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Board diversity and financial reporting quality: evidence from China

Irfan Ullah[a], Qiujun Zhao[b], Aurang Zeb[c], Amjad Iqbal[d] and Muhammad Arif Khan[e]

[a]School of Finance, Jiangxi Normal University, Nanchang, China; [b]International Business College, Dalian Minzu University, Dalian, China; [c]School of Accounting, Dongbei University of Finance and Economics, Dalian, China; [d]Department of Management Sciences, Hazara University, Mansehra, Pakistan; [e]Centre for Management and Commerce, University of Swat, Khyber Pakhtunkhwa, Pakistan

ABSTRACT

This study explores the relationship between board diversity and financial reporting quality (FRQ) in China, an emerging market, by using panel data techniques. Specifically, it investigates firms registered from 2005 to 2018. Board diversity is categorised into relation (i.e., gender and age), task (i.e., education, tenure, and experience), and overall board diversity (sum of relation and task diversities). Findings indicate that board diversity has a significant positive impact on FRQ. The relationship between board diversity and FRQ is also strong in non-state-owned firms and during noncrisis periods. Findings remain consistent after numerous robustness checks comprising instrumental approach, propensity score matching, generalised method of moment, lag of independent variables, Heckman two-step model, change analysis, and alternative FRQ measures. Overall, board diversity is found to be associated with corporate outcomes.

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1. Introduction

Board-related research has investigated board compositions, such as female and independent directors, and suggested that both directors enhance monitoring functions. However, important factors about monitoring, i.e., director heterogeneity (diversity), are overlooked. Investors and regulators worldwide have recently proposed diversified board compositions for effective governance practices (Arnaboldi et al., 2020). However, the findings are inconclusive due to differences in diversity measurement and conceptualisation (Adams & Ferreira, 2009). Ararat et al. (2010), Li and Wahid (2018), and Chen et al. (2019) revealed that diversity significantly affects performance, financial restatement, and risk, respectively. However, they considered diversity a narrow facet phenomenon, encompassing tenure or gender, and ignored its multifaceted

CONTACT Amjad Iqbal amjad.mgt.@hu.edu.pk

nature, which generalises findings as erroneous. Following Harjoto et al. (2018) and Jebran et al. (2020), we, therefore, measure diversity in relation diversity (RD) that comprises "surface level" characteristics, such as age and gender; task dimension (TD) that includes "deep-level" (job-related) attributes, such as education, tenure, and expertise; and overall board diversity (BD) that consists of the sum of RD and TD.

Financial reporting quality (FRQ) has become an important concern and has drawn policymakers' attention, especially after the emergence of high-profile fraud cases at the onset of this millennium. The International Accounting Standard Board (IASB) emphasises on the faithful presentation of accounting information (IASB, 2010). However, the flexibility allows managers in the IASB framework to make specific estimates, i.e., bad debt and depreciation. Moreover, weak governance mechanisms incentivize entrenched managers to change financial results in their favour. Therefore, many researchers have investigated the quality of corporate governance concerning FRQ. Among these studies, one group focuses on the effect of corporate governance on accounting standard adoption and FRQ (Almaqtari et al., 2021; Dobija et al., 2022; Hashed & Almaqtari, 2021), whereas another group regards board members and top executives' demographic characteristics as decisive factors for firm FRQ (Dobija et al., 2022; Huang et al., 2012). However, the literature ignores the fact that a board consists of several members and that only considering a few diversities and their individual impacts can limit the scope of previous studies. Our research fills this literature gap by exploring how RD, TD, and BD influence FRQ.

Here, RD, TD, and BD are expected to significantly affect FRQ. Several arguments about this relationship are presented. First, female directors mitigate agency costs, are anxious regarding reputation (Chen et al., 2019) and risk (Khaw et al., 2016), and are unlikely involved in securities fraud (Cumming et al., 2015). Second, young CEOs are likely to engage in firm financial restatement (Huang et al., 2012) and have a great willingness to take risk (Zhou & Wang, 2014). Taken together, if gender and age reduce fraud in a firm, then the board with RD is expected to enhance FRQ. Third, job-specific director attributes, i.e., tenure, education, and expertise, can improve the board monitoring role. Tenure-diverse boards are independent (Liu et al., 2010) and are unlikely to be involved in financial restatement (Li & Wahid, 2018). Likewise, education-diverse boards lessen incentives to manipulate earnings (Wicaksana et al., 2017). Therefore, board diversity may significantly affect FRQ.

We investigate the influence of board diversity on FRQ in a Chinese sample for the following reasons: First, China offers a peculiar environment because its economy is transitioning from centrally planned to market-based but growing at a phenomenal rate. The unprecedented growth rate has benefitted the country, becoming the world's production hub and second-largest economy. However, similar to other emerging economies, China suffers from poor corporate governance mechanisms (Allen et al., 2012). Thus, investigating the factors that can improve a firm information environment is imperative. Second, contrary to advanced countries, corporate ownership in China is largely dominated by institutional investors. The ownership concentration leads to a type-II agency problem, a conflict between majority and minority shareholders, exacerbating the information asymmetry problem. Third, China Securities Regulation Commission has no legislation that encourages directors from diverse

backgrounds to the corporate boardroom. Finally, as China is an emerging economy, our findings may have important implications for other developing economies.

Our sample comprises nonfinancial Chinese firms registered on Shenzhen and Shanghai Stock Exchanges from 2005 to 2018. Our findings depict that board diversity, i.e., RD, TD, and BD, has a significant positive effect on FRQ. Through our additional analysis, we observe that the impact is more pronounced in non-state-owned enterprises (non-SOEs) and during noncrisis periods than in SOEs and during crisis periods. Our results remain consistent with the alternative measures of FRQ and a battery of economic models. These findings suggest that diverse boards have collective wisdom, cognitive ability, and improved monitoring and governance role.

Our study makes three contributions to existing literature. First, it examines board compositions from a unique sociopsychological perspective. We theoretically and empirically prove that board diversity is a determinant of firm FRQ. Second, it reveals the economic consequences of diversity in the boardroom. Contrary to most previous studies that paid attention to a single facet of board diversity, i.e., gender or independent directors, we examine the multifaceted nature[1] of board diversity on corporate decisions, i.e., FRQ. Finally, it points out that board diversity is a key factor in strengthening corporate governance.

The rest of this article is organised as follows: Section 2 presents the literature review and hypothesis development. Section 3 describes in detail the research design. Section 4 reports our empirical findings. Section 5 illustrates the robustness checks. Section 6 deals with the additional analysis. Section 7 concludes.

