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Full Length Article

Board age and value diversity: Evidence from a collectivistic and paternalistic culture[☆]

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Abstract

The current study investigates whether board age diversity affects company financial performance and risk, and whether diverse work-related values held by directors of different ages are the underlying cause of any effects via a sample of listed companies from Turkey, which has a collectivistic and paternalistic culture. In order to investigate these effects, various 2 Stage Least Squares Instrumental Variables models are employed. In addition, to investigate through which channels age diversity may affect company performance, directors' personal values are also considered via propensity score matching. Even though directors' values are not observable, it is assumed that their ages reflect their values. For this purpose, the current study utilizes the World Value Survey data. The findings suggest that board age diversity has a positive effect on both company performance and risk, but do not suggest that intra-group conflicts in terms of work-related values are the underlying causes of this positive effect.

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1. Introduction

Board age diversity is an important dimension of boardroom diversity. Yet there is limited research on age diversity compared to other dimensions of diversity in boardrooms. Director age matters because it is an important proxy for a director's decision-making process in the work-place. It can also reflect director values. Board age diversity could be considered especially important in countries that have gone through significant transformations in a relatively short period of time. These transformations could be a result of significant

political, economic and cultural events and changes, such as coups, financial crises or changes towards free-market orientation. As a consequence of such events and changes, directors of different ages who grew up in different environments in terms of politics, economic-orientation or culture, might hold diverse values, and have experiences that could adversely affect their collective decision-making process in boardrooms (Talavera, Yin, & Zhang, 2018). After all, one could expect specific historical events in a country to have a strong impact on the values of individuals of different ages in general, but more importantly, on their values regarding work (Cherrington, Condie, & England, 1979).

Research on board age diversity benefits from various theories such as agency theory, resource dependency theory and human capital theory. These theories point to the potential benefits that a more diverse board could provide, among which are increased creativity, improved problem-solving skills, the existence of different points of views, a better understanding

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of diverse markets, improved skill sets and experiences, and a greater number of external connections (García-Meca, García-Sánchez, & Martínez-Ferrero, 2015; Macey & O'Hara, 2003). However, diversity in boardrooms could also lead to potential costs as a result of conflicts, communications problems, and bias against out-of-group members (Ruigrok, Peck, & Tacheva, 2007). Thus, diversity in corporate boards could be considered a double-edged sword that would affect the outcome of various corporate policies such as financing, investments, dividends and remuneration, which in turn would be reflected in company performance. These outcomes naturally affect investors' reluctance to invest in stock markets, which has direct consequences on the allocation of an economy's scarce resources to stock markets, affecting any economy as a whole. This situation is vital for emerging economies that are more desperately in need of these funds to boost economic growth.

Even though diversity in boardrooms could have these important consequences on various corporate policies, the number of studies that investigate the potential effects of demographic diversity in emerging markets is limited (Ararat, Aksu, & Cetin, 2015). In addition, director age diversity has attracted even less attention compared to other diversity dimensions, not only in emerging markets but also in more developed markets. Lastly, studies that investigate the value channels through which board age diversity could impact company performance are very rare (Talavera et al., 2018). This study aims to help augment this line of research.

The current study investigates the potential effects of board age diversity on company financial performance, as well as the value channels through which the effects on performance could exist, via a sample of public companies quoted at the Borsa İstanbul between the years 2009 and 2017. The findings demonstrate that board age diversity has a positive effect on company performance and risk. However, it does not appear that intra-group conflicts in values are the underlying causes of the negative effect on company performance.

As stated earlier, director age diversity has not attracted wide attention in finance literature, especially in the case of emerging markets. The existing literature mostly focuses on firm performance implications of board age diversity for more developed countries in North America or Europe. Compared to these countries, Turkey has a societal culture characterized by high collectivism according to Hofstede's cultural dimensions (Ararat et al., 2015). Individuals from cultures that are characterized as more collectivistic could be more likely to make sharper distinctions between in-group and out-group members, and they might not value diversity as highly as those from more individualistic cultures. The members of these collectivistic cultures might have strong regard for conformity, and deviations from norms might not be welcomed (Jonsen, Maznevski, & Schneider, 2011). This, in turn, could lead to conflicts between in- and out-of-group members, potentially leading to negative outcomes in various corporate issues. Therefore, the effects of board age diversity in Turkish companies could differ from the effects in companies that are quoted on stock markets of more developed countries

characterized by low collectivism, such as the US, the UK, or some other European countries.¹ In a recent study, Karolyi (2016) states that “*Scholarship in finance has paid relatively little attention to the role of culture in financial decision-making compared to other business disciplines and economics*”, highlighting the potential role of culture in financial decision-making process and calling for more research on culture and finance. Thus, this study investigates whether the effects of director age diversity on company performance and risk differ in a collectivistic society compared to more individualistic societies, based on the premise that cultures that are characterized as more collectivistic would not value diversity as highly as more individualistic cultures. In addition, in cultures that are more paternalistic, older team members might not value the opinions of younger members of teams at any level. Therefore, teams that consist of members from different age groups might not function as effectively in paternalistic cultures as they do in cultures that are not paternalistic. Thus the cultural setting of Turkey provides a valuable out-of-sample setting to investigate whether board age diversity has an effect on company performance. This is one of the contributions of this study.

More importantly, in addition to the performance and risk implications, this study also investigates the value-based channels through which director age diversity could affect company performance. Since the culture of an organization is mainly shaped by the values of top level decision-makers, such as top executives and board members, and since these values determine human behavior (Askun, Oz, & Askun, 2010), organizational outcomes such as corporate decisions are naturally influenced by these individuals' values and attitudes. Therefore, it is important to investigate whether the diversity of values held by these top level decision-makers are associated with corporate outcomes. There is only one study that investigates value-based channels through which director age diversity could affect company performance, conducted by Talavera et al. (2018). In that study, the authors investigate the topic via a sample of Chinese banks. However, China has a much larger economy compared to Turkey (according to World Bank data) and is culturally very different compared to Turkey in terms of Hofstede's cultural dimensions.² In addition, the dynamics of decision-making and the way top-management teams function in the banking industry differ substantially from the way top-management teams function in other industries due to much stricter regulations that banking industries are subject to around the world. Thus, the findings of a study focused on the potential effects of values on company performance via director age diversity that is conducted on Chinese banks, and other studies to be conducted on

¹ Turkey's score for individualism is 37, whereas the scores for the US and the UK are 89 and 91, respectively, according to www.hofstede-insights.com (as of December 31st, 2018).

² According to www.hofstede-insights.com, China's scores for power distance, individualism, masculinity, uncertainty avoidance, long term orientation, and indulgence are 80, 20, 66, 30, 87 and 24, respectively. The same scores for Turkey are 66, 37, 45, 85, 46 and 49, respectively.

more developed countries in the future, might possibly not apply to the Turkish case. In addition, in the last 40 years Turkey has gone through very significant political changes, such as the 1980 coup, the 1997 “post-modern” coup, and the 2016 coup “attempt”, and economic changes, such as the 1980 transformation to a liberal economy and the 2001 transformation to the floating exchange rate regime. It is possible that these significant changes could have affected the values held by individuals from different age groups in Turkey, among which are company board members. The current study could provide valuable insight into understanding whether the diversity of values of directors of different ages could have company performance consequences in a setting that is substantially different than economically more developed countries with different cultural dimensions and with more political and economic stability. This is the main contribution of the current study.

2. Theory and research questions

2.1. Board diversity

Board diversity literature benefits from multiple theories. According to agency theory, the board is an important corporate governance mechanism for mitigating manager-shareholder conflicts. A diverse board can help improve the monitoring effectiveness of the board of directors as a result of different points of views and perspectives, as well as the valuable experience and knowledge that diverse directors can provide (García-Meca et al., 2015). In addition, these diverse directors could potentially be more independent and would be more likely to ask “out-of-the-box” questions compared to more traditional directors. Still, it is possible that diverse directors might not lead to more effective monitoring since they might be marginalized (Carter, Simkins, & Simpson, 2003). According to resource dependence theory, the success of a company depends on the external environment, and a diverse board could provide access not only to valuable external networks and contacts, but also to capital and regulators (Macey & O'Hara, 2003). Finally, according to human capital theory, a diverse board increases creativity and innovation in the boardroom, which helps board members to better understand a diverse marketplace and the industry through the skills, knowledge, and experiences of diverse directors (Carter et al., 2003). In addition, a diverse board could signal to the job market the commitment of a company to diversity, and thus be helpful in attracting skillful individuals from diverse backgrounds (Ali, Ng, & Kulik, 2014).

These theories suggest that diversity in boardrooms would not only improve the effectiveness of boards in terms of their monitoring functions, but also through their advisory functions, since the diversity of experiences could lead to improved strategic decision-making. This advising-based point of view highlights the importance of directors' mentoring and counseling skills, in addition to their monitoring skills (Ben-Amar, Francoeur, Hafsi, & Labelle, 2013).

These potential benefits, however, should be considered alongside possible disadvantages of a diverse board, such as conflicts and communication problems, flawed cooperation, and biases against out-of-group members (Ruigrok et al., 2007). According to the social identity theory, self-categorization and stereotyping could be harmful to group functioning (Ali et al., 2014). After all, members of teams could be expected to prefer working with, trusting, and cooperating more with group members that they consider similar to themselves, and therefore would be less likely to differentiate themselves from “the others” (van Knippenberg, Dawson, West, & Homan, 2011). Such potential conflicts could be expected to occur more frequently in collectivistic cultures compared to more individualistic cultures (Jensen et al., 2011).

