Rethinking Diversity: The Divergent Impacts of Relation- and Task-Oriented Board Diversity on Firm Performance and Risk

Abstract

We investigate the impact of relation- (e.g., gender, age, and nationality) and task-orientated board diversity (e.g. tenure and expertise/skills) on corporate risk (CR) and corporate financial performance (CFP). We develop a framework that draws on theories on group diversity and group performance, and we use an international sample of 12,284 firms 2000-2022. We demonstrate that relation-oriented diversity tends to increase risk without improving performance. In contrast, task-related diversity reduces risk and enhances performance. Therefore, Board Diversity (BoD) diversity appears beneficial when it emphasizes cognitive attributes over demographic characteristics. Methodologically, the findings of relation-oriented diversity are robust across the two measuring methods (Blau and traditional operationalization) while the results for task-related diversity require a more nuanced interpretation. Our findings are robust to endogeneity and model misspecification.

Keywords: Board of directors, diversity, financial performance, corporate risk

Funding: this research project is implemented in the framework of H.F.R.I call "Basic research Financing (Horizontal support of all Sciences)" under the National Recovery and Resilience Plan "Greece 2.0" funded by the European Union – NextGenerationEU (H.F.R.I. Project Number: 15646).

1 Introduction

While diversity research in organizations has a history of more than half a century, societal trends and movements have made research in this field even more urgent and relevant (Nkomo et al. 2019). The past few years have been marked by an upward tendency in Diversity, Equity & Inclusion (DE&I) reporting by the corporate world (Seramount 2022). This came as a response to demands by various stakeholders worldwide, including regulators, investors, and think tanks, who are calling for higher accountability and transparency of DE&I practices in the board of directors (BoD hereafter) (Directors' Institute 2024; Harjoto, Laksmana & Yang 2018). Key regulatory initiatives — such as the SEC's Human Capital Disclosure Rule (2020), European Union's Gender Balance on Corporate Boards Directive (2022/2381), and the UK FCA Diversity & Inclusion Rules (2023) — mandate companies to report their diversity and inclusion metrics.[1] However, current trends in the US have triggered counter effects. In 2022, the Los Angeles County Superior Court considered that two diversity mandates (i.e., representation of women (SB 826) and underrepresented minorities (AB 979) on BoD, passed in 2018 and 2020 respectively) violate the state's constitution (Klick 2024). More recently, President Trump's executive orders targeting DE&I programs in the public sector have prompted many US firms to walk back their diversity policies and DE&I programs (e.g., IBM, UnitedHealth Group, Warner Bros, and Goldman Sachs among others).[2]

[1] The U.S. Securities and Exchange Commission adopted a rule in 2020 requiring companies to disclose information about their human capital resources, including measures or objectives that address the attraction, development, and retention of personnel. The UK Financial Conduct Authority finalized rules in 2023 requiring listed companies to report on the representation of women and ethnic minorities on their boards and executive management. The EU Gender Balance on Corporate Boards Directive (2022/2381 – entered into application at the end of 2024), in an attempt to balance gender representation on corporate boards among EU listed firms by 30 June 2026.

[2] See for example the following article https://www.forbes.com/sites/conormurray/2025/04/11/ibm-reportedly-walks-back-diversity-policies-citing-inherent-tensions-here-are-all-the-companies-rolling-back-dei-programs/.

In such an evolving landscape, investigating determinants of BoD composition, including diversity, becomes of paramount importance, as such factors are crucial drivers for BoD effectiveness in monitoring and service roles. To date, empirical research on the impact of board diversity on corporate risk (CR) and corporate financial performance (CFP), remains inconclusive. For instance, the literature produces mixed results in the association of tenure and gender diversity on CFP and CR, but it relates expertise and ethnic diversity with positive outcomes on CFP (Zattoni et al. 2023). Further, the limited research on education and age diversity suggests positive impacts on CFP (Zattoni et al. 2023).