2. Literature review and hypothesis development

2.1. Board diversity

Boards of directors safeguard shareholder interests and set strategic firm directions (Hu et al., 2020). Early researchers presumed that boards comprise homogeneous members with identical educational, social, and technical experiences and who hold similar business opinions (Westphal & Milton, 2000). Today, however, different stakeholders (e.g., institutional investors and regulators) have forced firms to recruit directors with diverse attributes, assuming that great diversity improves board decision-making processes (Harjoto et al., 2018). Moreover, diversity is a double-edged sword. On the one hand, it improves decision-making processes by bringing new perspectives to boards. On the other hand, it makes arriving at quick decisions difficult for firms. Numerous advanced countries have bound firms to incorporate diversity into their boards (Kalpazidou Schmidt, 2022). Literature also suggests that boardroom heterogeneity strengthens the board monitoring function and improves decision-making (Adams & Ferreira, 2009).

Resource dependency theory (RDT) and agency theory provide a foundation for board diversity and corporate decisions. RDT proposes (Pfeffer & Salancik, 1978) that organisations need diverse resources to exert their influence, gain power, and seek stability in the business environment. In board settings, directors from diverse backgrounds bring new knowledge, access to social networks, and technical expertise to boards, allowing them to make informed decisions (Davis & Cobb, 2010). Agency

theory (Jensen & Meckling, 1976) suggests that a conflict of interests exists between owners (shareholders) and managers, and heterogeneous boards may provide mitigation mechanisms (Adams & Ferreira, 2009; Fama & Jensen, 1983). Furthermore, improving the monitoring role, curtailing the agency problem, and raising organisational credibility is easy for companies with diverse boards to perform.

2.2. Rd and FRQ

RD comprises two aspects, i.e., gender and age. Agency theory suggests that high-quality governance mechanisms may enhance transparency leading to low information asymmetry (Almaqtari et al., 2020). Prior research argued about female presences on boards concerning various firm performance measures and found inconclusive results (Carter et al., 2010; Harjoto et al., 2018). However, other literature investigates the impact of board gender diversity on firm information quality and consistently reports their positive association (Isidro & Sobral, 2015; Dobija et al., 2022; Wahid, 2019; Ullah et al., 2021). Such a positive effect is supported by the notion that female directors are better monitors than their male counterparts (Isidro & Sobral, 2015). Therefore, we postulate that if gender diversity improves governance mechanisms and reduces information asymmetry, it may also improve FRQ.

Age is another important factor that influences individual behaviour and decision. Serfling (2014) revealed that as people grow old, they become risk-averse and conservative in their decisions. Huang et al. (2012) argued that CEO age has a significant positive impact on firm FRQ. Likewise, Troy et al. (2011) claimed that young CEOs are highly likely to engage in financial fraud. In contrast, Andreou et al. (2017) indicated that old ones have few incentives to withhold adverse information, thereby increasing the probability of a stock price crash risk. The aforementioned evidence suggests that decision-makers age significantly contributes to the agency problem and informational quality.

Considering the above discussion, we assume that great RD can improve the board monitoring ability, leading to increased financial report transparency. Thus, RD has a positive impact on firm FRQ. Our first hypothesis is as follows:

Hypothesis 1 (H1): *Great RD increases FRQ.*

2.3. TD and FRQ

Board members' job-specific characteristics, i.e., education, tenure, and experience, are regarded as TD attributes. Prior studies suggested that education significantly contributes to one's cognitive abilities (Peng & Kievit, 2020), employs creative solutions to complicated issues (Bantel & Jackson, 1989), confines agency issues while strengthening governance mechanisms (Ararat et al., 2010), and brings valuable resources (Pfeffer & Salancik, 1978). Keeping FRQ in mind, we assume that education-diverse boards bring additional perspectives to situations, process financial information well, and are unlikely misled by the distorted earnings reported by the management. This view is consistent with RDT.

Likewise, the relevant industry experience helps understand industry-level issues further. RDT provides theoretical support to this argument. Empirical evidence also shows that tenure-based boards have superior monitoring performance (Li & Wahid, 2018). The board member experience is another facet of diversity. The presence of an expert director assists a board in having quick access to critical information, leading to quality decision-making (Krishnan et al., 2011). Building on this discussion, we argue that senior member's experience and junior member's new perspectives add to board team collective wisdom and result in board effectiveness. Therefore, we posit that high TD increases managerial monitoring activity, reduces information asymmetry, and enhances transparency, resulting in high reporting quality.

Hypothesis 2 (H2): *Great TD (tenure, education, and expertise) increases FRQ.*

2.4. BD and FRQ

Finally, we argue that BD impacts FRQ. BD includes RD and TD. It must be investigated because board decisions are collective wisdom outcomes (Yeung & Lento, 2018). High BD provides organisations with wide-ranging skills, knowledge, and expertise, all of which improve firm reputation and investor confidence (Jebran et al., 2020). The governance view also suggests that high diversity strengthens the governance mechanism, mitigates the agency problem, and reduces information asymmetry. Therefore, we posit that high BD can lead to high reporting quality, leading to our third hypothesis.

Hypothesis 3 (H3): *High BD (RD and TD) increases FRQ.*

3. Research design

3.1. Model specification

The following model is employed to estimate the influence of board diversity on FRQ:

$$FRQ_{it} = \beta_0 + \beta_1 Board\ diversity_{i,t} + \beta_2 CV_{i,t} + \sum_j \beta_j Year + \sum_j \beta_j Industry + \sigma_{i,t} \quad (1)$$

where FRQ_{it} represents financial reporting quality. $Board\ diversity_{i,t}$ refers to RD, TD, and BD. Our hypotheses indicate that RD, TD, and BD improve FRQ, so we predict β_1 to be significantly positive. $CV_{i,t}$ represents control variables that can affect FRQ and its important determinants: firm size (*Size*), leverage (*Lev*), capital expenditure (*CAPEX*), return on assets (*ROA*), lagged return on assets (*LROA*), growth (*Growth*), operating cash flow (*OCF*), board member (*BM*), independent director (*Ind_D*), state-owned enterprise (*SOE*), big four auditors (*BIG4*), duality (*Dual*), including year and industry dummies.

3.2. Variable measures

3.2.1. Dependent variable

Two proxies are used to compute FRQ. The first is the accrual-based model suggested by Jones (1991), denoted as FRQ1. Among all the various discretionary accrual (DA) models, it performs the best (Dechow et al., 1995) and is widely employed in extant literature (e.g., Abbott et al., 2016; Hashmi et al., 2018). The model is as follows:

$$TA_{it} = \delta_0 + \delta_1\left(\frac{1}{Assets_{it-1}}\right) + \delta_2\Delta Sales_{it} + \delta_3 PPE_{it} + \varepsilon_{it}, \tag{2}$$

where TA_{it} represents total accruals (calculated as the change in noncash current assets less the change in current liabilities [excluding the current portion of long-term debt], less depreciation, and amortization). $\Delta Sales_{it}$ denotes the change (%) in sales; PPE_{it} refers to net property, plant, and equipment. All the variables are scaled by the lagged total assets. For each industry and year, the model is calculated cross-sectionally. The absolute value of ε (multiplied by −1) is the proxy for FRQ1. Therefore, high values indicate high FRQ1.

