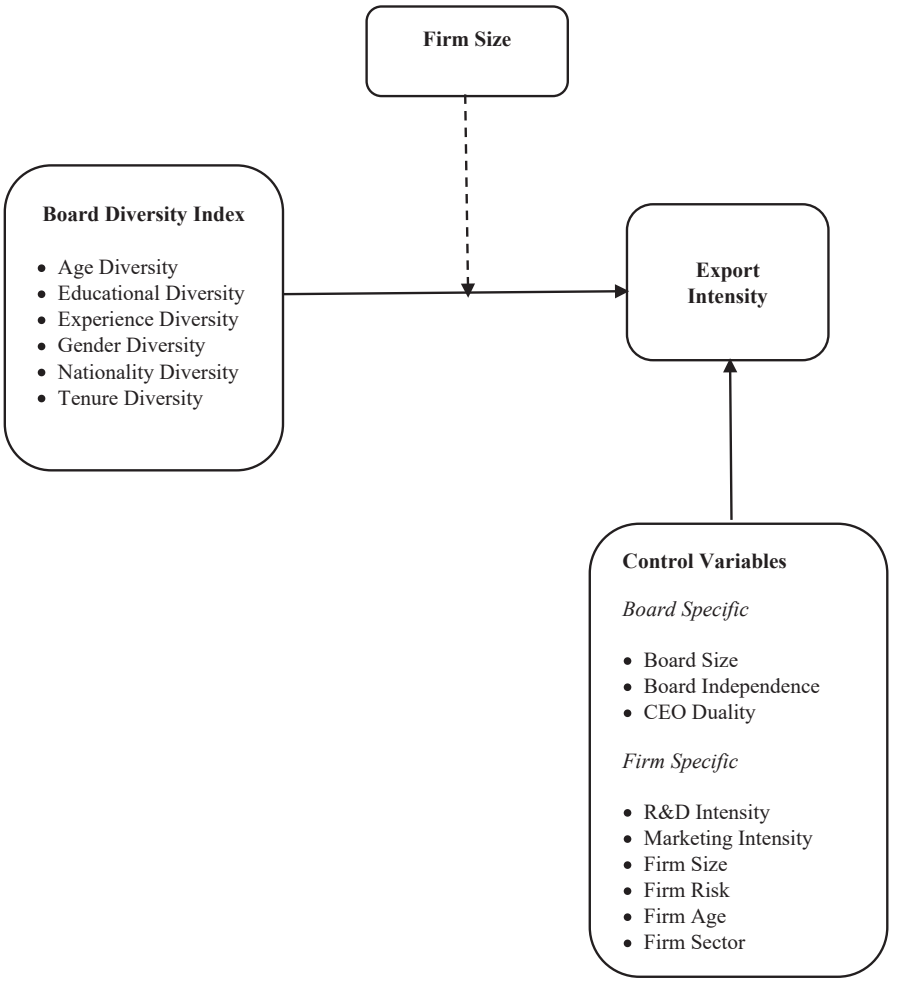

Figure 1.
Conceptual framework

Source(s): Figure created by Author

is because the export activities of the Turkish firms change from company to company, depending upon their internationalization level. BDI has a range between 1.06 and 3.63 with a mean of 2.61, indicating that demographic board diversity is quite high in Turkish companies.

As to the board-level control variables, the average board size is 7.73 with a range of 5 and 15. The mean value for the board independence is 0.30, showing that companies in the sample has a satisfactory level of board independence in line with international practices. The mean value for the CEO duality is 0.03, indicating that most of the firms in the sample do not have CEO duality.

The correlations between the variables were reported in Table 3. BDI is positively and significantly correlated with the board size, CEO duality, R&D intensity, marketing intensity and firm size. Thus, diverse boards with significant resources are in a better situation to contribute to firm strategy (Bravo and Reguera-Alvarado, 2017; Pugliese *et al.*, 2009).

Variables	Variable names	Mean	Std.Dev	Min	Max
1. Export Intensity	EI	0.40	0.24	0.00	0.98
2. Board Diversity Index	BDI	2.61	0.37	1.06	3.63
3. Board Size	BSize	7.73	2.42	5.00	15.00
4. Board Independence	Bind	0.30	0.08	0.00	0.43
5. CEO Duality	BCeod	0.03	0.17	0.00	1.00
6. R&D Intensity	RDI	0.43	0.69	0.00	4.34
7. Marketing Intensity	MRI	6.17	5.32	0.00	28.91
8. Firm Size	FSize	20.90	1.60	16.84	24.84
9. Firm Risk	Frisk	0.57	0.21	0.08	1.01
10. Firm Age	Fage	49.03	11.88	22.00	88.00

Source(s): Table created by Author

Table 2.
Descriptive statistics

Variables	1	2	3	4	5	6	7	8	9	10
1. Export Intensity	1.00									
2. Board Diversity Index	−0.04	1.00								
3. Board Size	−0.03	0.36*	1.00							
4. Board Independence	−0.11	−0.17*	−0.52*	1.00						
5. CEO Duality	−0.20*	0.13*	−0.20*	0.21*	1.00					
6. R&D Intensity	0.07	0.18*	−0.10	0.16*	0.32*	1.00				
7. Marketing Intensity	−0.05	0.16*	−0.06	0.20*	0.19*	0.39*	1.00			
8. Firm Size	−0.06	0.22*	0.52*	0.08	0.02	0.05	0.03	1.00		
9. Firm Risk	−0.03	−0.03	0.15*	0.05	0.00	−0.03	0.12*	0.30*	1.00	
10. Firm Age	−0.05	0.01	0.13*	−0.23*	−0.01	0.10	0.18*	0.16*	−0.06	1.00

Note(s): *$p < 0.05$ N = 65
Source(s): Table created by Author

Table 3.
Correlation matrix

To check for multicollinearity, we calculated variance inflation factor (VIF) which is reported in Table A3. The VIF values of the explanatory variables are below 10, indicating that multicollinearity is unlikely to influence our results.