There are numerous studies investigating the relationship between board diversity and company performance and value. The results are mixed. For instance, in two of the earliest studies, Carter et al. (2003) and Erhardt, Werbel, and Shrader (2003) find a positive relationship between board diversity and company performance and value. Yet in another study, Carter, D'Souza, Simkins, and Simpson (2010) report that they are not able to find a relationship between gender or ethnic diversity and company performance. In another study, Anderson, Reeb, Upadhyay, and Zhao (2011) show that board heterogeneity has a positive correlation with company performance dependent on the complexity of the environment of the company. Ararat et al. (2015) demonstrate that board demographic diversity (not age diversity in particular) has a positive and non-linear relationship with company performance. In addition, García-Meca et al. (2015) show that while gender diversity improves bank performance, nationality diversity inhibits bank performance.

Various studies investigate the effects of board diversity on corporate issues other than company performance. Masulis, Wang, and Xie (2012) show that companies with foreign directors make better acquisitions, yet these foreign directors are more likely to have poorer attendance records and are associated with an increased likelihood of intentional financial misreporting. Ben-Amar et al. (2013) show that there is a negative relationship between board demographic diversity and merger and acquisition performance that becomes positive as demographic diversity levels go beyond a certain threshold, indicating that the relationship is not linear. Hafsi and Turgut (2013) report a positive relationship between “diversity in boards” and the social performance of companies. Ararat et al. (2015) show that board diversity has a positive effect on board monitoring intensity. Estelyi and Nisar (2016) find a positive relationship between board diversity (in terms of the nationalities of directors) and companies' international market operations.

2.2. Board age diversity and company financial performance

Before considering the potential positive and negative effects of director age diversity on company financial performance, it is important to discuss how the behavior of older and

younger individuals, including directors, might differ. First of all, it is possible that as individuals get older, their cognitive abilities could deteriorate. In the case of directors, their motivations could change as they get older, compared to when they were younger, and they might become more likely to maintain the status quo (Waelchli & Zeller, 2013). On the other hand, according to the managerial signaling hypothesis, motivated by reputation concerns, younger directors would be expected to show their worth to the market and thus, be more aggressive and risk-taking. The market learning hypothesis, however, suggests the opposite, positing that younger decision-makers might behave more conservatively in order to avoid riskier decisions that could have negative consequences and adversely affect the market's perception of their skills (Li, Low, & Makhija, 2017). In addition, younger directors could be more familiar with newer technologies, whereas older directors could provide boardrooms with stability and wisdom (Ali et al., 2014). From a social responsibility point of view, younger directors might be more sensitive in terms of ethical and environmental issues (Hafsi & Turgut, 2013). Lastly, older individuals might not be as energetic as younger individuals, may have more problems getting along with co-workers, and might value time spent with family more than time spent working, since they may be less motivated at work than younger employees (Ng & Feldman, 2008).

Although directors of different ages would have behaviors that differ when considering directors as a group, these varying behaviors could lead to value creation. As is the case with other dimensions of board demographic diversity, board age diversity in corporate boards could also produce: (i) more effective monitoring, (ii) more effective strategic group decision-making process (Ali et al., 2014), (iii) improved board connections and expertise (Talavera et al., 2018), and (iv) an enhanced knowledge base and greater creativity in boardrooms (Ben-Amar et al., 2013). While these factors could lead to improved company performance, board members might consider other board members as outsiders if they are demographically different (Estelyi & Nisar, 2016). Thus, the presence of board members with different perspectives and cognitive skills (as a result of substantial age differences) might result in potential communication problems and conflicting views, hindering the decision-making process of a board and disrupting team process and performance (van Knippenberg et al., 2011). As a result, board age diversity could have both positive and negative effects on company performance.

The findings of empirical studies on this subject are mixed. For instance, Kim and Lim (2010) show that the diversity of independent directors' age has a positive effect on company value. Mahadeo, Soobaroyen, and Hanuman (2012) find a positive relationship between age diversity and company performance. In addition, Nguyen et al. (2015) report that the age of executives has a positive effect on shareholder wealth for a sample of executive appointments to US banks via an event study. On the other hand, Hagendorff and Keasey (2012) find that bank board age diversity is associated with wealth losses around acquisition announcements. Ali et al. (2014) demonstrate a negative relationship between age diversity

and company performance. Talavera et al. (2018) report a negative relationship between age diversity and bank performance. García-Meca et al. (2015) demonstrate that diversity in boardrooms might have different effects on company performance based on the dimension of diversity, such as gender or nationality. However, Ararat et al. (2015) are unable to find a statistically significant relationship between board age diversity and company performance.

As the previous discussions illustrate, it is not easy to hypothesize whether board age diversity would affect company performance in a positive or negative way. However, Turkey has gone through substantial changes in recent decades. Therefore, it is quite likely that there are vital differences in terms of values and attitudes held by directors that are substantially different in age. In addition, potential conflicts arising due to diversity of values are more likely to occur in collectivistic cultures compared to more individualistic cultures (Jonsen et al., 2011). Thus, the hypothesis in the current study is:

Hypothesis 1. *There is a negative relationship between board age diversity and company financial performance.*

2.3. Board age diversity and company risk

As individuals get older, their appetite for risk may change. For instance, Bucciol and Miniaci (2011) and Grable, McGill, and Britt (2009) demonstrate that individuals' risk tolerances decline as they get older. Therefore, one could expect that board age diversity could have potential effects on the riskiness of corporate decisions as a consequence of directors of different ages having different attitudes towards risk. Cheng, Chan, and Leung (2010) find that younger managers are more likely to make riskier decisions to signal their worth to the market. Similarly, Berger, Kick, and Schaeck (2014) argue that risk-taking would decrease with an individual's age, in support of the managerial signaling hypothesis. However, when career concerns of managers are considered, Li et al. (2017) argue that younger managers would be more risk-averse due to the potential negative impact of their decisions on their future careers. Older managers, on the other hand, would not have similar concerns because of their cumulative human capital. This is in line with the market learning hypothesis supported by the evidence in Gormley and Matsa (2016).

Empirical studies investigating this issue provide mixed findings. While Gormley and Matsa (2016) report that younger CEOs are more likely to be risk-averse in investment (acquisition) decisions, Li et al. (2017) find that CEOs that are younger are more likely to enter new lines of businesses and to undertake bolder investment decisions compared to older CEOs. On the other hand, Bertrand and Schoar (2003) demonstrate that older managers are more conservative, and Berger et al. (2014) find that younger executive teams increase portfolio risks. The conflicting theory and evidence about attitudes towards risk again makes it clear that the issue is an empirical one. Yet, it is possible that the presence of younger directors on boards (increased board age diversity) might increase the risk appetite of company boards as a

whole compared to boards that consist of only older directors that are likely to be more risk-averse. Therefore, the hypothesis is as follows:

Hypothesis 2. *There is a positive relationship between board age diversity and company risk.*

2.4. Board value diversity and company financial performance

Culture and values matter substantially at the corporate level. Values could shape an individual's psychology and guide that individual's behavior (Breuer, Hens, Salzmann, & Wang, 2015). Thus, values are important determinants of economic decisions of individuals, which could also affect the economic decisions made by the organizations that they are a part of. After all, it is not companies that make decisions, but top executives and directors that do. Therefore, human elements, such as these individuals' values and beliefs, would play important roles in various company outcomes (Adhikari & Agrawal, 2016; Frijns, Dodd, & Cimerova, 2016).

Empirical evidence provided by Breuer et al. (2015) suggests values have a significant effect on attitudes towards economic decisions. In addition, Hilary and Hui (2009) and McGuire, Omer, and Sharp (2012) demonstrate that there is a positive relationship between local religiosity in the provinces of the headquarters of companies and risk aversion in company culture. Frijns et al. (2016) find that national cultural diversity has a negative effect on company performance. Bryan, Nash, and Patel (2015) provide empirical evidence demonstrating that differences in national cultures influence the differences in executive compensation structures across countries. Kogut and Singh (1988) find that culture has an effect on companies' acquisition method choices. Similarly, Ahern, Daminelli, and Fracassi (2015) demonstrate that cultural differences between target and acquiring companies influence the outcomes of cross-border mergers and acquisitions. Lo Turco and Maggioni (2018) provide empirical evidence suggesting that commonality of cultural values, such as religious beliefs, can have an important impact on the trade relationships of companies by relaxing informational barriers and favoring reciprocal trust. Aggarwal, Kearney, and Lucey (2012) demonstrate that the commonality of culture in the form of common religion between international trade partners counteracts the potential negative influence of cultural and geographic distances between these partners on trade relationships. Hutzschenreuter and Voll (2008) also demonstrate that cultural distance between countries is an important determinant of the success of multinational companies in their international expansion strategies.

These studies demonstrate the importance of culture and values on various economic and corporate outcomes, and lead one to ask whether diversity of values within the group context is associated with corporate outcomes. Age is one of such essential underlying reasons that can lead to conflicts of values within groups.

Individuals go through changes in their personalities and cognition throughout their life spans. Therefore, individuals of different ages, even in the same culture, may have different values. For instance, as individuals get older, they become more conservative and less tolerant (Cornelis, Van Hiel, Roets, & Kossowska, 2009). By becoming less tolerant, it is possible that these older individuals could be less tolerant of the opinions and ideas of younger individuals in the same group, such as a company board of directors. These differences could lead to potential conflicts among the members of age-diverse groups.