The second is FRQ2, which considers accrual quality and incorporates performance matching effectiveness. It is similar to the first model (Jones, 1991) modified by Dechow et al. (1995) in the revenue term, i.e., deducted account receivables from the revenue but augmented for *LROA*. Kothari et al. (2005) proposed this model, which has been used in prior studies (e.g., Lemma et al., 2020; Rubin & Segal, 2019), and is as follows:

$$TA_{it} = \delta_0 + \delta_1\left(\frac{1}{Assets_{it-1}}\right) + \delta_2\Delta Sales_{it} + \delta_3 PPE_{it} + \delta_4 ROA_{it-1} + \varepsilon_{it}, \tag{3}$$

where TA_{it} represents total accruals. $Sales_{it}$ is $(\Delta Sales_{it} - \Delta AR_{it})$ divided by the previous year total assets. PPE_{it} refers to the net property, plant, and equipment scaled by the lagged total assets. ROA_{it-1} is the net income before the extraordinary items in year t-1 divided by the total assets of year t-1. FRQ2 is the absolute value of ε multiplied by −1. Thus, high values represent high reporting quality.

3.2.2. Board diversity (independent variable)

Diversity index, a widely used measure in demographic analysis, was developed by Gissbs and Martin (1962) and later referred to by Blau (2000). It is used to calculate board diversity in this study.

$$D = 1 - \sum p_i^2, \tag{4}$$

where p is the proportion of individuals in a category, and i is the number of categories. The diversity index of 1(0) indicates that the population is fully heterogeneous (homogenous). As the number of categories increases, the maximum value of diversity also increases. For example, if the population has four categories, the maximum

value of diversity is 0.75 (equally represented in each category); it increases to 0.8 if the population has five categories.

BD is calculated based on five diversity indexes (i.e., gender, age, tenure, education, and expertise) initially created for this study. The gender diversity index is based on two groups: male and female. The age diversity index comprises five categories: 40 years and younger, 40–49, 50–59, 60–69, and 70 or above. The tenure diversity index is based on four categories: directors having less than three years of experience on the concerned board, 3–4, 4–5, and above five years in the boardroom. The education diversity index has five categories: technical secondary school and below, associate, bachelor's, master's, and PhD. Finally, the expert diversity index comprises financial, consulting, legal, and management experts or executives and other experts with research, technological, and medical experiences. Afterwards, these diversity indexes are grouped into three main measures, i.e., RD, TD, and BD.

3.2.3. Control variables

Following previous studies on FRQ (Dobija et al., 2022; Bao et al., 2019; Liu et al., 2021; Bhuiyan et al., 2020; Majeed & Ullah, 2020), several variables are included to control for firm-level and board-specific attributes. First, firm-level factors, such as *Size*, *Lev*, *CAPEX*, *ROA*, *LROA*, *Growth*, and *OCF*, are controlled, as prior studies suggested they may influence FRQ. Second, consistent with Bhuiyan et al. (2020), board-specific factors, i.e., *BM*, *Ind_D*, and *DUAL,* are controlled. Finally, ownership and audit quality factors, i.e., *SOE* and *BIG4,* are controlled. Liu et al. (2021) argued that SOEs always obtain more government support than non-SOEs. Therefore, they are unlikely to engage in earnings manipulation. Likewise, an audit performed by the world's four leading global accounting firms may have high reporting quality. Appendix A provides all the variable measurements.

3.3. Sample

Our initial sample comprises all A-share Chinese firms listed on Shanghai and Shenzhen Stock Markets during the 2005–2018 period. Data from the China Stock Market and Accounting Research (CSMAR) database are used.

The estimates of FRQ variables are generated from a sample of 28,679 firm-year observations from 2005 to 2018, representing firms with consolidated information in CSMAR. Our initial sample comprises 30,065 observations for the defined periods; however, our observations are considerably reduced due to FRQ estimations. Following Jebran et al. (2020), financial institutions are excluded from our sample because the models used for estimating FRQ do not apply to firms in these industries and require at least 15 firm-year observations in each Fama–French 48 industry classification. Firms without complete financial data in CSMAR are also deleted. Observations for 1 and 99 percentiles are dropped for all variables to mitigate outlier influence, so our final sample consists of an unbalanced panel of 23,841 firm-year observations (Table 1).

Table 1. Sample selection.

Sample selection	Total observations
Initial sample	30,065
(-) Financial firms	(997)
(-) firms with missing data to estimate FRQ	(1,386)
(-) firm with missing data to calculate board diversity	(1,557)
(-) firm with missing data to calculate control variables	(2,284)
Final sample	(23,841)

Source: CSMAR database.

Table 2. Descriptive statistics.

Variables	N	Mean	Median	Max	Min	SD
FRQ1	23,841	−0.103	−0.057	−0.001	−0.660	0.345
FRQ2	23,841	−0.104	−0.057	−0.001	−0.665	0.357
RD	23,841	0.850	0.858	1.165	0.444	0.162
TD	23,841	1.322	1.355	1.9633	0.240	0.392
BD	23,841	2.172	2.207	2.957	1.024	0.437
D_Gender	23,841	0.254	0.255	0.496	0.000	0.130
D_Education	23,841	0.569	0.631	0.789	0.000	0.188
D_Age	23,841	0.596	0.609	0.733	0.337	0.083
D_Tenure	23,841	0.376	0.462	0.747	0.000	0.259
D_Expert	23,841	0.377	0.417	0.609	0.000	0.153
Size	23,841	22.014	21.851	25.818	19.308	1.304
Lev	23,841	0.461	0.460	1.035	0.053	0.212
CAPEX	23,841	0.042	0.024	0.327	−0.148	0.101
ROA	23,841	0.036	0.034	0.198	−0.237	0.060
LROA	23,841	0.039	0.037	0.200	−0.210	0.059
Growth	23,841	0.138	0.119	1.514	−0.941	0.472
OCF	23,841	0.046	0.044	0.252	−0.174	0.074
BM	23,841	9.456	9.000	18.000	4.000	2.608
BIND	23,841	0.389	0.375	0.667	0.090	0.095
SOE	23,841	0.472	0.000	1.000	0.000	0.499
BIG4	23,841	0.062	0.000	1.000	0.000	0.242
DUAL	23,841	0.223	0.000	1.000	0.000	0.416

Source: The authors' research.