4.2 Regression results

We conducted some tests before estimating the regression equations. First, we employed a fixed-effects model and F-test. Second, we run Hausman's (1978) test and accepted the null hypothesis, indicating that random effects model is the most suitable model. After deciding on the correct model, we tested the existence of heteroscedasticity, autocorrelation and cross-sectional dependence by applying Breusch-Pagan's (1980) test, Durbin–Watson test and Pesaran's (2004) test, respectively. The results show that panel exhibits autocorrelation, heteroscedasticity and cross-sectional dependence. Thus, we estimated a model with Driscoll and Kraay (1998) standard errors.

Table 4 shows the regression results. The findings in Model 1 show that BDI has a positive but insignificant effect on EI ($\beta = 0.011, p > 0.10$). This is in line with the findings of Selekler-Göksen and Yildirim-Öktem (2008). To yield further insight, we analyzed the interaction of BDI and EI by employing firm size as a moderating variable. The results in Model 2 show that BDI has a negative and significant effect on EI ($\beta = -0.296, p < 0.10$), whereas the interaction of the firm size and BDI (FSize * BDI) shows a positive effect on EI at the 5% significance level

Variables	Model 1	Model 2
BDI	0.011 (0.01)	−0.296 (0.113)*
BSize	−0.007 (0.003)*	−0.008 (0.003)**
Bind	−0.109 (0.072)	−0.123 (0.074)
BCeod	−0.223 (0.071)**	−0.219 (0.064)**
RDI	−0.013 (0.009)	−0.013 (0.009)
MRI	0.007 (0.001)***	0.007 (0.001)***
FSize	−0.009 (0.012)	−0.047 (0.019)*
FRisk	0.056 (0.034)	0.063 (0.035)
FAge	−0.001 (0.001)	−0.001 (0.001)
FSize * BDI		0.015 (0.005)**
Constant		1.278 (0.432)**
Sector dummies	Included	Included
Year dummies	Included	Included
Number of observations	325	325
Wald χ^2	477.72	594.11
R^2	0.153	0.167

Table 4.
Regression results for board diversity

Source(s): Table created by Author
Note(s): *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$. Standard errors in parenthesis

($\beta = 0.015, p < 0.05$), indicating that large companies benefit more from diverse boards in EI. This result supports our second hypothesis and corroborates the findings of prior studies (Cavusgil, 1976; Cieślik *et al.*, 2017; Sousa *et al.*, 2008). The moderation indicates that the relationship between board diversity and EI differs by the level of firm size. The significant coefficient of the interaction term suggests that the firm size modifies the relationship between board diversity and EI. The moderator does not elicit the board diversity effect but affects its size or direction. This is consistent with the CT which asserts that the negative impact of BD on EI diminishes as firm size increases. One reason may be that large firms with diverse board perform better in export activities due to more advanced capacities, i.e. sufficient capital, human resources and R&D capabilities. This result is consistent with the previous studies (Damanpour, 2010; Muhammad *et al.*, 2022).

For control variables in Model 1, we find a negative and significant relationship between board size and CEO duality and EI ($\beta = -0.007, p < 0.10; \beta = -0.223, p < 0.05$), indicating that the EI is reduced when the board size is large, and CEO serves as the chairman. This is in line with the findings of prior studies (Bauweraerts *et al.*, 2019; Dixon *et al.*, 2015; Filatotchev *et al.*, 2001; Filatotchev and Wright, 2011; Haldar *et al.*, 2016; Ilhan Nas and Kalaycioglu, 2016). In Model 2, there is a negative and significant relationship for board size (BSize), CEO duality (BCeod) and firm size (FSize), indicating that firms that have larger board exhibit relatively lower EI, and thus adopt more conservative approach on export. On the other side, there is a positive and significant relationship between marketing intensity and EI in all models, suggesting that firms that spend more for marketing are associated with more export. This result corroborates the findings of Stoian *et al.* (2012). Finally, firm age (FAge) and R&D intensity has a negative and insignificant coefficient, while firm risk (Frisk) has a positive and insignificant coefficient in all models.

4.3 Endogeneity

The EI can be an outcome of a diverse board, but diverse board members may also prefer international firms that export, making causality run in the opposite direction. This may cause the endogeneity problem. Therefore, we estimate the following equation:

$$BDI_{i,t} = X_1 EI_{i,t-1} + X_2 BSize_{i,t-1} + X_3 BInd_{i,t-1} + X_4 BCeod_{i,t-1} + X_5 RDI_{i,t-1} + X_6 MRI_{i,t-1} + X_7 FSize_{i,t-1} + X_8 FRisk_{i,t-1} + X_9 FAge_{i,t-1} + e_{i,t} \quad (4)$$

The regression results in Table 5 indicate that EI has a negative and insignificant effect on BDI, but board size (BSize), CEO duality (BCeod), marketing intensity (MRI) and firm size (FSize) have a positive and significant effect on BDI. The result for the firm size is significant at the 1% level and is in line with the prior studies (Arnegger *et al.*, 2014; Hillman and Dalziel, 2003). As firm size increases, the number of product lines offered by them increase and the number of geographical markets that they sell their products increase, enlarging environmental complexity. The resource dependence theory suggests that in such a complex and uncertain environment, diverse boards with experience, knowledge and networks help firms to succeed.