In addition, in their professional careers, members of recent generations could also have different attitudes, values, and expectations towards work compared to generations before them (Ng, Schweitzer, & Lyons, 2010). This view is supported by evidence in Cennamo and Gardner (2008). For instance, as individuals get older, it is possible that they might consider the moral importance of work more highly and financial incentives for success in work less (Cherrington et al., 1979). In a boardroom context, a group of directors who place varying degrees of importance on work might not be able to operate in harmony. In addition, older directors could be more conservative and cautious when making decisions, whereas younger directors could be more risk-seeking. Also, individuals of substantially different ages might have different attitudes towards (and expectations of) in-group communications as well as different levels of comfort in working as a team (Myers & Sadaghiani, 2010). Consequently, these individuals might be critical of in-group members that do not share the same values, whereas directors of similar ages may consider each other more "alike" in terms of values and find it easier to interact (Ali et al., 2014). This, in turn, would lead to enhanced cooperation in groups of directors of similar ages. When groups include directors of different ages, personal values could be more likely to differ among members,³ and disparate values have the potential to give rise to disagreements and in-group conflicts in boardrooms (Talavera et al., 2018). Even though discussing company matters from different points of view could lead to the identification of more effective strategies, it is also possible that value-oriented conflicts could be counter-productive, making teamwork and coordination more difficult (Ahern et al., 2015) and leading to impaired decision-making, resulting in lowered company performance. In a collectivistic culture, such negative effects could be expected to outweigh the positive effects. Based on these arguments and the fact that Turkey has a collectivistic culture according to Hofstede's value dimensions, the hypothesis is:

Hypothesis 3. *There is a negative relationship between board value diversity and company financial performance.*

³ In untabulated results, a simple *t*-test in terms of the differences of individuals that responded to the World Value Survey Turkey (2012) supports this hypothesis. The mean value of the Work value dummy variable for individuals that are in the top 75% in terms of age is 0.84, whereas it is 0.76 for individuals that are in the low 25%. The difference of the means of this variable for these two groups has a *t*-value of 2.86 (*p* = 0.004).

3. Data and methodology

3.1. Data

The sample consists of companies quoted at the Borsa Istanbul between the years 2009 and 2017. The year 2009 is chosen as the start date since annual reports of companies are not publicly available via the Public Disclosure Platform (PDP) of Turkey and the majority of companies' annual reports are not accessible via other official resources before 2009. Companies that were delisted during the sample period remain in the sample to prevent any survivorship bias. Finally, financial companies, such as banks, factoring companies, leasing companies, and insurance companies are excluded from the sample because the financial structures and the financial report formats of these companies are different compared to companies that are non-financial. This leaves us with a final sample of 2279 company-years and 15,842 director-years.

Corporate governance data related to directors and companies are hand-collected via the annual reports of companies. Non-corporate governance data related to directors and companies are accessed via Finnet, which is one of the official data providers of the Borsa Istanbul. The main variable of interest is *Age*, which is the age of a director in years. Corporate governance variables included in various model specifications are (i) *Board Size*, which is the total number of directors on the board of a company, (ii) *Independent Director %*, which is the ratio of independent directors to the total number of directors on the board of a company, (iii) *Female Director %*, which is the ratio of female directors to the total number of directors on the board of a company, and (iv) *BIG4*, which is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies and 0 otherwise. As previous studies, such as Guest (2009), Rutledge, Karim, and Siyu (2016), Arioglu (2020a) and Tepalagul and Lin (2015), demonstrate, these variables could affect company financial performance and value directly or indirectly. Variables that are included in various model specifications as control variables are (i) *Size*, which is the natural logarithm of the sales of a company, (ii) *Company Age*, which is the natural logarithm of the difference between the current year and the year that the company was founded, and (iii) *Istanbul*, which is a dummy variable that takes the value of 1 if the company's headquarters are located in the city of Istanbul and 0 otherwise. Lastly, discretionary current accruals (*DCA*) is the discretionary component of current accruals.⁴ In models that use company performance as dependent variables, these variables are employed as independent variables alongside other diversity measures that are explained in the following paragraphs.

In various models, company performance is captured by return on assets (ROA) and return on equity (ROE), which are standard performance measures employed in finance

literature. These variables are winsorized at the 1% and 99% levels to isolate the potential effects of any extreme observations.⁵

The proxy for company risk is *Leverage*, which is calculated in such a manner that it reflects the riskiness of a company's financing choices which are made by boards of directors. Following Faccio, Marchica, and Mura (2016), it is calculated as the ratio of financial debt to the sum of financial debt and equity, where financial debt is the sum of short-term loans and long-term debt excluding other non-current liabilities. A higher leverage indicates higher risk, since the impact of a shock would be greater on a company's net profitability when the leverage of the company is higher.

Two age diversity variables are calculated as proxies for the independent variables of main interest. The first age diversity variable, *Board Age Diversity*, is calculated by dividing the ratio of the standard deviation of age of a company's board members by the mean age of the company board members. The second age diversity variable, *LnSDAge*, is the natural logarithm of the standard deviation of age of a company's board members. Both variables are calculated following Talavera et al. (2018).

3.2. Descriptive statistics

The descriptive statistics for the variables discussed thus far are presented in Table 1. Table 1 shows that the mean values for ROE and ROA are 0.050 and 0.033, respectively. The mean value for leverage is 0.326. In addition, the table shows that companies in the sample have on average 6.95 board members, with 23.6% of them being independent and 12.9% being female. Of the companies in the sample, 53% are audited by one of the Big 4 independent audit companies. The mean total asset size is 2771 million Turkish Liras. The relatively high standard deviation, which is 15,702 million Turkish Liras, reflects multiple companies with very large total asset sizes. The mean value for the natural logarithm of company age is 3.387, whereas 56.6% of the companies are headquartered in Istanbul. In terms of the main variable of interest, age diversity, the mean value for *Board Age Diversity* is 0.186, whereas the mean *LnSDAge* value is 2.202. In untabulated results, it is observed that the mean director age is 55.11 years with a standard deviation of 11.92. The minimum director age is 19 while the maximum director age is 100.⁶

⁵ Regression results that employ ROA are reported to save space. When ROE is employed in regressions, parallel results are obtained.

⁶ In untabulated results, it can be observed that only the correlation values between ROE and ROA, and between the two age diversity variables are extremely high. However, since they are alternative measures and are never employed simultaneously, this does not cause any concerns. The Pearson correlation values between the independent variables and performance and risk variables are not higher than 0.53 suggesting that multi-collinearity should not be of concern (Gujarati, 2004, p. 259).

⁴ Arioglu (2020b) demonstrates that DCA, which is an earnings management proxy, is associated with company performance. The details of the estimation procedure for DCA according to the Turkish accounting system is discussed in greater detail in Arioglu (2020b).

Table 1

Descriptive Statistics. The table presents the descriptive statistics for company variables utilized throughout the study. The sample covers the period between the years 2009 and 2017, with 15,842 director-years and 2279 company-years of data. ROE is the return on equity. ROA is the return on assets. Leverage is the measure of company leverage to proxy for company risk as defined in the text. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable, which takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Board Age Diversity is the ratio of the standard deviation of age of the company board members by the mean of the age of the company board members. LnSDAge is the natural logarithm of the standard deviation of age of the company board members. The value diversity variable is the ratio of the standard deviation of a value of the company board members divided by the mean of the value of the company board members. Extreme observations for various variables are winsorized at 1% and 99% values.

	N	Mean	Standard Deviation
Panel A: Performance & Risk Variables			
ROE	2203	0.050	0.226
ROA	2203	0.033	0.080
Leverage	2184	0.326	0.245
Panel B: Control Variables			
Independent Director %	2279	0.236	0.151
Size	2279	6.952	2.112
Female Director %	2279	0.129	0.144
BIG4	2279	0.530	0.499
Assets	2247	^a 2771	^a 15,702
Ln (Company Age)	2268	3.387	0.594
Istanbul Dummy	2279	0.566	0.496
Panel C: Age Diversity Variables			
LnSDAge	2172	2.202	0.523
Board Age Diversity	2174	0.186	0.080
Panel D: Value Diversity Variables			
Value Diversity – Work	2132	–0.052	0.022
Value Diversity – Risk	2132	0.251	0.137
Value Diversity – Creativity	2132	–1.052	1.544
Value Diversity – Relaxed	2132	–0.071	0.037
Value Diversity – Traditional	2132	–0.021	0.009
Value Diversity – Competitive	2132	–0.366	0.163
Value Diversity – Heavy Worker	2132	1.218	4.885

^a Figures are denoted in Million Turkish Liras.

3.3. Methodology: World Value Survey and director values

To investigate through which channels age diversity may affect company performance, directors' personal values are also considered. Even though directors' values are not observable, it is assumed that their ages reflect their values. For this purpose, this study utilizes the World Value Survey (WVS) data following Talavera et al. (2018). Before describing the methodology employed in more detail, it is important to discuss why such a methodology is chosen in the current study.