3.4. Descriptive statistics

Table 2 reports our summary statistics. The means (medians) of FRQ1 and FRQ2 are −0.103 (−0.057) and −0.104 (−0.057), respectively. All the financial reporting measures are similar to those in prior research (Ding et al., 2016; Liu et al., 2021). The means and (medians) of RD, TD, and BD are 0.850 (0.858), 1.322 (1.355), and 2.172 (2.207), respectively. Note that 47.2% of our observations are SOEs, and 6.2% of firms are audited by BIG4. *Size* is about 22.014%, and *Lev* accounts for 46.1%. The average values of other control variables are as follows: *CAPEX*, 0.042; *Growth*, 0.138; *ROA*, 0.036; *OCF*, 0.046; *BM*, 9.456; *BIND*, 0.389; *Dual*, 0.223.[2]

4. Main Results

The ordinary least squares (OLS) estimation method is used to evaluate the model. Table 3 presents the OLS regression results of estimation Eq. [1]. In Columns (1), (3), and (5) of Table 3, we employ FRQ1, the model developed by Jones (1991). In Columns (2), (4), and (6), we use FRQ2, the model developed by Kothari et al. (2005). Columns 1 and 2 report the results for H1, where the independent variable is

Table 3. Board diversity and financial reporting quality.

	(1)	(2)	(3)	(4)	(5)	(6)
	H1		H2		H3	
VARIABLES	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2
RD	0.021*	0.022**				
	(1.915)	(2.028)				
TD			0.057**	0.061**		
			(2.476)	(2.495)		
BD					0.206***	0.203***
					(2.970)	(2.699)
Size	0.012***	0.011***	0.011***	0.010***	0.011***	0.011***
	(4.190)	(3.881)	(3.964)	(3.643)	(4.123)	(3.810)
Lev	−0.082***	−0.077***	−0.083***	−0.079***	−0.083***	−0.079***
	(-3.827)	(-3.495)	(-3.910)	(-3.578)	(-3.917)	(-3.591)
CAPEX	0.111**	0.085	0.111**	0.086	0.111**	0.086
	(2.154)	(1.594)	(2.160)	(1.603)	(2.161)	(1.604)
ROA	0.052	0.033	0.054	0.036	0.053	0.034
	(0.356)	(0.228)	(0.373)	(0.245)	(0.362)	(0.233)
LROA	0.222	0.279*	0.230	0.288*	0.227	0.285*
	(1.476)	(1.725)	(1.526)	(1.772)	(1.510)	(1.757)
Growth	−0.268***	−0.279***	−0.268***	−0.278***	−0.268***	−0.278***
	(-5.504)	(-5.559)	(-5.496)	(-5.552)	(-5.503)	(-5.558)
OCF	0.240***	0.217***	0.238***	0.214***	0.239***	0.216***
	(5.301)	(4.796)	(5.209)	(4.707)	(5.275)	(4.772)
BM	−0.004***	−0.005***	−0.004***	−0.005***	−0.004***	−0.005***
	(-3.112)	(-3.380)	(-3.179)	(-3.435)	(-3.123)	(-3.388)
Ind_D	0.018	0.017	0.017	0.017	0.017	0.017
	(0.903)	(0.904)	(0.852)	(0.856)	(0.874)	(0.883)
SOE	0.024***	0.023***	0.021***	0.020***	0.022***	0.020***
	(4.347)	(4.001)	(4.275)	(3.847)	(4.394)	(3.982)
BIG4	0.006	0.002	0.006	0.002	0.006	0.002
	(0.802)	(0.184)	(0.823)	(0.200)	(0.803)	(0.181)
DUAL	−0.013**	−0.012**	−0.012*	−0.011*	−0.012**	−0.012*
	(-2.050)	(-2.036)	(-1.891)	(-1.852)	(-1.970)	(-1.938)
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.319***	−0.300***	−0.275***	−0.253***	−0.284***	−0.262***
	(-5.657)	(-5.086)	(-4.968)	(-4.315)	(-5.198)	(-4.538)
N	23,841	23,841	23,841	23,841	23,841	23,841
R^2	0.143	0.144	0.143	0.145	0.143	0.144

Note: The data present regression based on OLS estimation of Chinese firms listed on the SSE and SZSE between 2005 and 2018. The t-values are reported in parenthesis. ***, **, and * denote $p < 1\%$, 5%, and 10%. Refer to Appendix A for variable definitions.
Source: The authors' research.

RD. The RD coefficients are found positive and significant for FRQ1 and FRQ2, establishing a positive relationship between RD and FRQ in nonfinancial Chinese firms. Thus, H1 is supported. Our results also support prior literature that documented the positive effects of female and senior directors on firm information environment (Andreou et al., 2017; Chen et al., 2019; Dobija et al., 2022). Unlike other studies investigating the individual effect of gender and age on accounting information, our research provides empirical evidence on the combined impact of age and gender on FRQ. These findings are consistent with RDT (Pfeffer & Salancik, 1978) and agency theory (Jensen & Meckling, 1976).

Similarly, Columns 3 and 4 provide the findings for H2, where the independent variable is TD. Corporate governance can benefit from board-specific attributes, i.e., TD. Specifically, TD is associated with FRQ and is significant in all model specifications. The results align with the notion that experienced and expert boardroom

directors enhance board collective wisdom and strengthen governance function, thus leading to high FRQ and supporting H2. This result is consistent with RDT and extant literature (Harjoto et al., 2018; Li & Wahid, 2018;).

Columns 5 and 6 report the results for H3, where the independent variable is BD. The coefficients on FRQ1 and FRQ2 are positive and significant, suggesting that BD enhances FRQ. This result is congruent with Hillman and Dalziel (2003) perspective that efficient board monitoring requires appropriate resources and competencies supporting RDT. In summary, the results in Table 3 offer substantial evidence that almost all board diversity attributes are important for FRQ.

Regarding control variables, *Size* has a significantly positive relationship with FRQ, indicating that a larger firm leads to higher FRQ. A substantial nexus is also observed between *OCF* and FRQ, suggesting that high *OCF* leads to low DA. Moreover, high financial *Lev* is associated with low FRQ, indicating that high *Lev* leads firms to manage their profits to be further appealing to fund providers. Furthermore, the negative effects of *Growth* and *BM* on FRQ are found. The findings tally with previous research (Bao et al., 2019).

5. Robustness check

The alternative proxies of FRQ, i.e., FRQ3 and FRQ4, and numerous endogeneity tests are employed to examine the validity of the main results. However, for concision purposes, only the coefficients of the main variables are reported here.

5.1. Alternative proxies

For the robustness analysis, first, the model proposed by Dechow and Dichev (2002), denoted by FRQ3, is employed to calculate FRQ. In this model, current working capital accruals are regressed on cash flow from the operations during the current and subsequent lag years. Second, the model proposed by Kasznik (1999), denoted as FRQ4, is adopted to measure FRQ. Panel A of Table 4 presents the findings consistent with those stated previously, as reported in Table 3. These FRQ's measures do not drive our results.