4.4 Post-hoc analysis using additional data

To check the robustness of our results, we tested whether our findings were sensitive to different dimensions of the board diversity. In so doing, we estimate the following equations:

$$EI_{i,t} = X_1 DAge_{i,t} + X_2 DEdu_{i,t} + X_3 DExp_{i,t} + X_4 DGen_{i,t} + X_5 DNat_{i,t} + X_6 DTen_{i,t} + X_7 BSize_{i,t} + X_8 BInd_{i,t} + X_9 BCeod_{i,t} + X_{10} RDI_{i,t} + X_{11} MRI_{i,t} + X_{12} FSize_{i,t} + X_{13} FRisk_{i,t} + X_{14} FAge_{i,t} + X_{15} \sum_{k=1}^{7} Sector_{i,t} + X_{16} \sum_{k=1}^{5} Year_{i,t} + e_{i,t} \quad (5)$$

$$EI_{i,t} = X_1 DAge_{i,t} * FSize_{i,t} + X_2 DEdu_{i,t} * FSize_{i,t} + X_3 DExp_{i,t} * FSize_{i,t} + X_4 DGen_{i,t} * FSize_{i,t} + X_5 DNat_{i,t} * FSize_{i,t} + X_6 DTen_{i,t} * FSize_{i,t} + X_7 BSize_{i,t} + X_8 BInd_{i,t} + X_9 BCeod_{i,t} + X_{10} RDI_{i,t} + X_{11} MRI_{i,t} + X_{12} FRisk_{i,t} + X_{13} FAge_{i,t} + X_{14} \sum_{k=1}^{7} Sector_{i,t} + X_{15} \sum_{k=1}^{5} Year_{i,t} + e_{i,t} \quad (6)$$

The regression results in Table 6 Model 1 indicate that only DEdu has a positive and significant effect ($\beta = 0.104$, $p < 0.10$) on EI. Of the control variables, BSize has a negative and

Variables	Model 1
EI_{t-1}	−0.056 (0.053)
BSize $_{t-1}$	0.036 (0.012)*
Bind $_{t-1}$	−0.514 (0.38)
BCeod $_{t-1}$	0.281 (0.113)*
RDI $_{t-1}$	0.042 (0.023)
MRI $_{t-1}$	0.013 (0.004)*
FSize $_{t-1}$	0.055 (0.008)***
FRisk $_{t-1}$	−0.301 (0.265)
FAge $_{t-1}$	−0.003 (0.006)
Constant	1.579 (0.206)***
Number of observations	260
Wald χ^2	88.18
R^2	0.24

Source(s): Table created by Author
Note(s): *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$. Standard errors in parenthesis

Table 5.
Regression results for endogeneity

Variables	Model 1	Model 2
DAge	0.008 (0.135)	0.693 (0.688)
DEdu	0.104 (0.049)*	1.235 (0.372)**
DExp	−0.096 (0.124)	−2.088 (0.733)**
DGen	−0.073 (0.050)	−0.361 (0.520)
DNat	0.123 (0.134)	0.477 (0.667)
DTen	0.050 (0.028)	−0.595 (0.703)
BSize	−0.009 (0.003)**	−0.013 (0.003)**
Bind	−0.131 (0.092)	−0.135 (0.125)
BCeod	−0.230 (0.110)	−0.205 (0.102)
RDI	−0.006 (0.012)	−0.007 (0.011)
MRI	0.007 (0.001)**	0.005 (0.001)***
FSize	−0.012 (0.013)	−0.029 (0.042)
FRisk	0.023 (0.023)	0.002 (0.021)
FAge	−0.001 (0.001)	−0.001 (0.001)
DAge * FSize		−0.034 (0.030)
DEdu * FSize		−0.053 (0.017)**
DExp * FSize		0.098 (0.040)*
DGen * FSize		0.014 (0.023)
DNat * FSize		−0.017 (0.038)
DTen * FSize		0.032 (0.035)
Constant	0.580 (0.327)	Omitted
Sector dummies	Included	Included
Year dummies	Included	Included
Number of observations	325	325
Wald χ^2	313.92	154.66
R^2	0.16	0.13

Note(s): *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$. Standard errors in parenthesis
Source(s): Table created by Author

Table 6.
Regression results for the dimensions of the board diversity

significant ($\beta = -0.009$, $p < 0.05$), and MRI has a positive and significant effect ($\beta = 0.007$, $p < 0.05$) on EI. In Model 2, we analyzed the joint effect of DAge, DEdu, DExp, DGen, DNat, DTen and firm size. The results show that firm size significantly and positively moderates the relationship between DExp and EI ($\beta = 0.098$, $p < 0.10$). One reason may be that large firms with board members that have diverse experience perform better in export activities due to the prior knowledge, network relationships and better accessing ability to resources of these directors. This result is consistent with the findings of the prior studies (Nam *et al.*, 2018; Rivas *et al.*, 2009). On the other hand, firm size significantly and negatively moderates the relationship between DEdu and EI ($\beta = -0.053$, $p < 0.05$). This result is surprising since board educational diversity is expected to associate with increased complexity and better ability to process information and handle ambiguity for EI.

5. Conclusions and discussion

Companies spend tremendous efforts to enhance their business in local and international markets to sustain competitive advantages and achieve a sustainable growth. On this respect, internationalization through exporting plays a vital role to deal with intense competition. This motivation enforces many companies to empower their decision-making bodies with the directors that will bring diverse experience, expertise and networks to enrich human capital to easily enter and effectively compete in foreign markets.

This study sheds light on the relation of board diversity and EI and on the moderating role of firm size on this relationship using a sample of 65 public firms listed on Borsa Istanbul from

2016 to 2020. Drawing on CT, the study proposes that firm size serves a moderating role in the interaction of board diversity and EI.

The results show that BD does not significantly influence EI alone. Instead, the impact of BD is contingent upon firm size. When we do not consider firm size as a moderating variable in Model 1, there is a positive and insignificant relationship between BD and EI. When we introduce firm size as a moderating variable, we found a positive and significant moderating effect on the relationship between BD and EI. Large companies that have board members with diverse characteristics perform better in improving EI. One reason may be that large firms hold necessary financial, human and relational capabilities to manage international activities, and this creates leverage when empowered with internationally experienced board members. Limited resources may restrict smaller companies' attempt to execute export activities, thereby negatively influencing EI. Thus, the results endorse that firm size is a critical characteristic alongside BD, supporting its contingency effects in corporate governance and decision-making on export activities and internationalization of companies. Finally, among board diversity attributes, having previous experience positively interact with firm size to benefit companies in EI. Thus, companies may consider expanding their boards with members that have acquired prior export experience.