There is extensive literature which argues that generational differences in an organization lead to a diversity of attitudes and behaviors arising from differences in work-related values

among the members of that organization who are from different generations (Parry & Urwin, 2011). The underlying rationale for such an argument is that individuals from specific generations experience similar and significant life events at critical developmental stages throughout their lives (Kupperschmidt, 2000), and while they are likely to share similar values (including work-related values) with individuals from the same generations, they are also likely to have different values than individuals from other generations (Gursoy, Maier, & Chi, 2008). Members of the same generation are born in similar years, and this limits them to a certain range of life experiences that leads them to have certain mode of thoughts and values (Parry & Urwin, 2011). Significant economic events, such as financial crises or changes towards free-market orientation, are especially likely to lead individuals of the same generation to share collective memories that shape their work-related values (Cherrington et al., 1979). Further, Holdbrook and Schindler (1994) argue that individuals that are in adolescence or young adulthood during specific and substantial national events would form a shared memory of such events, and therefore, such events would lead them to have similar attitudes and behavior. Such similarity would be easier to observe especially in work-place-related attitudes and behavior. For instance, Filipczak (1994) argues that Generation X witnessed their parents being made redundant, and such observations shaped the members of Generation X's perceptions of work in a manner that they have a tendency to consider each job as a temporary job and each company they work at as a stepping stone to another job.

Combined with the generational effects just discussed, age-related effects also matter for work-related value differences among board members. Age effects are changes that affect individuals as they get older and more mature (Rhodes, 1983). Therefore, it is not only the year that an organization member was born, but also her age that governs her work place attitudes and behavior. For instance, Polach (2007) argues that while an individual considered in her “midlife ages” desires leadership opportunities and the pressure “to have it all”, an individual considered in her “legacy ages” would be likely to keep what has been earned.

Empirically, Sessa, Kabacoff, Deal, and Brown (2007) demonstrate that managers from different generations value different characteristics in management, and that they behave differently in work-place. Similarly, Cennamo and Gardner (2008), Chen and Choi (2008), Gursoy et al. (2008) and Lamm and Meeks (2009) find that there are significant differences in terms of work values between individuals from different generations. Lyons, Duxbury, and Higgins (2007) find that individuals from different generations have different values in terms of traditionalism and conservatism. Yet, there are also studies that are unable to find work-related value differences among individuals from different generations, such as Parker and Chusmir (1990), Jurkiewicz and Brown (1998), Jurkiewicz (2000), and Appelbaum, Serena, and Shapiro (2005).

What matters in the context of the current study is that differences in work-related values of board members on the

same board could lead to serious conflicts in a group setting (Karp & Sirias, 2001). As Parry and Urwin (2011) discuss, different generations are likely to consider different economic resources as important, and this would naturally lead to inter-generational conflict. As discussed above, not only generational differences but also age differences matter for individuals' work-related values, and such differences can also lead to intra-group conflicts in a board setting.

Based on these arguments, the current study utilizes WVS data to create proxies for boardroom work-related value diversity. Even though it is debatable to utilize WVS respondents' answers to various work-related value questions, the main assumption underlying the methodology chosen in the current study (supported by arguments discussed above) is that individuals from similar generations and ages are likely to have similar work-related values as a result of shared collective memories.

Getting back to the details of the methodology, a total of 14 value indicators that are extracted from WVS Turkey (2012) are tested as potentially related to age. The value indicators that could be expected to be related to directors' attitudes towards work are: work, wealth, success, prudence, risk, creativity, determination, relaxed, helpful, traditional, obedient, unhappy, heavy worker, and competitive. Before testing whether these indicators are related to director age, each indicator is scaled so that value variables created based on these indicators are binary variables.⁷

Next, in order to determine which value variables are affected by age, separate logit models are employed to predict the probability of an individual holding each value. For instance, for the value variable "work", important demographic and sociological variables such as age, gender, education level, employment status, and income level are gathered along with the binary "work" variable from the WVS Turkey 2012. Then, the director sample is matched with the respondents of the WVS Turkey 2012 via propensity score matching. It is assumed that directors in the sample are employed and have high-income levels. Therefore, before matching, the WVS Turkey 2012 is restricted to individuals with high-income levels who are employed. As a result, variability in income and employment is eliminated. The matching is performed based on age, gender, and education

level with a caliper distance set as 0.05% without replacement, producing respondents that are similar to the directors in the sample with regard to age, gender, and education level. The results of the propensity score matching are presented in Table 2. The table shows that before the matching, the mean values of age, gender, and education levels for the entire director sample compared to the entire WVS Turkey 2012 respondents show statistically significant differences. However, after propensity score matching, the directors in the matched director subsample and the individuals in the matched WVS Turkey 2012 respondent subsample are indistinguishable in terms of age, gender, and education levels.

Next, by using a logit model to regress age, gender, and education level of the respondents that are matched via propensity score matching on the "work" value variable, the coefficients for age, gender, and education level variables are predicted for the respondents of the matched WVS Turkey 2012 subsample. The logit model employed is:

$$P(V_{ij} = 1) = F(a + b*Age_j + c*Gender_j + d*Education Level_j + \epsilon) \quad (1)$$

In the above specification, V_{ij} takes the value of 1 if the respondent j 's response has the value of 1 for the value variable "work" and 0 otherwise. *Age* is stated in years, whereas *Gender* is a dummy variable that takes the value of 1 for males 0 for females. *Education Level* is a dummy variable that takes the value of 1 for individuals with at least a bachelor's degree and 0 otherwise. The coefficients for these three variables predict whether the main variable of concern, age, has a statistically significant association with value variable "work".⁸ This procedure is repeated for the 14 value variables noted earlier. Of the 14 value variables, 7 appear to have a statistically significant relationship with age: work, risk, creativity, relaxed, traditional, heavy worker, and competitive. For the variable "work", age has the coefficient 0.0164 with a p-value of 0.000; for the variable "risk", age has the coefficient 0.0169 with a p-value of 0.000; for the variable "creativity", age has the coefficient 0.0112 with a p-value of 0.002; for the variable "relaxed", age has the coefficient 0.0152 with a p-value of 0.002; for the variable "traditional", age has the coefficient -0.0127 with a p-value of 0.041; for the variable "heavy worker", age has the coefficient -0.0104 with a p-value of 0.042; and for the variable "competitive", age has the coefficient -0.0112 with a p-value of 0.003.

Next, for each of these 7 value variables, the age, gender and education level of the directors in the sample are employed in separate logit models (based on the model (1)) by utilizing the coefficients predicted for the respondents of the matched WVS Turkey 2012 subsample. As a result, scores for the 7 value variables are predicted for each director in the sample each year. Lastly, value diversity variables for company boards are calculated for each of the 7 variables by

⁷ For this purpose, answers to the questions with 6 potential response categories such as "very much like me", "like me", "somewhat like me", "a little like me", "not like me" and "not at all like me" are recorded as dichotomies for each individual. "Very much like me" and "like me" take the value 1, and the remaining categories take the value 0. Answers to the questions with 4 potential response categories such as "very important", "rather important", "not very important", and "not at all important" are recorded so that "very important" and "rather important" take the value 1 and the remaining categories take the value 0. Answers to the questions that ask individuals the level at which they agree with a statement based on a scale from 1 to 10 (with 10 being "completely agree") are recorded so that "9" and "10" take the value 1 and the remaining categories take the value 0. Answers to the questions that ask individuals the level that they agree with a statement based on a scale from 1 to 10 (with 1 being "completely agree") are recorded so that "1" and "2" take the value 1 and the remaining categories take the value 0.

⁸ To ensure that the value variable is affected by only age and not the other variables, the value variables that have a statistically significant relationship with age, but not the other variables, are chosen as the relevant value variables.

Table 2

Mean Difference Test between Variables for the Propensity Score Matched Sample and the Entire Sample – Propensity Score Matching. The table presents the mean difference tests between the matched sample (based on propensity score matching) and the entire sample. The director sample is matched with the respondents of the WVS Turkey 2012 via propensity score matching. The matching is performed based on age, gender and education level with a caliper distance set as 0.05% without replacement, producing respondents that are similar to the directors in the sample with regard to age, gender, and education level. Each variable in the table is defined in Table 1. The sample covers the period between the years 2009 and 2017.

	Entire Sample Comparisons			Matched Sample Comparisons		
	Unmatched Directors	Unmatched Respondents	t-value	Matched Directors	Matched Respondents	t-value
Age	55.11	34.28	***-34.07	38.36	37.88	0.57
Gender	0.87	0.75	***-6.80	0.70	0.73	-0.71
Education	0.86	0.29	***-31.88	0.44	0.47	-0.55

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

Table 3

Effects of Age Diversity on Company Performance - OLS. The table presents the results of pooled OLS regressions, where the dependent variables are ROA. Board Age Diversity is the standard deviation of age of the company board members divided by the mean age of the company board members. LnSDAge is the natural logarithm of the standard deviation of age of the company board members. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies are NOT included in the specifications. The standard errors are robust. t-values are reported in parentheses.