5.2. Endogeneity concerns

The positive impacts of RD, TD and BD on FRQ may be caused by endogeneity or self-selection bias. To handle these issues, we use a battery of econometric techniques. First, 2SLS is considered because the literature suggests it mitigates endogeneity concerns (Antonakis et al., 2014). As shown in Panel B of Table 4, our findings are not driven by endogeneity issues. Second, propensity score matching (PSM) is applied to eliminate the unobserved factors (heterogeneity) that may, at the same time, influence board diversity and FRQ association. Our findings remain consistent. Panel C reports the PSM results. Third, the generalised method of moments (GMM) model proposed by Arellano and Bover (1995) and Blundell and Bond (1998) is used. GMM estimates provide valid instruments to address unobserved heterogeneities (Wintoki et al.,

Table 4. Robustness checks.

	H1		H2		H3	
Variable	FRQ3	FRQ4	FRQ3	FRQ4	FRQ3	FRQ4
Panel A: Alternative proxy of FRQ						
RD	0.075*	0.023**				
	(1.839)	(2.130)				
TD			0.276***	0.071***		
			(2.660)	(2.961)		
BD					0.089**	0.026***
					(2.510)	(2.824)
CV	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.341	−0.243***	0.050	−0.194***	−0.091	−0.245***
	(1.465)	(-4.096)	(0.541)	(-3.222)	(-0.824)	(-4.247)
R^2	0.157	0.139	0.158	0.139	0.158	0.139
N	23,841	23,841	23,841	23,841	23,841	23,841
Panel B: 2SLS						
RD/fitted value	0.212***	0.217***				
	(2.825)	(2.686)				
TD/fitted value			0.077**	0.075**		
			(2.289)	(2.124)		
BD/fitted value					0.422**	0.406**
					(2.318)	(2.159)
CV	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.138**	0.121*	−0.198***	−0.183***	−0.212***	−0.197***
	(2.205)	(1.919)	(-4.044)	(-3.717)	(-4.533)	(-4.137)
N	23,841	23,841	23,841	23,841	23,841	23,841
Wald Chi²/F	219.88	220.52	129.21	115.19	134.74	122.37
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000
R^2	0.137	0.139	0.133	0.135	0.133	0.135
Panel C: PSM						
RD	0.017**	0.017**				
	(2.241)	(2.132)				
TD			0.018**	0.016*		
			(2.215)	(1.860)		
BD					0.016**	0.014*
					(2.180)	(1.811)
CV	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.277***	0.242**	−0.277***	−0.241***	−0.300***	−0.267***
	(3.053)	(2.501)	(-3.700)	(-3.004)	(-4.298)	(-3.579)
R^2	0.117	0.124	0.096	0.102	0.090	0.096
N	6,340	6,340	6,410	6,410	6,410	6,410
Panel D: GMM						
RD	0.063**	0.158**				
	(2.175)	(2.122)				
TD			0.039**	0.035**		
			(2.192)	(2.232)		
BD					0.051**	0.062***
					(2.265)	(2.654)
LFRQ1	0.022***		0.026***		0.032***	
	(5.316)		(11.791)		(7.495)	
LFRQ2		0.021***		−0.127***		0.032***
		(10.601)		(-22.474)		(8.597)
CV	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.516	0.238	0.193***	0.548	−1.413	−0.160
	(1.050)	(0.132)	(4.722)	(0.524)	(-0.734)	(-0.082)

(*continued*)

Table 4. Continued.

	H1		H2		H3	
Variable	FRQ3	FRQ4	FRQ3	FRQ4	FRQ3	FRQ4
Diagnostic Tests						
Ar(1)	−4.02***	−3.59***	−4.00***	−3.57***	−4.05***	−3.66***
Ar(2)	−0.00	0.11	0.20	0.77	0.72	0.86
J-Stats	71.67	84.29	84.99	23.07	57.90	32.04
N	21,103	21,103	21,103	21,103	21,103	21,103
Panel E: Lag of independent variables						
LRD	0.081**	0.102***				
	(2.400)	(2.644)				
LTD			0.042**	0.052***		
			(2.396)	(2.761)		
LBD					0.199*	0.280**
					(1.723)	(1.991)
CV	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.185***	0.142*	−0.168***	0.177***	0.210***	0.173**
	(2.856)	(1.960)	(-2.980)	(2.631)	(3.378)	(2.538)
R^2	0.129	0.131	0.121	0.131	0.121	0.131
N	21,103	21,103	21,103	21,103	21,103	21,103
Panel F: Heckman two-step model						
RD	0.082**	0.079*				
	(1.981)	(1.849)				
TD			0.227***	0.082**		
			(32.038)	(2.085)		
BD					0.185*	0.182*
					(1.788)	(1.911)
CV	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.223	0.236	0.956	0.521	0.119	0.064
	(1.193)	(1.219)	(1.333)	(0.699)	(0.467)	(0.248)
Lambda	0.014	0.035	−0.306	−0.175	−0.371	−0.259
	(0.094)	(0.223)	(-1.532)	(-0.843)	(-1.569)	(-1.033)
Wald Chi²	1188.92***	1184.39***	2487.79***	2959.13***	1375.46***	925.47***
Censored (N)	12,398	12,398	12,398	12,398	12,398	12,398
Uncensored (N)	11,443	11,443	11,443	11,443	11,443	11,443
N	23,841	23,841	23,841	23,841	23,841	23,841
Panel G: Change Analysis						
	H1		H2		H3	
Variable	ΔFRQ1	ΔFRQ2	ΔFRQ1	ΔFRQ2	ΔFRQ1	ΔFRQ2
Δ*RD*	0.027**	0.065***				
	(2.228)	(3.794)				
Δ*TD*			0.058***	0.066***		
			(2.633)	(3.833)		
Δ*BD*					0.064***	0.050***
					(3.766)	(2.556)
Δ*CV*	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.006	−0.007	−0.007	−0.008	−0.007	−0.007
	(-0.442)	(-0.473)	(-0.516)	(-0.556)	(-0.467)	(-0.493)
R^2	0.196	0.196	0.196	0.196	0.196	0.196
N	21,126	21,126	21,126	21,126	21,126	21,126
Panel H: Reverse Change						
	H1		H2		H3	
Variable	ΔRD	ΔTD	ΔBD	ΔRD	ΔTD	ΔBD
Δ*FRQ1*	−0.001	−0.001	−0.000			
	(-0.768)	(-0.787)	(-0.105)			

(*continued*)

Table 4. Continued.

	H1		H2		H3	
Variable	FRQ3	FRQ4	FRQ3	FRQ4	FRQ3	FRQ4
ΔFRQ2				−0.000	−0.002	0.000
				(-0.338)	(-0.909)	(0.029)
ΔCV	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.002	−0.014**	−0.036***	0.002	−0.014**	−0.037***
	(0.872)	(-2.163)	(-2.797)	(0.709)	(-2.184)	(-2.857)
R^2	0.013	0.238	0.136	0.013	0.238	0.136
N	21,126	21,126	21,126	21,126	21,126	21,126

Notes: Panel A reports the findings of alternative FRQ measures. Panel B shows the findings of 2SLS. Panel C reports the PSM results. Panels D, E and F, report the results of GMM, lag variables, and Heckman estimation, respectively. Panel G reports change results while Panel H reports revers change results. The t- values are reported in parenthesis. ***, **, and * denote p < 1%, 5%, and 10%. Refer to Appendix A for variable definitions.
Source: The authors' research.