This research has several implications for companies. First, our findings highlight the importance of the board diversity in the internalization of Turkish firms and provide insights on how it can benefit companies in EI. Hiring diverse board members would help export companies to access crucial external resources and to translate the advantages associated with experience into EI when they face challenges in internationalization. On this respect, the selection process of board members should be guided by the inimitable and unique resources that the board can capitalize on to differentiate its potential over competitors. This is particularly important for export-oriented large companies. The qualified board members with experience, international knowledge and social capital will benefit increasing export sales. Second, by confirming the contingency effect of the firm size, the results imply that companies should consider firm characteristics in designing the board since, in larger firms, board diversity has a positive impact on EI. This result also shows that small firms may increase EI by hiring experienced board members that sit on the board of exporting firms. This is especially the case in industries that have high-level of standardization. In these industries, small firms face more difficulties in carving out niches on a global scale and therefore the level of export performance is structurally lower (Majocchi *et al.*, 2005). Thus, organizational context is vital when analyzing the board diversity and EI relationship. On this respect, the findings complement the prior literature on CT in terms of the moderating role of firm size on the relationship between board diversity and EI in emerging markets.

Our study has some limitations. First, it uses a sample of the Turkish companies; thus, the generalizability of our findings is limited. This limitation directs academicians to advance our approach by incorporating other emerging markets in future research to enrich the debate on the board diversity and EI relationship. Second, our approach uses a single moderating variable, i.e. firm size, as a contingent factor, to explore the effect of the board diversity on EI. In the future, researchers may explore sophisticated interrelations among multiple moderating and mediating variables to empower the findings of this study.

References

Aaby, N.-E. and Slater, S.F. (1989), "Management influences on export performance: a review of the empirical literature 1978-1988", *International Marketing Review*, Vol. 6 No. 4, pp. 7-26.

Alvarez, R. and Crespi, G. (2007), "Multinational firms and productivity catching-up: the case of Chilean manufacturing", Central Bank of Chile Working Papers, No. 429.

Ararat, M., Aksu, M. and Tansel Çetin, A. (2010), "Impact of board diversity on boards' monitoring intensity and firm performance: evidence from the Istanbul Stock Exchange", *SSRN Electronik Journal*. doi: 10.2139/ssrn.1572283.

Ararat, M., Aksu, M. and Tansel Cetin, A. (2015), "How board diversity affects firm performance in emerging markets: evidence on channels in controlled firms", *Corporate Governance: An International Review*, Vol. 23 No. 2, pp. 83-103.

Arnegger, M., Hofmann, C., Pull, K. and Vetter, K. (2014), "Firm size and board diversity", *Journal of Management and Governance*, Vol. 18 No. 4, pp. 1109-1135.

Baldwin, J. and Gu, W. (2007), "Export-market participation and productivity performance in Canadian manufacturing", *Canadian Journal of Economics*, Vol. 36 No. 3, pp. 634-657.

Baranchuk, N. and Dybvig, P.H. (2009), "Consensus in diverse corporate boards", *The Review of Financial Studies*, Vol. 22 No. 2, pp. 715-747.

Barroso, C., Villegas, M.M. and Pérez-Calero, L. (2011), "Board influence on a firm's internationalization", *Corporate Governance: An International Review*, Vol. 19 No. 4, pp. 351-367.

Bauweraerts, J., Sciascia, S., Mazzola, P. and Naldi, L. (2019), "Family CEO and board service: turning the tide for export scope in family SMEs", *International Business Review*, Vol. 28 No. 5, pp. 1-11.

Berman, N. and Hericourt, J. (2010), "Financial factors and the margins of trade: evidence from cross-country firm-level data", *Journal of Development Economics*, Vol. 93, pp. 206-217.

Bernile, G., Bhagvat, V. and Yonker, S. (2018), "Board diversity, firm risk, and corporate policies", *Journal of Financial Economics*, Vol. 127, pp. 588-612.

Blau, P.M. (1977), *Inequality and Heterogeneity: A Primitive Theory of Social Structure*, Free Press, New York, Vol. 7.

Bonaccorsi, A. (1992), "On the relationship between firm size and export intensity", *Journal of International Business Studies*, Vol. 23 No. 4, pp. 605-635.

Boyd, B.K. (1995), "CEO duality and firm performance: a contingency model", *Strategic Management Journal*, Vol. 16, pp. 301-312.

Boyd, B.K., Haynes, K.T. and Zona, F. (2011), "Dimensions of CEO–board relations", *Journal of Management Studies*, Vol. 48 No. 8, pp. 1892-1923.

Brancati, R., Marrocu, E., Romagnoli, M. and Usai, S. (2018), "Innovation activities and learning processes in the crisis: evidence from Italian export in manufacturing and services", *Industrial and Corporate Change*, Vol. 27 No. 1, pp. 107-130.

Bravo, F. and Reguera-Alvarado, N. (2017), "The effect of the board of directors on R&D intensity: board tenure and multiple directorships", *R&D Management*, Vol. 47 No. 5, pp. 701-714.

Breusch, T.S. and Pagan, A.R. (1980), "The Lagrange multiplier test and its applications to model specification in econometrics", *The Review of Economic Studies*, Vol. 47 No. 1, pp. 239-253.

Buck, T., Liu, X., Wei, Y. and Liu, X. (2007), "The trade development path and export spillovers in China: a missing link?", *Management International Review*, Vol. 47 No. 5, pp. 683-706.