	(1)	(2)
LnSDAge	0.001 (0.25)	
Age Diversity		0.022 (0.95)
Independent Director %	-0.014 (-1.25)	-0.013 (-1.16)
Size	**0.002 (2.29)	**0.002 (2.23)
Female Director %	-0.003 (-0.24)	-0.005 (-0.44)
BIG4	**0.008 (2.00)	**0.008 (2.04)
Ln (Assets)	***0.004 (3.64)	***0.004 (3.74)
Ln (Company Age)	**0.007 (2.49)	**0.007 (2.52)
Istanbul	-0.002 (-0.54)	-0.002 (-0.54)
C	***-0.100 (-4.41)	-0.105 (-4.60)
N	2096	2097
R ²	0.04	0.04
F	12.31	12.56

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

dividing the ratio of the standard deviation of a value variable for company board members by the mean of the value variable for all company board members. As can be observed in Panel D of Table 1, the mean values for these diversity measures are as follows: 0.052 for *Work*, 0.251 for *Risk*, -1.052 for *Creativity*, -0.071 for *Relaxed*, -0.021 for *Traditional*, -0.366 for *Competitive*, and 1.218 for *Heavy Worker*.⁹

⁹ In untabulated results, it can be observed that the Pearson correlation coefficients between the value variables and the performance variables are no higher than 0.80. It is clear that multi-collinearity is not of concern in the models that test the relationship between the value variables and the performance variables.

Table 4

Effects of Age Diversity on Company Performance – Firm Fixed Effects. The table presents the results of firm fixed effects regressions, where the dependent variables are. Board Age Diversity is the standard deviation of age of the company board members divided by the mean age of the company board members. LnSDAge is the natural logarithm of the standard deviation of age of the company board members. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies ARE included in the specifications. The standard errors are robust. t-values (z-values) are reported in parentheses.

	(1)	(2)
LnSDAge	0.001 (0.06)	
Age Diversity		0.010 (0.25)
Independent Director %	-0.013 (-0.54)	-0.012 (-0.50)
Size	-0.001 (-0.53)	-0.001 (-0.65)
Female Director %	0.023 (0.76)	0.019 (0.62)
BIG4	-0.006 (-0.86)	-0.007 (-0.88)
Ln (Assets)	-0.001 (-0.25)	-0.001 (-0.24)
Ln (Company Age)	0.015 (1.00)	0.015 (1.00)
Istanbul	0.006 (0.49)	0.007 (0.55)
C	0.010 (0.07)	0.006 (0.05)
N	2096	2097
R ²	0.02	0.02
F	2.90	2.98

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

3.4. Methodology: model specifications

In order to investigate the relationship between board age diversity and company performance, the current study first employs pooled ordinary least squares (OLS) models, with age diversity proxies in separate models alongside the control variables mentioned earlier. The pooled OLS models can be stated as below:

$$Performance_{i,t} = \alpha + \beta (Age\ Diversity\ Proxy_{i,t}) + \gamma (Control\ Variables_{i,t}) + \varepsilon_{i,t} \quad (2)$$

where *Performance*: ROA; *Age Diversity Proxy*: LnSDAge or *Age Diversity*; *Control Variables*: Board Size, Independent Director %, Female Director Percentage %, BIG4, Size, Company Age, and Istanbul; and *Year Dummies*: dummy variables for each year in the sample.

In the case that individual company effects do not exist, then employing pooled OLS models would produce consistent and efficient parameter estimates. However, one of the core assumptions of pooled OLS models is regarding exogeneity, and if the regressors in the model are endogenous (which is not uncommon in the case of the empirical association between board composition variables and company performance), then pooled OLS parameter estimates would be inconsistent and biased (Bhagat & Black, 2002). The presence of endogeneity could even potentially lead the signs of the coefficients to be estimated incorrectly (Ullah, Akhtar, & Zaeferian, 2018). In addition, unobservable company characteristics not included in pooled OLS models are likely to have an effect on company performance (Yermack, 1996). Therefore, potential endogeneity-related problems arising from the omitted unobservable company characteristics problems should be considered (Anderson et al., 2011).

A potential remedy to overcome any such concerns is the employment of firm fixed effects models. According to Hausman and Taylor (1981), employing fixed effects models is a common method of controlling such omitted characteristics. The fixed effects models rely on a similar model specification to the one in Model (2) with an additional firm-specific component that captures heterogeneities across companies.

Unfortunately, firm fixed effects models suffer from shortcomings as well. It is possible that, even if the omitted variables problem is overcome, reverse causality could still cause significant problems in the estimation process. While it is possible that board age diversity can affect company performance, company performance could also have an effect on the choice of directors to be nominated and elected to a company's board in the consequent period. Such a possibility leads to concerns regarding reverse causality, potentially resulting in biased firm fixed effects model parameter estimates. Such concerns are especially valid in empirical corporate governance-company performance research (Silveria, Leal, Carvalho-da-Silva, & Barros, 2010; Wintoki, Linck, & Netter, 2012; Roberts & Whited, 2013).

Potential models employed in the literature to overcome both omitted variables and reverse causality problems are 2 Stage Least Squares Instrumental Variables (2SLS-IV) models. However, it is a well-known fact in the literature that it is very difficult to choose valid instruments to be employed in these models (Sila, Gonzalez, & Hagendorff, 2016) since they rely on external instruments that are required to be correlated with the endogenous variable in a model, and is uncorrelated with company performance variables except through control variables in the models (Adams & Ferreira, 2009). In untabulated results, various external instrument candidates are employed in the models in order to assess their validity as “powerful” instruments. All of these potential instruments, except two, failed as “powerful” instruments. The

exceptions are *CapitaMosque* and *CapitaCourse*. Yet before discussing why they are considered as potential instruments, upper echolons theory needs to be discussed.

Upper echelons theory suggests that idiosyncratic differences among company executives matter. According to upper echelons theory developed by Hambrick and Mason (1984), company executives' backgrounds affect top-level corporate decisions. Upper echelons theory suggests that top executives' backgrounds reflect key formative experiences that influence their unique cognitive styles, such as tolerance for ambiguity and honesty. Differences in executives' backgrounds, experiences, values and cognitive styles affect how they make decisions, especially in complex situations lacking clear and calculable solutions (Bamber et al., 2010). Simple decisions at corporations, such as those related to daily working capital decisions, might have calculable solutions. However, decisions made in complex situations plagued by incompatible goals might not have easily calculable solutions, and therefore, might be influenced by executives' idiosyncratic backgrounds, experiences, values and cognitive styles (Hambrick, 2007). In other words, organizations become reflections of their top executives, and the beliefs and values of those individuals that make essential corporate-level decisions are expected to have significant influence on various corporate outcomes (Abatecola & Cristofaro, 2020; Bamber, Jiang, & Wang, 2010). In the Anglo-Saxon context, it is the CEOs that matter most, since they have the highest degree of managerial discretion due to a diffused ownership structure. Especially in the case that controlling shareholders do not exist, CEOs would have greater opportunities to follow their desired decisions and actions, and therefore would have more influence over essential corporate actions and outcomes (Crossland & Hambrick, 2011). However, as discussed in Arioglu (2020a), Turkey is characterized by family companies where the chairman is generally the founder and/or the oldest member of the family, and has the highest level of managerial discretion. Therefore, essential corporate decisions can be expected to be influenced by the chairman's idiosyncratic background, experiences, values and cognitive style.

Based on upper echelons theory, the current study constructs two proxies that do not fail to be “powerful” external instrumental variables. Both proxies are assumed to reflect the conservatism levels of the provinces of birth of chairmen included in the sample. In addition, as supported by the test results presented further in the text, both proxies are correlated with the endogenous variables in the 2SLS-IV models, and are uncorrelated with company performance variables except through control variables in the models.

The underlying rationale for the employment of conservatism levels of the provinces of birth of chairmen to reflect chairman values is as follows: Religious instructions generally begin in early childhood (Baxamusa & Jalal, 2016), and these instructions are usually initiated by families. Assuming that the beliefs of families and the level of religiousness are influenced by the community surrounding these families, it is possible that the city of birth of an individual could potentially affect the conservativeness of an individual. Since conservatism could be associated with resistance to change, and a tendency to be more

traditional and to make safer decisions, individuals that are more conservative can be expected to oppose change, which is likely to be brought to boardrooms by younger directors (Dong, Li, Xie, & Zhang, 2018). Therefore, a chairman from a more conservative background (who, in Turkey, generally has the voting power to nominate and elect board members due to the common ownership structure) might prefer to elect older directors that are likely to be more conservative, as discussed in Berger et al. (2014). This would naturally lead to lower board age diversity levels in such boards. Thus, the conservatism level of the province of birth of a chairman is expected to be negatively correlated with board age diversity, and uncorrelated with company performance, as supported by the empirical evidence presented in the following sections.

One of the conservatism proxies employed as an external instrumental variable in the current study is related to the number of Mosques per capita in provinces. The underlying assumption is that the higher the number of Mosques per capita in a province, the more religious the residents of that province, on average. Specifically, *CapitaMosque* is the per capita number of mosques in a province in the year 2019. The number of religious institutions in a geographical unit is a commonly employed proxy for the level of religiosity of the residents of that geographic unit. In terms of mosques, Lo Turco and Maggioni (2018) utilize the number of mosques per inhabitants of a region to proxy for the religiously raised population, and empirically demonstrate that it is a “good” proxy for attachment to religion and traditionalist attitudes. In terms of churches, Rossi, Barth, and Sun (2019) employ the natural logarithm of the number of churches in a province as an instrument based on the assumption that the number of churches in a province would be correlated with religiosity in that province. Grullon, Kanatas, and Weston (2009) also measure local religiosity by the number of churches per capita in a geographic location.