2012). Panel D of Table 4 reports our findings that are consistent with previous ones. Fourth, the lag of independent variables is estimated. As presented in Panel E of Table 4, endogeneity is not an issue. Fifth, Heckman's two-stage test is performed to deal with self-selection bias. The results (depicted in Panel F) reveal that the potential self-selection bias does not influence our findings. Finally, following prior studies (e.g., Aggarwal et al., 2011; Jebran et al., 2020; Ullah et al., 2020), the reverse causality technique is adopted because firms with high FRQ may draw directors with various backgrounds more than firms with low FRQ. In this case, the causality can operate in the reverse direction. The findings in Panels G and H confirm that board diversity affects FRQ, but FRQ has no significant impact on board diversity. All the above methods show that endogeneity and self-selection bias are not issues in our case.

6. Additional analysis

6.1. Impact during crisis and noncrisis periods

The crisis period spans from 2008 to 2010, whereas the noncrisis period ranges from 2005–2007 to 2011–2018. The global financial crisis of 2008 significantly affected the world economy, including China's. Investor confidence was shocked badly, and serious questions were raised about reporting quality. However, most Chinese firms were under the control of the state, and the state works as an insurer for these firms; thus, no significant impact of board diversity on FRQ was expected during the crisis period. Panel A of Table 5 reports the effect of board diversity on FRQ during financial and nonfinancial crisis periods. Our findings indicate that board diversity during the crisis period does not affect FRQ. However, RD, TD, and BD enhance FRQ during the nonfinancial crisis period.

6.2. Impact on SOEs and non-SOEs

SOEs play an important role in a country's economic growth. They usually pursue sociopolitical goals rather than enhancing FRQ (Faccio, 2006). Given their close ties to administrations, SOEs have a high possibility of dealing with the agency problem.

Table 5. Board diversity and FRQ.

Panel A: crisis and non-crisis periods

	Non-crisis periods						Crisis periods					
	H1		H2		H3		H1		H2		H3	
Variables	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2
RD	0.065**	0.070**					0.139	0.128				
	(2.152)	(2.258)					(1.778)	(1.820)				
TD			0.073***	0.078***					−0.036	−0.057		
			(3.026)	(3.046)					(-0.459)	(-0.741)		
BD					0.233***	0.234***					−0.274	−0.384
					(3.360)	(3.088)					(-0.731)	(-1.030)
CV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.120**	0.095	−0.196***	−0.163**	−0.210***	−0.179**	0.390	0.384*	−0.437***	−0.429***	−0.434***	−0.424***
	(1.965)	(1.454)	(-2.944)	(-2.251)	(-3.216)	(-2.512)	(2.861)	(3.118)	(-3.057)	(-3.074)	(-3.066)	(-3.071)
N	19,937	19,937	19,937	19,937	19,937	19,937	3,904	3,904	3,904	3,904	3,904	3,904
R^2	0.127	0.132	0.135	0.139	0.134	0.139	0.193	0.189	0.192	0.188	0.192	0.188

Panel B: SOE vs non-SOEs

	SOEs						Non-SOEs					
	H1		H2		H3		H1		H2		H3	
Variables	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2	FRQ1	FRQ2
RD	0.003	−0.050					0.035*	0.095**				
	(0.279)	(-1.450)					(1.834)	(2.194)				
TD			0.020	0.025					0.071**	0.066**		
			(1.165)	(1.363)					(2.140)	(2.009)		
BD					0.109	0.156					0.189**	0.167*
					(0.918)	(1.206)					(2.097)	(1.724)
CV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/Ind	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.196***	−0.151*	−0.150***	−0.125**	−0.193***	−0.169**	−0.411***	0.208**	−0.235**	−0.218**	−0.342***	−0.316***
	(-2.877)	(-1.862)	(-3.356)	(-2.384)	(-2.996)	(-2.254)	(-4.245)	(2.162)	(-2.354)	(-2.208)	(-3.545)	(-3.295)
N	11,114	11,114	11,114	11,114	11,114	11,114	12,727	12,727	12,727	12,727	12,727	12,727
R^2	0.144	0.142	0.133	0.133	0.144	0.142	0.155	0.143	0.143	0.143	0.154	0.155

Note: ***, **, and * denote $p < 1\%$, 5%, and 10%. Refer to Appendix A for variable definitions.
Source: The authors' research.

SOEs may have weaker corporate governance than privately managed firms due to the lack of real principal-agent relationship, weak oversight by bureaucrats with no strong financial incentives to oversee the incumbent management, and the risk of political interference. These differences in control and corporate governance between SOEs and non-SOEs have implications for corporate decisions. Therefore, the positive effect of board diversity on FRQ is marginally offset in SOEs. Our sample is classified into SOEs and non-SOEs to check whether the statistics vary across both firm types. As presented in Panel B of Table 5, the impact of board diversity on FRQ is evidently more pronounced in non-SOEs than in SOEs.

7. Conclusion

This study examines the impact of board diversity on firm FRQ in the Chinese setting. Following prior studies (Harjoto et al., 2018; Jebran et al., 2020), board diversity characteristics are grouped into RD, TD, and BD (i.e., the sum of RD and TD). A sample of Chinese firms listed on the Shenzhen and Shanghai Stock Markets from 2005 to 2018 is analysed. The results show that board diversity significantly contributes to firm FRQ, suggesting that a socio-psychologically diverse board mitigates the agency problem and improves the information environment, leading to high FRQ. Our additional analysis reveals that the impact of board diversity is more pronounced in non-SOEs and during noncrisis periods than in SOEs and during crisis periods. Our findings provide a new insight—board diversity can restrain information asymmetry by improving FRQ.

The study has many important implications for current and potential regulators and investors. First, it supports the call for workplace diversity, which aims to include and represent various segments of society. Understanding the impacts of different types of diversity can help regulators, managers, and investors allocate resources and assign responsibilities. Therefore, investors should consider board diversity when making investment decisions. Second, our work contributes to the growing body of research examining the economic consequences of board diversity. The literature argues that diverse boards can bring different opinions. Such opinions undoubtedly increase the possibility of making it difficult for boards to reach some consensus, thus reducing the chance to make effective decisions.

Nevertheless, diverse boards can remain effective because they can reduce unethical earning manipulation practices. Third, accounting boards should design such financial reporting standards, making it difficult for managers to manipulate financial results. Finally, our analysis reveals that governance practices can be improved by enhancing board diversity for corporate governance practices. Our results are significant for governance practitioners seeking to improve governance practices in emerging economies. However, this study has certain limitations. It is carried out in a unique emerging market where the economy is transitioning from centrally planned to market-based and where institutional investors and the government dominate the corporate ownership landscape. Moreover, our findings may not be generalised to advanced economies. Future research examining cross-country evidence will explain the relationship further.