Buck, T., Liu, X. and Skovoroda, R. (2008), "Top executive pay and firm performance in China", *Journal of International Business Studies*, Vol. 39, pp. 833-850.

Calabrò, A., Mussolino, D. and Huse, M. (2009), "The role of board of directors in the internationalisation process of small and medium sized family businesses", *International Journal of Globalisation and Small Business*, Vol. 3 No. 4, pp. 393-411.

Calof, J.L. (1994), "The relationship between firm size and export behaviour revisited", *Journal of International Business Studies*, Vol. 25 No. 2, pp. 367-387.

Carpenter, M.A. and Westphal, J.D. (2001), "The strategic context of external network ties: examining the impact of director appointments on board involvement in strategic decision making", *Academy of Management Journal*, Vol. 4 No. 4, pp. 639-660.

Cavusgil, S.T. (1976), *Organizational determinants of firms' export behavior: an empirical analysis*, Ph.D. dissertation, The University of Wisconsin, Madison, WI.

Child, J. (1975), "Managerial and organizational factors associated with company performance-part II: a contingency analysis", *Journal of Management Studies*, Vol. 12 Nos 1-2, pp. 12-27.

Chizema, A., Liu, X., Liu, J. and Gao, L. (2015), "Politically connected boards and top executive pay in Chinese listed firms", *Strategic Management Journal*, Vol. 36 No. 6, pp. 890-906, doi: 10.1002/smj.2253.

Cieślik, A., Michalek, J.J. and Tovias, A. (2017), "The determinants of export performance of firms in selected MENA countries: comparison with CEE countries, Israel and Turkey", *Central European Economic Journal*, Vol. 2 No. 49, pp. 4-22.

Damanpour, F. (2010), "An integration of research findings of effects of firm size and market competition on product and process innovations", *British Journal of Management*, Vol. 21 No. 4, pp. 996-1010.

Dharanaj, C. and Beamish, P.W. (2003), "A resource-based approach to the study of export performance", *Journal of Small Business Management*, Vol. 41 No. 3, pp. 242-261.

Dixon, R., Guariglia, A. and Vijayakumaran, R. (2015), "Managerial ownership, corporate governance and firms' exporting decisions: evidence from Chinese listed companies", *European Journal of Finance*, Vol. 23 Nos 7-9, pp. 1-39.

Driscoll, J.C. and Kraay, A.C. (1998), "Consistent covariance matrix estimation with spatially dependent panel data", *Review of Economics and Statistics*, Vol. 80, pp. 549-560.

Erramilli, M.K. and Rao, C.P. (1993), "Service firms' international entry mode choice: a modified transaction-cost analysis approach", *Journal of Marketing*, Vol. 57 No. 3, pp. 19-38.

Fernandez, Z. and Nieto, M.J. (2006), "Impact of ownership on the international involvement of SMEs", *Journal of International Business Studies*, Vol. 37 No. 3, pp. 340-351.

Filatotchev, I. and Wright, M. (2011), "Agency perspectives on corporate governance of multinational enterprises", *Journal of Management Studies*, Vol. 48, pp. 471-486.

Filatotchev, I., Demina, N., Wright, M. and Buck, T. (2001), "Strategic choices, export orientation and corporate governance in privatized firms in Russia, Ukraine and Belarus: theory and empirical evidence", *Journal of International Business Studies*, Vol. 32 No. 4, pp. 853-871.

Filatotchev, I., Isachenkova, N. and Micliewicz, T. (2007), "Corporate governance, managers' independence, exporting and performance of firms in transition economies", *Emerging Markets Finance and Trade*, Vol. 43 No. 5, pp. 65-80.

Finkelstein, S. and D'Aveni, R.A. (1994), "CEO duality as a double-edged sword: how boards of directors balance entrenchment avoidance and unity of command", *Academy of Management Journal*, Vol. 37, pp. 1079-1108.

Forbes, D.P. and Milliken, F.I. (1999), "Cognition and corporate governance: understanding boards of directors as strategic decision making groups", *Academy of Management Review*, Vol. 24 No. 3, pp. 489-505.

Gabrielsson, J. (2007), "Correlates of board empowerment in small companies", *Entrepreneurship Theory and Practice*, Vol. 31 No. 5, pp. 687-711.

Gao, G.Y., Murray, J.Y., Kotabe, M. and Lu, J. (2010), "A "Strategy Tripod" perspective on export behaviors: evidence from domestic and foreign firms based in an emerging economy", *Journal of International Business Studies*, Vol. 41 No. 3, pp. 377-396.

Greenaway, D., Guariglia, A. and Kneller, R. (2007), "Financial factors and exporting decisions", *Journal of International Economics*, Vol. 73 No. 2, pp. 377-395.

Haldar, A., Rao, S.V.D.N. and Momaya, K.S. (2016), "Can flexibility in corporate governance enhance international competitiveness? Evidence from knowledge-based industries in India", *Global Journal of Flexible Systems Management*, Vol. 17 No. 4, pp. 389-402.

Hambrick, D.C. and Mason, P.A. (1984), "Upper echelons: the organization as a reflection of its top managers", *The Academy of Management Review*, Vol. 9 No. 2, pp. 193-206.

Hausman, J.A. (1978), "Specification tests in econometrics", Massachusetts Institute of Technology, 50 Memorial Drive Cambridge, Mass. 02139.

Herrera-Echeverri, H., Geleilate, J.G., Gaitan-Riaño, S., Haar, J. and Soto-Echeverry, N. (2016), *Export behavior and board independence in Colombian family firms: the reverse causality relationship*, Escuela de Economia y Finanzas, Documentos de trabajo, Universidad EAFIT, Abierto al mundo.

Hillman, A.J. and Dalziel, T. (2003), "Boards of directors and firm performance: integrating agency and resource dependence perspectives", *Academy of Management Review*, Vol. 28 No. 3, pp. 383-396.