There are religious institutions in Turkey, called Quran courses, where participants are educated in reading, understanding, and memorizing the Quran (Ozturk, Celik, & Uyar, 2016). The other conservatism proxy employed as an external instrumental variable in the current study is related to the number of Quran courses. The underlying assumption is that the higher the number of per capita Quran courses in a province, the more religious the residents of that province on average, since more religious individuals are more likely to be interested in reading, understanding, and memorizing the Quran. *CapitaCourse* is the per capita number of Quran courses (legally registered courses) in a province in the year 2019. In a similar fashion, Lo Turco and Maggioni (2018) employ the share of participants to Quran courses per province as a proxy for the level of local religiosity in a province.

In order to investigate the effects of age diversity on company performance and risk, various 2SLS-IV models are employed in the current study. The external instruments are *CapitaMosque* and *CapitaCourse*. The results of the 2SLS-IV regressions that employ these instruments to investigate the relationship between company performance and board age diversity are presented in Table 5 and Table 6. The results of the 2SLS-IV regressions that employ the same external

instruments to investigate the relationship between company risk and board age diversity are presented in Table 7 and Table 8. The results of additional 2SLS-IV regressions run to investigate the relationship between company performance and two of the work-value diversity variables (*Work* and *Competitive*) are presented in Table 9 and Table 10. Lastly, the results of pooled OLS regressions run to investigate the relationship between company performance and the remaining work value diversity variables are presented in Table 11¹⁰.

4. Results

In order to investigate the relationship between board age diversity and company performance, the current study employs pooled ordinary least squares (OLS) models first. Table 3 presents the results. The Table shows that the coefficient of *LnSDAge* is 0.001 (with a t-stat of 0.25). Similarly, the coefficient of *Age Diversity* is 0.022 (with a t-stat of 0.95). These figures suggest that there is not a statistically significant relationship between board age diversity and company performance.

As explained in greater detail in the previous section, pooled OLS parameter estimates are likely to be biased and inconsistent if the regressors in a model are endogenous. In order to overcome such potential problems, firm-fixed effects models are also employed in the current study. The results are presented in Table 4. Once again, the coefficient of *LnSDAge* is 0.001 (with a t-stat of 0.06). On the other hand, when *Age Diversity* is employed in the model as the main independent variable of interest with *ROA* as the dependent variable, it has a coefficient of 0.010 (with a t-stat of 0.25). As is the case with the employment of pooled OLS models, the parameter estimates derived from the firm-fixed effects model also suggest that there is not a statistically significant relationship between board age diversity and company performance.

Overall, both OLS and firm-fixed effect regression results appear to suggest that board age diversity and company performance are not statistically significantly associated. However, as discussed in the Methodology section, both classes of models suffer from serious shortcomings, such as omitted variables problems and reverse causality issues. And it is a well-known fact that issues of endogeneity can lead to inconsistent parameter estimates, and accordingly, incorrect inferences. As a result, researchers might reach misleading conclusions and inappropriate theoretical interpretations (Ullah et al., 2018). To overcome these concerns, various 2SLS-IV models with *CapitaMosque* and *CapitaCourse* as external instruments are employed in the current study as well.

The results of the 2SLS-IV regressions with the external instrument *CapitaMosque* are presented in Table 5. In column 1, the coefficient of *Age Diversity* is 0.102 (with a t-stat of 2.03). Similarly, the coefficient of *LnSDAge* is 0.586 (with

¹⁰ 2SLS-IV regressions are not run with the remaining 5 value diversity variables since the external instruments do not pass as “powerful” instruments in the models that contain those 5 variables.

Table 5

Effects of Age Diversity on Company Performance – 2SLS-IV: CapitaMosque. The table presents the results of 2SLS-IV regressions, where the dependent variables are ROA. The IV is CapitaMosque. Board Age Diversity is the standard deviation of age of the company board members divided by the mean age of the company board members. LnSDAge is the natural logarithm of the standard deviation of age of the company board members. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies are included in the specifications. The standard errors are robust. t-values (z-values) are reported in parentheses.

	(1)	(2)
	IV: CapitaMosque	IV: CapitaMosque
LnSDAge	**0.102 (2.03)	
Age Diversity		**0.586 (2.28)
Lag (ROA)	***0.549 (15.73)	***0.539 (15.81)
DCA	***0.324 (5.93)	***0.325 (6.31)
Independent Director %	*-0.051 (-1.76)	*-0.047 (-1.75)
Size	**0.005 (-2.10)	*-0.002 (-1.87)
Female Director %	*-0.056 (-1.89)	**0.065 (-2.16)
BIG4	*0.008 (1.70)	*0.008 (1.81)
Ln (Assets)	0.001 (0.44)	0.001 (1.09)
Ln (Company Age)	0.005 (1.34)	***0.012 (2.87)
Istanbul	0.005 (0.93)	0.005 (0.92)
C	**0.185 (-2.03)	**0.128 (-2.23)
N	1440	1440
F	32.50	34.49
Kleibergen-Paap Under-Ident. Test	7.81 (p = 0.005)	11.63 (p = 0.000)
Endogenous Variables Endogen. Test	9.80 (p = 0.001)	9.84 (p = 0.001)
Year Dummies	Yes	Yes

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

a t-stat of 2.28). Table 6 presents the results of 2SLS-IV regressions with the external instrument *CapitaCourse*. Once again, the coefficient of *Age Diversity* is 0.106 (with a t-stat of 2.28), whereas the coefficient of *LnSDAge* is 0.501 (with a t-stat of 2.69). These figures are statistically significant at 5% level.¹¹ Based on these findings, Hypothesis 1 can be rejected. In other words, board age diversity appears to have a positive effect on company financial performance. These findings are supportive of the findings of previous studies, such as Kim and Lim (2010), Mahadeo et al. (2012), and Nguyen et al. (2015).

The current study also investigates whether there is a relationship between board age diversity and company risk. The results of the 2SLS-IV regressions with the external instrument *CapitaMosque* are presented in Table 7. The

¹¹ The coefficient of *CapitaMosque* in the first stage of the 2SLS-IV regression has a t-stat of -2.84 when *LnSDAge* is employed in the regression. The coefficient of the same external instrument in the first stage of the 2SLS-IV regression is -3.49 when *Age Diversity* is employed in the regression. The signs and the significance of the coefficients of *CapitaCourse* are similar.

Table 6

Effects of Age Diversity on Company Performance – 2SLS-IV: CapitaCourse. The table presents the results of 2SLS-IV regressions, where the dependent variables are ROA. The IV is CapitaCourse. Board Age Diversity is the standard deviation of age of the company board members divided by the mean age of the company board members. LnSDAge is the natural logarithm of the standard deviation of age of the company board members. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies are included in the specifications. The standard errors are robust. t-values (z-values) are reported in parentheses.

	(1)	(2)
	IV: CapitaCourse	IV: CapitaCourse
LnSDAge	**0.106 (2.28)	
Age Diversity		***0.501 (2.69)
Lag (ROA)	***0.549 (15.56)	***0.539 (16.48)
DCA	***0.322 (6.05)	***0.334 (7.25)
Independent Director %	*-0.052 (-1.74)	*-0.045 (-1.78)
Size	**0.005 (-2.27)	*-0.002 (-1.92)
Female Director %	*-0.058 (-1.94)	**0.057 (-2.33)
BIG4	*0.008 (1.69)	*0.008 (1.87)
Ln (Assets)	0.001 (0.42)	0.001 (1.11)
Ln (Company Age)	0.005 (1.30)	***0.011 (2.99)
Istanbul	0.006 (1.02)	0.004 (0.86)
C	**0.191 (-2.24)	**0.112 (-2.44)
N	1440	1440
F	31.43	38.85
Kleibergen-Paap Under-Ident. Test	9.62 (p = 0.002)	19.31 (p = 0.000)
Endogenous Variables Endogen. Test	10.27 (p = 0.001)	10.53 (p = 0.001)
Year Dummies	Yes	Yes

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

coefficient of *Age Diversity* as presented in column 1 is 0.494 (with a t-stat of 2.33). The coefficient of *LnSDAge* is 2.770 (with a t-stat of 2.66). Next, Table 8 presents the results of 2SLS-IV regressions with the external instrument *CapitaCourse*. The coefficient of *Age Diversity* is 0.231 (with a t-stat of 1.79), and the coefficient of *LnSDAge* is 1.070 (with a t-stat of 1.96). Based on these findings, Hypothesis 2 cannot be rejected. In other words, board age diversity appears to have a positive effect on company risk.

The current study also investigates whether there is a relationship between work value diversity proxies and company performance. The results of the 2SLS-IV regressions with the main variable of interest *Work* are presented in Table 9. Column 1 presents the results of the regression which include *CapitaMosque* as the external instrument. The coefficient of *Work* is -3.436 (with a t-stat of -1.83). When *CapitaCourse* is employed as the external instrument, the coefficient of *Work* is -2.952 (with a t-stat of -2.39) as presented in Column 2 of Table 9. These figures suggest that as the work value diversity related to the value *Work* increases, company performance decreases.

Table 7

Effects of Age Diversity on Company Risk – 2SLS-IV: CapitaMosque. The table presents the results of 2SLS-IV regressions, where the dependent variables are Leverage. The IV is CapitaMosque. Board Age Diversity is the standard deviation of age of the company board members divided by the mean age of the company board members. LnSDAge is the natural logarithm of the standard deviation of age of the company board members. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies are included in the specifications. The standard errors are robust. t-values (z-values) are reported in parentheses.