Disclosure statement

No conflict of interest has been reported by the authors.

Notes

1. Only a few studies (e.g., Harjoto et al., 2018; Jebran et al., 2020) have examined the multifaceted nature of board diversity on corporate decisions.
2. The correlation matrix is reported in Table B of the Supplementary Appendices.

ORCID

Irfan Ullah http://orcid.org/0000-0001-9410-4107
Amjad Iqbal http://orcid.org/0000-0002-2994-5281
Muhammad Arif Khan http://orcid.org/0000-0001-7477-4197

References

Abbott, L. J., Daugherty, B., Parker, S., & Peters, G. F. (2016). Internal audit quality and financial reporting quality: The joint importance of independence and competence. *Journal of Accounting Research*, *54*(1), 3–40. https://doi.org/10.1111/1475-679X.12099

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, *94*(2), 291–309. https://doi.org/10.1016/j.jfineco.2008.10.007

Aggarwal, R., Erel, I., Ferreira, M., & Matos, P. (2011). Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics*, *100*(1), 154–181. https://doi.org/10.1016/j.jfineco.2010.10.018

Allen, F., Qj, J., Qian Zhang, C., & Zhao, M. (2012). China's financial system: Opportunities and challenges. *National Bureau of Economic Research*.

Almaqtari, F. A., Hashed, A. A., & Shamim, M. (2021). Impact of corporate governance mechanism on IFRS adoption: A comparative study of Saudi Arabia, Oman, and the United Arab Emirates. *Heliyon*, *7*(1), e05848. https://doi.org/10.1016/j.heliyon.2020.e05848

Almaqtari, F. A., Hashed, A. A., Shamim, M., & Al-Ahdal, W. M. (2020). Impact of corporate governance mechanisms on financial reporting quality: A study of Indian GAAP and Indian accounting standards. *Problems and Perspectives in Management*, *18*(4), 1–13. https://doi.org/10.21511/ppm.18(4).2020.01

Andreou, P. C., Louca, C., & Petrou, A. P. (2017). CEO age and stock price crash risk. *Review of Finance*, *21*(3), 1287–1325. https://doi.org/10.1093/rof/rfw056

Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2014). Causality and endogeneity: Problems and solutions. *The Oxford Handbook of Leadership and Organizations*, *1*, 93–117.

Ararat, M., Aksu, M. H., & Tansel., & Cetin, A. (2010). The impact of board diversity on boards' monitoring intensity and firm performance: Evidence from the Istanbul Stock Exchange. SSRN 1572283.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, *68*(1), 29–51. https://doi.org/10.1016/0304-4076(94)01642-D

Arnaboldi, F., Casu, B., Kalotychou, E., & Sarkisyan, A. (2020). The performance effects of board heterogeneity: What works for EU banks? *The European Journal of Finance*, *26*(10), 897–924. https://doi.org/10.1080/1351847X.2018.1479719

Bantel, K. A., & Jackson, S. E. (1989). Top management and innovations in banking: Does the composition of the top team make a difference? *Strategic Management Journal*, *10*(S1), 107–124. https://doi.org/10.1002/smj.4250100709

Bao, M. X., Cheng, X., Smith, D., & Tanyi, P. (2019). CEO pay ratios and financial reporting quality. *Global Finance Journal*, *47*, 100506.
Bhuiyan, M. B. U., Rahman, A., & Sultana, N. (2020). Female tainted directors, financial reporting quality and audit fees. *Journal of Contemporary Accounting & Economics*, *16*(2), 100189. https://doi.org/10.1016/j.jcae.2020.100189
Blau, J. R. (2000). Group enmity and accord. *Social Science History*, *24*(2), 395–413. https://doi.org/10.1017/S0145553200010208
Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*(1), 115–143. https://doi.org/10.1016/S0304-4076(98)00009-8
Carter, D. A., D'Souza, F., Simkins, B. J., & Simpson, W. G. (2010). The gender and ethnic diversity of US boards and board committees and firm financial performance. *Corporate Governance: An International Review*, *18*(5), 396–414. https://doi.org/10.1111/j.1467-8683.2010.00809.x
Chen, L. H., Gramlich, J., & Houser, K. A. (2019). The effects of board gender diversity on a firm's risk strategies. *Accounting & Finance*, (*59*(2), 991–1031. https://doi.org/10.1111/acfi.12283
Cumming, D., Leung, T. Y., & Rui, O. (2015). Gender diversity and securities fraud. *Academy of Management Journal*, *58*(5), 1572–1593. https://doi.org/10.5465/amj.2013.0750
Davis, G. F., & Cobb, J. A. (2010). Chapter 2: Resource dependence theory: Past and future. *Stanford's Organization Theory Renaissance, 1970–2000*.
Dechow, M. P., Sloan, G. R., & Sweeney, P. A. (1995). Detecting earnings management. *The Accounting Review*, *70*(2), 193–225.
Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, *77*(s-1), 35–59. https://doi.org/10.2308/accr.2002.77.s-1.35
Ding, S., Liu, M., & Wu, Z. (2016). Financial reporting quality and external debt financing constraints: The case of privately held firms. *Abacus*, *52*(3), 351–373. https://doi.org/10.2308/accr.2002.77.s-1.35
Dobija, D., Hryckiewicz, A., Zaman, M., & Puławska, K. (2022). Critical mass and voice: Board gender diversity and financial reporting quality. *European Management Journal*, *40*(1), 29–44. https://doi.org/10.1016/j.emj.2021.02.005
Faccio, M. (2006). Politically connected firms. *American Economic Review*, *96*(1), 369–386. https://doi.org/10.1257/000282806776157704
Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, *26*(2), 301–325. https://doi.org/10.1086/467037
Gibbs, J. P., & Martin, W. T. (1962). Urbanization, technology, and the division of labor: International patterns. *American Sociological Review*, *27*(5), 667–677. https://doi.org/10.2307/2089624
Harjoto, M. A., Laksmana, I., & Yang, Y. W. (2018). Board diversity and corporate investment oversight. *Journal of Business Research*, *90*, 40–47. https://doi.org/10.1016/j.jbusres.2018.04.033
Hashed, A. A., & Almaqtari, F. A. (2021). The impact of corporate governance mechanisms and IFRS on earning management in Saudi Arabia. *Accounting*, *7*(1), 207–224.
Hashmi, M. A., Brahmana, R. K., & Lau, E. (2018). Political connections, family firms and earnings quality. *Management Research Review*, *41*(4), 414–432. https://doi.org/10.1108/MRR-05-2017-0136
Hillman, A. J., & Dalziel, T. (2003). Board of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management*, *28*(3), 383–396.
Hu, J., Li, S., Taboada, A. G., & Zhang, F. (2020). Corporate board reforms around the world and stock price crash risk. *Journal of Corporate Finance*, *62*, 101557. https://doi.org/10.1016/j.jcorpfin.2020.101557
Huang, H. W., Rose-Green, E., & Lee, C. C. (2012). CEO age and financial reporting quality. *Accounting Horizons*, *26*(4), 725–740. https://doi.org/10.2308/acch-50268