Hillman, A.J., Cannella, A.A. and Paetzold, R.L. (2000), "The resource dependence role of corporate directors: strategic adaptation of board composition in response to environmental change", *Journal of Management Studies*, Vol. 37 No. 2, pp. 235-256.

Hillman, A.J., Withers, M.C. and Collins, B.J. (2009), "Resource dependence theory: a review", *Journal of Management*, Vol. 35 No. 6, doi: 10.1177/0149206309343469.

Ilhan Nas, T. and Kalaycioglu, O. (2016), "The effects of the board composition, board size and CEO duality on export performance: evidence from Turkey", *Management Research Review*, Vol. 39 No. 11, pp. 1374-1409.

Kaczmarek, S., Kimino, S. and Pye, A. (2014), "Interlocking directorships and firm performance in highly regulated sectors: the moderating impact of board diversity", *Journal of Management and Governance*, Vol. 18, pp. 347-372.

Kang, H., Cheng, M. and Grey, S.J. (2007), "Corporate governance and board composition: diversity and independence on Australian boards", *Corporate Governance*, Vol. 15 No. 2, pp. 194-207.

Khan, A., Yilmaz, M.K. and Aksoy, M. (2022), "Does board demographic diversity affect the dividend payout policy in Turkey?", *Euromed Journal of Business*, ahead-of-print, doi: 10.1108/EMJB-01-2022-0019.

Klein, K.J. and Harrison, D.A. (2007), "On the diversity of diversity: tidy logic, messier realities", *Academy of Management Perspectives*, Vol. 21 No. 4, pp. 26-33.

Kyereboah-Coleman, A. and Biekpe, N. (2006), "The link between corporate governance and performance of the non-traditional export sector: evidence from Ghana", *Corporate Governance: The International Journal of Business in Society*, Vol. 6 No. 5, pp. 609-623.

Lefebvre, E., Lefebvre, L.A. and Bourgault, M. (1998), "R&D-related capabilities as determinants of export performance", *Small Business Economics*, Vol. 10, pp. 365-377.

Leonidou, L.C., Katsikeas, C.S. and Piercy, N.F. (1998), "Identifying managerial influences on exporting: past research and future directions", *Journal of International Marketing*, Vol. 6 No. 2, pp. 74-102.

Li, H. and Chen, P. (2018), "Board gender diversity and firm performance: the moderating role of firm size", *Business Ethics – A European Review*, Vol. 27, pp. 294-308.

Lien, Y.-C., Piesse, J., Strange, R. and Filatotchev, I. (2005), "The role of corporate governance in FDI decisions: evidence from Taiwan", *International Business Review*, Vol. 14 No. 6, pp. 739-763.

Liu, Y., Wei, Z. and Xie, F. (2014), "Do women directors improve firm performance in China?", *Journal of Corporate Finance*, Vol. 28, pp. 169-184.

Lopez-Rodriguez, J. and Garcia-Rodriguez, R. (2005), "Technology and export behaviour: a resource-based view approach", *International Business Review*, Vol. 14, pp. 539-557.

Lu, J., Xu, B. and Liu, X. (2009), "The effects of corporate governance and institutional environments on export behaviour in emerging economies: evidence from China", *Management International Review*, Vol. 49, pp. 455-478.

Lukason, O. and Vissak, T. (2020), "Export behavior and corporate governance", *Review of International Business and Strategy*, Vol. 30 No. 1, pp. 43-76.

Majocchi, A., Bacchiocchi, E. and Mayrhofer, U. (2005), "Firm size, business experience and export intensity in SMEs: a longitudinal approach to complex relationships", *International Business Review*, Vol. 14 No. 6, pp. 719-738.

Manova, K. and Zhang, Z. (2012), "Export prices across firms and destinations", *Quarterly Journal of Economics*, Vol. 127, pp. 379-436.

Muhammad, H., Migliori, S. and Consorti, A. (2022), "Corporate governance and R&D investment: does firm size matter?", *Technology Analysis and Strategic Management*. doi: 10.1080/09537325.2022.2042508.

Nakos, G., Brouthers, K.D. and Brouthers, L.E. (1998), "The impact of firm and managerial characteristics on small and medium-sized Greek firms' export performance", *Journal of Global Marketing*, Vol. 11 No. 4, pp. 23-47.

Nam, J., Liu, X., Liolioud, E. and Jeonge, M. (2018), "Do board directors affect the export propensity and export performance of Korean firms? A resource dependence perspective", *International Business Review*, Vol. 27, pp. 269-280.

Ntim, C.G. (2015), "Board diversity and organizational valuation: unravelling the effects of ethnicity and gender", *Journal of Management and Governance*, Vol. 19 No. 1, pp. 167-195.

Ntim, C.G., Lindop, S. and Thomas, D.A. (2013), "Corporate governance and risk reporting in South Africa: a study of corporate risk disclosures in the pre- and post-2007/2008 global financial crisis period", *International Review of Financial Analysis*, Vol. 30, pp. 363-383.

Ntim, C.G., Opong, K.K. and Danbolt, J. (2015), "Board size, corporate regulations and firm valuation in an emerging market: a simultaneous equation approach", *International Review of Applied Economics*, Vol. 29 No. 2, pp. 194-220.

Oviatt, B.M. and McDougall, P.P. (2005), "Defining international entrepreneurship and modeling the speed of internationalization", *Entrepreneurship Theory and Practice*, Vol. 29 No. 5, pp. 537-553.

Park, A., Yang, D., Shi, X. and Jiang, Y. (2010), "Exporting and firm performance: Chinese exporters and the Asian financial crisis", *Review of Economics and Statistic*, Vol. 92 No. 4, pp. 822-842.