	(1)	(2)
	IV: CapitaMosque	IV: CapitaMosque
LnSDAge	**0.494 (2.33)	
Age Diversity		***2.770 (2.60)
Independent Director %	−0.156 (−1.45)	−0.115 (−1.25)
Size	**−0.027 (−2.53)	**−0.014 (−2.58)
Female Director %	**−0.290 (−2.43)	***−0.326 (−2.71)
BIG4	0.015 (0.78)	0.015 (0.83)
Ln (Assets)	***0.042 (7.18)	***0.047 (8.41)
Ln (Company Age)	***−0.065 (−3.90)	**−0.032 (−2.26)
Istanbul	0.019 (0.82)	0.016 (0.73)
C	***−1.049 (−3.01)	***−0.778 (−3.61)
N	1720	1720
F	14.07	16.78
Kleibergen-Paap Under-Ident. Test	8.06 (p = 0.004)	12.65 (p = 0.000)
Endogenous Variables Endogen. Test	14.34 (p = 0.000)	15.17 (p = 0.000)
Year Dummies	Yes	Yes

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

On the other hand, Table 10 presents the results of 2SLS-IV regressions where the main variable of interest is *Competitive*. Column 1, which presents the results of the regression with the external instrument *CapitaMosque*, demonstrates that the coefficient of *Competitive* is −0.577 (with a t-stat of −1.86). Column 2 of the same Table demonstrates that the coefficient of *Competitive* is −0.379 (with a t-stat of −2.56) when *CapitaCourse* is employed as the external instrument. As is the case with *Work*, these figures also suggest that as the work value diversity related to the value *Competitive* increases, company performance decreases.

Lastly, Table 11 presents the results of pooled OLS regressions that employ the other work value diversity proxies: *Risk*, *Creativity*, *Relaxed*, *Traditional*, and *Heavy Worker*.¹² None of these work value diversities appear to be statistically significantly associated with company performance. Combined with the results presented in Tables 9 and 10, one

¹² Pooled OLS models are employed as opposed to 2SLS-IV since *CapitaMosque* and *CapitaCourse* fail as “powerful” instruments when these 5 work value diversity proxies are included in the models.

Table 8

Effects of Age Diversity on Company Risk – 2SLS-IV: CapitaCourse. The table presents the results of 2SLS-IV regressions, where the dependent variables are Leverage. The IV is CapitaCourse. Board Age Diversity is the standard deviation of age of the company board members divided by the mean age of the company board members. LnSDAge is the natural logarithm of the standard deviation of age of the company board members. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies are included in the specifications. The standard errors are robust. t-values (z-values) are reported in parentheses.

	(1)	(2)
	IV: CapitaCourse	IV: CapitaCourse
LnSDAge	*0.231 (1.79)	
Age Diversity		**1.070 (1.96)
Independent Director %	−0.092 (−1.20)	−0.066 (−1.01)
Size	**−0.015 (−2.28)	**−0.008 (−2.36)
Female Director %	**−0.163 (−2.01)	**−0.158 (−2.20)
BIG4	0.008 (0.62)	0.007 (0.57)
Ln (Assets)	***0.044 (9.63)	***0.046 (10.45)
Ln (Company Age)	***−0.054 (−4.63)	***−0.040 (−3.73)
Istanbul	−0.001 (−0.05)	−0.005 (−0.37)
C	***−0.638 (−2.93)	***−0.471 (−3.73)
N	1720	1720
F	27.61	31.39
Kleibergen-Paap Under-Ident. Test	12.42 (p = 0.000)	25.90 (p = 0.000)
Endogenous Variables Endogen. Test	4.65 (p = 0.03)	5.38 (p = 0.02)
Year Dummies	Yes	Yes

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

cannot argue that board work value diversity is the underlying cause of the positive association between company performance and board age diversity. If anything, work value diversity in terms of *Work* and *Competitive* proxies appear to have a negative effect on company performance, rather than a positive effect. Therefore, even though work-related value diversity could have a negative effect on company performance individually, the overall benefits of team diversity appear to lead to a positive effect on company performance.

Overall, these findings provide evidence suggesting that board age diversity has a positive effect on company performance and risk. In addition, it does not appear that intra-group conflict with regard to work-related values is the underlying cause of the positive effect.

5. Conclusions and discussions

The current study investigates the potential effects of board age diversity on company financial performance and risk, as well as whether or not diverse values held by directors of different ages are the underlying causes of any effects on

Table 9

Effects of Work Value Diversity on Company Performance – 2SLS-IV. The table presents the results of 2SLS-IV regressions, where the dependent variables are ROA. The IV is CapitaMosque in Column 1. The IV is CapitaCourse in Column 2. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies are included in the specifications. The standard errors are robust. t-values (z-values) are reported in parentheses.

	(1) IV: CapitaMosque	(2) IV: CapitaCourse
Work	*-3.436 (-1.83)	** -2.952 (-2.39)
Lag (ROA)	***0.556 (13.45)	***0.554 (14.54)
DCA	***0.286 (3.76)	***0.300 (4.94)
Independent Director %	** -0.095 (-2.09)	** -0.086 (-2.33)
Size	*-0.008 (-1.85)	** -0.007 (-2.33)
Female Director %	*-0.063 (-1.68)	*-0.055 (-1.93)
BIG4	0.010 (1.63)	*0.010 (1.75)
Ln (Assets)	0.001 (0.63)	0.001 (0.67)
Ln (Company Age)	0.002 (0.52)	0.003 (0.75)
Istanbul	0.019 (1.50)	*0.016 (1.80)
C	*-0.116 (-1.69)	** -0.101 (-1.96)
N	1416	1416
F	21.13	25.21
Kleibergen-Paap Under-Ident. Test	4.71 (p = 0.030)	8.84 (p = 0.002)
Endogenous Variables Endogen. Test	10.56 (p = 0.001)	10.97 (p = 0.000)
Year Dummies	Yes	Yes

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

company performance. It utilizes a unique hand-collected dataset for a sample of companies quoted at the Borsa İstanbul between the years 2009 and 2017.

The findings suggest that board age diversity has a positive effect on company performance. It appears that the potential benefits of age diversity in boardrooms (such as different points of views and diverse knowledge and experiences among directors that could lead to more effective monitoring, strategic group decision-making, and improved creativity in boardrooms) outweigh the potential costs of board age diversity (such as conflicts, communication problems, flawed cooperation, and biases against out-of-group board members).

These findings are somewhat surprising due to Turkey's collectivistic culture, in which individuals may not value diversity as highly as those in more individualistic cultures (Jonsen et al., 2011). In such a cultural setting, increased age diversity in boardrooms could easily lead to potential disagreements between younger and older directors from different generations, and these conflicts could result in decreased company performance. For instance, China has a collectivistic culture, as does Turkey, and Talavera et al. (2018) show that board age diversity in China has a negative

Table 10

Effects of Competitive Value Diversity on Company Performance – 2SLS-IV. The table presents the results of 2SLS-IV regressions, where the dependent variables are ROA. The IV is CapitaMosque in Column 1. The IV is CapitaCourse in Column 2. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable that takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies are included in the specifications. The standard errors are robust. t-values (z-values) are reported in parentheses.

	(1) IV: CapitaMosque	(2) IV: CapitaCourse
Competitive	*-0.577 (-1.86)	***-0.379 (-2.56)
Lag (ROA)	***0.534 (11.63)	***0.541 (14.67)
DCA	***0.320 (4.88)	***0.338 (6.97)
Independent Director %	-0.037 (-1.00)	-0.037 (-1.25)
Size	-0.001 (-0.13)	-0.001 (-0.37)
Female Director %	*-0.258 (-1.83)	** -0.170 (-2.45)
BIG4	0.004 (0.73)	0.005 (1.08)
Ln (Assets)	0.001 (0.19)	0.001 (0.45)
Ln (Company Age)	**0.025 (2.33)	***0.019 (3.17)
Istanbul	0.015 (1.33)	0.009 (1.43)
C	*-0.239 (-1.90)	** -0.163 (-2.49)
N	1422	1422
F	15.91	26.69
Kleibergen-Paap Under-Ident. Test	4.51 (p = 0.033)	10.75 (p = 0.001)
Endogenous Variables Endogen. Test	10.60 (p = 0.001)	10.96 (p = 0.000)
Year Dummies	Yes	Yes

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

effect on company financial performance. Similarly, a negative relationship between age diversity and company financial performance is also suggested by the evidence in Ali et al. (2014) for a sample of Australian companies, even though Australia is characterized as a highly individualistic country according to Hofstede's cultural dimensions. Similar to the findings presented in the current study, Kim and Lim (2010) find a positive relationship between age diversity and company value for a sample of South Korean companies, and South Korea is characterized as a collectivistic country according to Hofstede's cultural dimensions. Based on the findings of the current study and these three previous studies, one might argue that whether a country is collectivistic or individualistic may not be the underlying reason for the empirical relationship between board age diversity and company financial performance. However, it should not be forgotten that all these studies have different research methodologies. Future studies that investigate the issue with multi-country samples are key to understanding the dynamics of the relationship between board age diversity and company performance.