International Accounting Standard Board. (2010). Conceptual *framework for financial reporting*.
Isidro, H., & Sobral, M. (2015). The effects of women on corporate boards on firm value, financial performance, and ethical and social compliance. *Journal of Business Ethics*, *132*(1), 1–19. https://doi.org/10.1007/s10551-014-2302-9
Jebran, K., Chen, S., & Zhang, R. (2020). Board diversity and stock price crash risk. *Research in International Business and Finance*, *51*, 101122. https://doi.org/10.1016/j.ribaf.2019.101122
Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X
Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, *29*(2), 193. https://doi.org/10.2307/2491047
Kalpazidou Schmidt, E. (2022). Diversity in diversity policy: The case of the Scandinavian countries. *Human Resource Development International*, *25*(1), 76–86. https://doi.org/10.1080/13678868.2019.1681850
Kasznik, R. (1999). On the association between voluntary disclosure and earnings management. *Journal of Accounting Research*, *37*(1), 57. https://doi.org/10.2307/2491396
Khaw, K. L., Liao, J., Tripe, D., & Wongchoti, U. (2016). Gender diversity, state control, and corporate risk-taking: Evidence from China. *Pacific-Basin Finance Journal*, *39*, 141–158. https://doi.org/10.1016/j.pacfin.2016.06.002
Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, *39*(1), 163–197. https://doi.org/10.1016/j.jacceco.2004.11.002
Krishnan, J., Wen, Y., & Zhao, W. (2011). Legal expertise on corporate audit committees and financial reporting quality. *The Accounting Review*, *86*(6), 2099–2130. https://doi.org/10.2308/accr-10135
Lemma, T. T., Shabestari, M. A., Freedman, M., & Mlilo, M. (2020). Corporate carbon risk exposure, voluntary disclosure, and financial reporting quality. *Business Strategy and the Environment*, *29*(5), 2130–2143. https://doi.org/10.1002/bse.2499
Li, N., & Wahid, A. S. (2018). Director tenure diversity and board monitoring effectiveness. *Contemporary Accounting Research*, *35*(3), 1363–1394. https://doi.org/10.1111/1911-3846.12332
Liu, C., Su, K., & Zhang, M. (2021). Water disclosure and financial reporting quality for social changes: Empirical evidence from China. *Technological Forecasting and Social Change*, *166*(September 2020), 120571. https://doi.org/10.1016/j.techfore.2021.120571
Liu, G., Sun, J., & Sun, J. (2010). Director tenure and independent audit committee effectiveness. *International Research Journal of Finance and Economics*, *51*.
Majeed, M. A., & Ullah, I. (2020). Impact of CEO power on investment efficiency: Evidence from China. *SSRN*.
Peng, P., & Kievit, R. A. (2020). The development of academic achievement and cognitive abilities: A bidirectional perspective. *Child Development Perspectives*, *14*(1), 15–20.
Pfeffer, J., & Salancik, G. R. (1978). The external control of organizations: A resource dependence perspective.
Rubin, A., & Segal, D. (2019). Directors' skill and financial reporting quality. *Journal of Business Finance & Accounting*, *46*(3–4), 457–493. https://doi.org/10.1111/jbfa.12359
Serfling, M. A. (2014). CEO age and the riskiness of corporate policies. *Journal of Corporate Finance*, *25*, 251–273. https://doi.org/10.1016/j.jcorpfin.2013.12.013
Troy, C., Smith, K. G., & Domino, M. A. (2011). CEO demographics and accounting fraud: Who is more likely to rationalize illegal acts? *Strategic Organization*, *9*(4), 259–282. https://doi.org/10.1177/1476127011421534
Ullah, I., Zeb, A., Khan, M. A., & Xiao, W. (2020). Board diversity and investment efficiency: Evidence from China. *Corporate Governance: The International Journal of Business in Society*, *20*(6), 1105–1134. https://doi.org/10.1108/CG-01-2020-0001

Ullah, I., Majeed, M. A., & Fang, H.-X. (2021). Female CEOs and corporate investment efficiency: Evidence from China. *Borsa Istanbul Review*, *21*(2), 161–174. https://doi.org/10.1016/j.bir.2020.09.010

Wahid, A. S. (2019). The effects and the mechanisms of board gender diversity: Evidence from financial manipulation. *Journal of Business Ethics*, *159*(3), 705–725. https://doi.org/10.1007/s10551-018-3785-6

Westphal, J. D., & Milton, L. P. (2000). How experience and network ties affect the influence of demographic minorities on corporate boards. *Administrative Science Quarterly*, *45*(2), 366–398. https://doi.org/10.2307/2667075

Wicaksana, K. A. B., Yuniasih, N. W., & Handayani, L. N. C. (2017). Board diversity and earning management in companies listed in Indonesian stock exchange. *International Journal of Scientific and Research Publications*, *7*(12), 382–386.

Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, *105*(3), 581–606. https://doi.org/10.1016/j.jfineco.2012.03.005

Yeung, W. H., & Lento, C. (2018). Ownership structure, audit quality, board structure, and stock price crash risk: Evidence from China. *Global Finance Journal*, *37*, 1–24. https://doi.org/10.1016/j.gfj.2018.04.002

Zhou, W., & Wang, Y. (2014). An empirical study for corporate risk index: CEO characteristics affecting corporate risk-taking. *Journal of Applied Sciences*, *14*(24), 3520–3525. https://doi.org/10.3923/jas.2014.3520.3525

Appendix A. Variable definitions

Dependent variables	
FRQ1	The absolute value of discretionary accruals estimated through JJones (1991) model multiply by −1. See section 3.2.1 for further explanation.
FRQ2	Absolute value of discretionary accruals derived from KKothari et al. (2005) model multiply by −1. See section 3.2.1 for further explanation.
Independent variables	
RD	Represents relation diversity, equals to the sum of D_Gender and D_Age.
TD	Represents task diversity, equal to the sum of D_Tenure and D_Expert.
BD	Represents overall board diversity, equal to the sum of RD and TD.
Control variables	
Size	Natural log of total assets
Lev	Total debt scaled by total assets
CAPEX	Capital expenditure divided by total assets
ROA	Net income divided by total assets
LROA	Lag of net income divided by total assets
Growth	Percentage change in sale
OCF	Operating cash flow scaled by total assets
BM	Size of the board represents the number of directors on the board
Ind_D	Number of independent directors on the board
SOE	Dummy variable one if the state owns the firm, otherwise zero.
BIG4	Dummy variable one if the top four auditors audit the firm, otherwise zero.
Dual	Dummy variable one if the CEO also serve as chairman, otherwise zero.