Pesaran, M.H. (2004), "General diagnostic tests for cross section dependence in panels", University of Cambridge, Faculty of Economics, Cambridge Working Papers in Economics No. 0435.

Pfeffer, J. and Salancik, G. (1978), *The External Control of Organizations A Resource Dependence Perspective*, Stanford Business Books (2003), Stanford, CA.

Pugliese, A., Bezemer, P., Zattoni, A., Huse, M., Van den Bosch, F.A.J. and Volberda, H.W. (2009), "Boards of directors' contribution to strategy: a literature review and research agenda", *Corporate Governance: An International Review*, Vol. 17 No. 3, pp. 292-306.

Raguseo, E., Vitari, C. and Pigni, F. (2020), "Profiting from big data analytics: the moderating roles of industry concentration and firm size", *International Journal of Production Economics*, Vol. 229, 107758.

Reuber, A.R. and Fischer, E. (1997), "The influence of the management team's international experience on the internationalization behaviors of SMEs", *Journal of International Business Studies*, Vol. 28 No. 4, pp. 807-825.

Rhoades, D. and Rechner, P.L. (2001), "The role of ownership and corporate governance factors in international entry mode selection", *The International Journal of Organizational Analysis*, Vol. 9 No. 4, pp. 309-326.

Rivas, J.L. (2012), "Diversity and internationalization: the case of boards and TMT's", *International Business Review*, Vol. 21 No. 1, pp. 1-12.

Rivas, J.L., Hamori, M. and Mayo, M. (2009), "Board composition and firm internationalization", *Academy of Management Proceedings*, Vol. 2009 No. 1, pp. 1-6, doi: 10.5465/ambpp.2009.44243045.

Robertson, C. and Chetty, S.K. (2000), "A contingency-based approach to understanding export performance", *International Business Review*, Vol. 9 No. 2, pp. 211-235.

Rodriguez, J.L. and Rodriguez, R.M.G. (2005), "Technology and export behaviour: a resource- based view approach", *International Business Review*, Vol. 14, pp. 539-557.

Sanders, W.M.G. and Carpenter, M.A. (1998), "Internationalization and firm governance: the roles of CEO compensation, top team composition, and board structure", *Academy of Management*, Vol. 41 No. 2, pp. 158-178.

Selcuk, E.A. and Tapki, I.G. (2016), "Determinants of export propensity and performance: evidence from Turkish firm-level data", *International Journal of Economic Research*, Vol. 7 No. 2, pp. 1-7.

Selekler-Göksen, N. and Yildirim-Öktem, Ö. (2008), "The impact of board characteristics on the internationalization of business group affiliates", *Bogazici Journal*, Vol. 22 No. 1, pp. 53-71.

Serra, F., Pointon, J. and Abdou, H. (2012), "Factors influencing the propensity to export: a study of UK and Portuguese textile firms", *International Business Review*, Vol. 21, pp. 210-224.

Singh, D.A. (2009), "Export performance of emerging market firms", *International Business Review*, Vol. 18, pp. 321-330.

Sousa, C.M.P. (2004), "Export performance measurement: an evaluation of the empirical research in the literature", *Academy of Marketing Science Review*, Vol. 4 No. 9, available at: http://www.amsreview.org/articles/sousa09-2004.pdf

Sousa, C.M.P., Martínez-López, F.J. and Coelho, F. (2008), "The determinants of export performance: a review of the research in the literature between 1998 and 2005", *International Journal of Management Reviews*, Vol. 10 No. 4, pp. 343-374.

Spadafora, E., Addo, K.A., Kostova, T., Kumodzie-Dussey, M.K., Leo, E., Marano, V. and van Essen, M. (2022), "Board independence and firm internationalization: a meta-analysis", *Multinational Business Review*, Vol. 30 No. 4, pp. 499-525.

Stoian, M.C., Criado, A.R. and Josep, R. (2012), "International marketing strategy and export performance in Spanish SMEs: a contingency approach", *International Journal of Entrepreneurship and Small Business*, Vol. 15 No. 2, pp. 213-236.

Tesfom, G., Lutz, C. and Ghauri, P. (2004), "Comparing export marketing channels: developed vs developing countries", *International Marketing Review*, Vol. 21 Nos 4/5, pp. 409-422.

Verwaal, E. and Donkers, B. (2002), "Firm size and export intensity: solving an empirical puzzle", *Journal of International Business Studies*, Vol. 33 No. 3, pp. 603-613.

World Bank (2021), "World integrated trade solutions", available at: https://wits.worldbank.org/CountrySnapshot/en/TUR/textview

Zehir, C., Köle, M. and Yildiz, H. (2015), "The mediating role of innovation capability on market orientation and export performance: an implementation on SMEs in Turkey", *Procedia - Social and Behavioral Sciences*, Vol. 207, pp. 700-708, doi: 10.1016/j.sbspro.2015.10.141.

Zhang, J.J., Baden-Fuller, C. and Pool, J.K. (2011), "Resolving the tensions between monitoring, resourcing and strategizing: structures and processes in high technology venture boards", *Long Range Planning*, Vol. 44, pp. 95-117.

Zona, F., Zattoni, A. and Minichilli, A. (2013), "A contingency model of boards of directors and firm innovation: the moderating role of firm size", *British Journal of Management*, Vol. 24 No. 3, pp. 299-315.