An important point is that Turkey has a paternalistic management culture that determines the relationship between

Table 11

Effects of Director Values on Company Performance. The table presents the results of pooled OLS regressions, where the dependent variable is ROA. Independent Director % is the ratio of independent directors to the total number of directors on a board. Size is the total number of directors on a board. Female Director % is the ratio of female directors to the total number of directors in a board. BIG4 is a dummy variable, which takes the value of 1 if a company is audited by one of the big four independent audit companies. Assets is the natural logarithm of the total assets. Ln (Company Age) is the natural logarithm of company age. Istanbul is a dummy variable that takes the value of 1 if the company's headquarters is located in the city Istanbul. Each value diversity variable is the standard deviation of a value of the company board members divided by the mean of the value of the company board members. Extreme observations for various variables are winsorized at 1% and 99% values. Year dummies are included in the specifications. The standard errors are robust. t-values (z-values) are reported in parentheses.

	(1)	(2)	(3)	(4)	(5)
Risk	−0.005 (−0.55)				
Creativity		−0.001 (−0.31)			
Relaxed			0.024 (0.42)		
Traditional				0.119 (0.60)	
Heavy Worker					0.001 (0.75)
Lag (ROA)	***0.570 (19.35)	***0.578 (19.51)	***0.579 (19.79)	***0.576 (19.64)	***0.578 (19.78)
Independent Director %	*−0.035 (−1.74)	−0.030 (−1.49)	0.024 (0.42)	*−0.035 (−1.74)	*−0.038 (−1.90)
Size	−0.001 (−0.20)	0.001 (0.07)	*−0.037 (−1.83)	−0.001 (−0.12)	−0.001 (−0.08)
Female Director %	0.005 (0.48)	0.001 (0.12)	−0.001 (−0.33)	0.004 (0.40)	0.003 (0.27)
BIG4	0.005 (1.44)	0.004 (1.14)	0.006 (0.42)	0.004 (1.28)	0.004 (1.16)
Ln (Assets)	0.001 (1.04)	0.001 (1.15)	0.004 (1.13)	0.001 (1.09)	0.001 (1.29)
Ln (Company Age)	*0.005 (1.86)	*0.004 (1.73)	0.001 (1.29)	*0.005 (1.75)	*0.004 (1.68)
Istanbul	−0.003 (−0.88)	−0.002 (−0.82)	0.004 (1.61)	−0.002 (−0.61)	−0.003 (−0.93)
C	−0.029 (−1.35)	−0.024 (−1.12)	−0.001 (−0.54)	−0.028 (−1.30)	−0.024 (−1.13)
N	1770	1763	1767	1768	1756
R ²	0.34	0.35	0.35	0.35	0.36
F	33.93	33.66	34.33	34.47	35.42

*, **, and *** denote significance at 10%, 5%, and 1% significance, respectively.

superiors and subordinates. This paternalistic culture could also be expected to have consequences in terms of the relationship between equal members of a group that only differ in age. In such a setting, it is possible that older members of the group typically make the decisions. In return, younger members would be expected to obey, show commitment, and not challenge (Yamak, Ergur, Ozbilgin, & Alakavuklar, 2016). In this case, any potential benefits of group diversity could be lost. This paternalistic management culture, combined with the fact that a substantial percentage of companies quoted at the Borsa Istanbul are family-owned (Arioglu, 2020a), could lead one to question whether younger directors could effectively challenge older directors (mostly the chairman), who are the heads of families in a patriarchal country. If the younger directors cannot question or oppose older family members, then observing any potential positive effects of board age diversity on company performance would be unlikely. After all, for board age diversity to have a positive effect on corporate issues, such as financial performance, the opinions of younger directors need to be valued by older directors on the board. However, once again surprisingly, the paternalistic culture of Turkey and the dominant ownership structure of public companies in Turkey do not appear to have the expected negative effect on company performance via board age diversity.

The empirical evidence appears to suggest that the opinions of directors from different generations are valued by the other members of boards of directors, and directors are “judged” based on their opinions rather than their ages. After all, these board members are mostly qualified individuals with “valuable” backgrounds. For instance, out of the 14,437 director-

year observations, for which data are available, 6317 director-year observations earned at least a college degree at a foreign institution outside of Turkey. 1422 of these director-year observations have a PhD degree, whereas 4753 director-year observations have a Master degree. 5740 are considered financial experts, and 1549 director-year observations are considered accounting experts.¹³ Therefore, in line with the predictions of agency theory, resource dependency theory, and human capital theory, it appears that an age diverse board seems to have positive performance outcomes.

The current study also investigates whether board age diversity is associated with company risk proxied by leverage. The findings suggest that board age diversity has a positive effect on company risk. In other words, as the age diversity in boardrooms increase, companies make riskier decisions in terms of their capital structure choices. As discussed in greater detail in the theory section earlier, risk-taking would be expected to decrease with an individual's age. Therefore, a board with relatively older directors would be expected to make less risky decisions as a team. However, the empirical evidence in the current study appears to suggest that the presence of younger directors on boards (increased board age diversity) increases the risk appetite of company boards as a whole compared to boards that consist of only relatively older directors.

The findings also suggest that value-related diversity in boardrooms does not appear to be the underlying cause of the positive effects of board age diversity on company performance, except in the case of “work” value diversity and

¹³ For further details of expertise definitions, please refer to Arioglu (2015).

“competitive” value diversity. These 2 work value diversity proxies appear to lead to significant decreases in company performance, rather than increases. Thus, it seems that more diversity among board members in terms of the values *Work* and *Competitive* have a negative impact on company performance. Yet such negative effects do not appear to undermine the overall benefits of team age diversity in terms of company performance. Thus, the empirical evidence presented in the current study suggests that diversity in terms of work-related values among group members from different generations is not an obstacle for these groups to function effectively, leading to improved company performance.

The contributions of this study are important considering that the number of studies investigating the effects of age diversity on company performance for emerging markets is very limited. In addition, there is only one study by [Talavera et al. \(2018\)](#) (where researchers use a sample of Chinese banks) that investigates how board age diversity affects company risk as well as the value channels through which age diversity affects company performance. However, it is possible that any effects of board age diversity on company performance, and the value channels through which these effects might be effective might not be similar in countries that are very different from each other (as is the case for Turkey and China) when compared in terms of Hofstede's cultural dimensions. Such differences also exist between Turkey and more developed countries, such as the US and the UK. Thus, the Turkish case could be considered an interesting out-of-sample case and could add to the understanding of how in-group age and value diversity could affect the consequences of decisions made by groups at the top of organizations.

Lastly, a topic that has attracted more and more attention in the last years in economics and finance literature is the effects of religiosity on various corporate outcomes, and how these outcomes differ among countries where the dominant religions are different, since religions and their teachings might have varying effects on individuals' behaviors in the workplace and work-related values, and consequently, on various corporate outcomes. Supported by empirical evidence in various studies, conclusions and implications based on the association between religion-influenced values and corporate outcomes in a setting might not fit well in another setting where the dominant religious belief is not the same ([Du, Du, Zeng, Pei, & Chang, 2016](#)). Especially, Islamic work-related values are a subject that has been mostly ignored in the work-related values literature ([Kalemci & Tuzun, 2019](#)). Therefore, the current study aims to help fill this gap in the literature by investigating how work-related value diversity among board members affects company performance in a setting where the majority of the population is Muslims and, accordingly might have different work-related values.

A potential limitation of the current study is that it utilizes the World Value Survey (2012) Turkey respondents in order to predict the values of board members and the value diversity dimensions of boards. In future research, researchers can

conduct surveys with the actual members of boards of public companies in Turkey. However, this could be very challenging (if not impossible), since they might not succeed in gathering data from a sufficient number of respondents. The sample in this study includes over 3500 unique directors. In order to create proxies that reflect company-wide value diversity, a researcher would need to conduct surveys with most of these directors. Secondly, since some values are considered very sensitive subjects that are private affairs, as discussed in [Tracey, Phillips, and Lounsbury \(2014\)](#), board members might not be willing to participate in these interviews, even if one assumes that board members do not have any time constraints to participate. Thirdly, respondents of such one-on-one interviews might be biased towards providing socially desirable responses ([Parboteeah, Hoegl, & Cullen, 2008](#)), leading to essential biases in findings of such a research design. In other words, it is not unlikely that respondents parrot responses that they think those who created surveys want to observe, rather than responses that fully reflect their true beliefs. Lastly, it is also possible that some of the survey questions can be misunderstood by respondents, especially in the case that the questions focus on values that can be considered “abstract” concepts ([Graham, Harvey, & Puri, 2013](#)).

The fact that the current study is of a single country is another limitation. In the future, researchers could conduct a similar study with a broader multi-country sample, and investigate the impact of cultural differences on value diversity and its effects on company performance. This is consistent with [Karolyi's \(2016\)](#) call for more research on the importance of culture in financial decision-making. However, any researcher intending to conduct such cross-country research needs to be extra cautious. The findings of a cross-country approach might be confounded by differences in various country-level factors that would have influence on economic outcomes related to values ([Chen, Huang, Lobo, & Wang, 2016](#)). In addition, such an attempt is likely to suffer from sample heterogeneity. This is due to the fact that it is not an easy task to disentangle the individual effects of additional factors, such as economic structure, legal environment and institutional factors, on economic outcomes in a cross-country context ([Becker & Woessmann, 2009](#); [Jiang, Jiang, Kim, & Zhang, 2015](#)). Therefore, cross-country research increases the risk of omitted variables. Accordingly, such research suffers from not having enough degrees of freedom in the sample to conduct powerful tests ([Hilary & Hui, 2009](#)).

Conflict of interest

There is no conflict of interest with any parties.

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