Further reading

Turkish Export Assembly (2021), "TİM 2019-2020 report", available at: https://tim.org.tr/files/downloads/Raporlar/TIM_2019_2020_Faaliyet_Raporu.pdf

Author(s)	Variables	Export performance indicators	Theoretical perspective(s)	Sample-method	Key finding(s)
Barroso *et al.* (2011)	*Board Characteristics* Tenure, Experience of CEOs and managers, Industry experience, Level of academic achievement, International background	Degree of internationalization (the ratio of foreign subsidiary sales to total sales and the ratio of foreign assets to total assets)	Resource-based view	45 firms listed on the Madrid Stock Exchange, 2009 Linear Regression Analysis	Directors with longer tenures tend to affect firms' international diversification negatively, and those with master's degrees and experience from the same industry affect it positively, while their previous experience of being a CEO or managers and international background does not affect internationalization
Haldar *et al.* (2016)	Board Independence Board Size	International competitiveness (absolute difference in export earnings) 2006–2014	Agency theory Resource dependency theory	938 IT firms and 614 pharmaceutical firms, 2006 Multiple regression model	There is an inverse relationship between board size and international competitiveness There is a positive relationship between board independence and international competitiveness
Herrera-Echeverri *et al.* (2016)	Board Independence	Export intensity	Agency theory Resource dependency theory	33,249 Colombian firms, 2008–2013 Panel data analysis	Firms with a higher participation of independent board members are more likely to export more
Ilhan Nas and Kalaycıoğlu (2016)	*Board Characteristics* Board size, Inside director professional ratio, Outsider director ratio, Family membership, CEO duality	Export intensity	Agency theory	221 Exporting firms for the years 2007–2010 Panel data analysis	There is a significantly positive relationship between board size, CEO duality and export intensity. Higher presence of outside directors and family members on board is negatively associated with export intensity

(*continued*)

Table A1.
A summary of the selected studies on the relationship of board diversity and export intensity

Table A1.

Author(s)	Variables	Export performance indicators	Theoretical perspective(s)	Sample-method	Key finding(s)
Kyereboah-Coleman and Biekpe (2006)	*Board Characteristics* Board size Board independence CEO duality	Export sales growth	Agency theory	100 firms in non-traditional export sectors in Ghana Panel data analysis Generalized least squares (GLS)	Board size has a significant and negative influence on export sales growth. When there is CEO duality export tend to grow more
Lukason and Vissak (2020)	Board size, Female board membership, Age (Maximum biological age in the board)	Export intensity Export propensity	Agency theory Stewardship theory Upper echelons theory Resource-based view	Estonian SMEs 9,530 exporters and 73,619 non-exporters, 2015 Binary logistic regression	Board size and tenure are negatively, while age is positively related to export intensity. Having female board members did not lead to a higher export intensity
Nakos *et al.* (1998)	*Manager Characteristics* Education, International experience, Foreign language skills, Age, Commitment for international expansion *Firm Characteristics* Firm size (number of employees), Firm age International experience, Foreign market coverage, Foreign ownership	Export intensity	Competitive strategy Internationalization	126 Greek exporting SMEs Multiple regression analysis	Manager's education level, international experience, foreign language skills, and their commitment for international expansion have a positive effect on export intensity Firm size, and foreign market coverage have positive and significant effect on export intensity

(*continued*)

Table A1.

Author(s)	Variables	Export performance indicators	Theoretical perspective(s)	Sample-method	Key finding(s)
Nam *et al.* (2018)	*Board Characteristics* Former official experience MNC experience Board independence Board size	Export intensity Export propensity	Resource dependency theory	642 non-financial firms in Korea, 2001–2007. Heckman two-stage method, simultaneous quantile regression	Boards with a higher proportion of outside directors and members with MNC experiences show a higher level of export propensity and export intensity
Rivas *et al.* (2009)	*Board Characteristics* International experience, Functional background, Age, Tenure, Government experience	Degree of Internationalization (foreign sales divided by total sales) 2005–2007	Upper echelons theory	108 firms and 1,348 directors OLS linear regressions	International experience and the tenure of board is positively related, and the average age of the directors is negatively related to internationalization
Selekler-Göksen and Yildirim-Öktem (2008)	*Board Characteristics* Education, Foreign country exposure (Foreign education and work experience), Age Family representation	Export intensity	Resource-based View	6 leading family business groups listed on Borsa Istanbul, 2007 Mann–Whitney U& Kruskall Wallis test	There is a lack of relationship between board characteristics, and export intensity

Source(s): Table created by Author

Variable	Code	Measurement
Dependent Variable		
Export Intensity	EI	The export sales divided by the total sales of the company
Independent Variables		
Age Diversity	DAge	The ages of directors are classified into six groups: less than 40 years, 40–49 years, 50–59 years, 60–69 years, 70–79 years, more than 80 years
Educational Diversity	DEdu	The educational level of directors are categorized into four brackets: Intermediate, Bachelor, Master, Doctorate Degree
Experience Diversity	DExp	Blau Index for directors's work experience
Gender Diversity	DGen	Female directors to total directors
Nationality Diversity	DNat	Foreign directors to total directors
Tenure Diversity	DTen	The tenure of directors are categorized into six brackets: less than 1 year, 1–5 years, 6–10 years, 11–15 years, 16–20 years, more than 20 years
Board Diversity Index	BDI	BDI = DAge + DEdu + DExp + DGen + DNat + DTen
Control Variables		
Board Size	BSize	The natural log of the total number of board members
Board Independence	BInd	The ratio of independent board members to total board members
CEO Duality	BCeod	"1" if a CEO is on the board, "0" otherwise
R&D intensity	RDI	The ratio of R&D expenditures to total sales
Marketing Intensity	MRI	The ratio of marketing expenditures to total sales
Firm Size	FSize	Natural log of total assets
Firm Risk	FRisk	The ratio of short-term and long-term debt to total assets
Firm Age	FAge	The number of years since the foundation of the company

Source(s): Table created by author

Table A2. The definition of the variables

Variable	VIF	1/VIF
BSize	2.76	0.36
BInd	2.13	0.46
FSize	2.11	0.47
MRI	1.38	0.72
RDI	1.32	0.75
BDI	1.32	0.75
FAge	1.26	0.79
BCeod	1.21	0.82
FRisk	1.18	0.84
Mean VIF	1.63	

Source(s): Table created by Author

Table A3. VIF values

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