Although BoD diversity is widely researched, certain deficiencies in capturing various facets of BoD diversity persist (e.g., Chen et al. 2025; Kent Baker et al. 2020; Zattoni et al. 2023). Most studies on BoD diversity often have a narrow focus and rely on a single attribute (predominantly gender representation, and less frequently on age and expertise), while racial and ethnic diversity are under examined. Such shortcomings make generalizations difficult without accounting for other facets of diversity (Makkonen 2022; Maxfield & Wang 2024). On top of these, concurrent studies highlight that the lack of sophistication in the operationalization of diversity measures may cause the variations across reporting outcomes (Chen et al. 2025; Zattoni et al. 2023).

In this study, we are asking the question how various BoD diversity attributes influence two corporate outcomes, namely CR and CFP. We examine the impact of demographic/relation-oriented (gender, nationality, and age) and cognitive/task-oriented (tenure and expertise/skills) dimensions of BoD diversity on CR and CFP. We extend prior work by adopting two approaches, namely a) the Blau index approach (Blau 1977), and b) commonly used diversity measures in the literature. Through adopting both approaches, we aim to disentangle the contribution of each of them to our research questions. Interestingly,

we evidence that results appear sensitive to operationalization and empirical measuring of diversity.

Towards this end, we employ theories on group diversity and group performance, namely the cognitive resource perspective (Fiedler & Garcia 1987), the social categorization (Turner 1987), the similarity/attraction (Berscheid & Walster 1978), and the intergroup contact (Allport 1954) theories. We develop our theoretical framework (see Figure 1) and predict two competing effects BoD diversity on board performance. On the one hand, increasing BoD diversity (through demographic and cognitive attributes), may result in detrimental effects on group (i.e., the BoD) processes and performance. Viewed through the lens of the social categorization and similarity/attraction theories, more diversity can lead to in-group favouritism and out-group discrimination, and thus may reduce CFP and increase CR. On the other hand, the frequent interactions between the members of diverse BoD (intergroup contact theory) can moderate in-group/out-group biases, while higher expertise/skills and tenure diversity is capable of expanding the board's cognitive base (cognitive resource perspective). Consequently, group performance could improve, leading to better CFP and lower CR.

Firm performance involves organizational effectiveness in terms of operational and financial performance. In our study, we focus on CFP, which demonstrates the firm's ability to make a profit or financial gains (e.g., Richard et al. 2009), and we adopt both accounting-based (i.e., Return on Assets – ROA) and market-based (i.e., Tobin's Q) measures. We perceive CR as the strategic decision-making of choosing between different risky choices that could lead to different firm future earnings (also known as the "risk–return paradox" (Bowman 1980)). In principle, riskier corporate operations entail more volatile returns on capital (Kong, Tan & Zhang 2022), and thus we operationalize CR using accounting-based

(i.e., the volatility of a firm's accounting returns over a five-year period) and market-based (i.e., firm total risk and idiosyncratic risk) measures.

Responding to studies calling for comparative studies across jurisdictions (e.g., Aggarwal & Goodell 2014), we take an international perspective and investigate our research questions using a global sample of 12,284 firms (107,413 firm-year observations), scattered across 50 countries, for a 23-year window (2000-2022). Our empirical investigations generate important results. Relation-oriented diversity does not seem to positively affect firm outcomes, as it tends to increase risk without improving performance. However, more nationality diverse boards appear to significantly increase CR. Task-related diversity reduces risk and enhances performance. Specifically, tenure diverse BoD significantly reduce CR and improve CFP, while more expertise/skills diverse BoD are linked to better CFP. Therefore, firm diversity tends to be more beneficial when it emphasizes cognitive attributes over demographic characteristics. Methodologically, the findings of the relation-oriented diversity are robust across the two measuring methods (Blau and traditional operationalization) while the results for task-related diversity require a more nuanced interpretation. Our results are robust to sample selection bias, to omitted variable concerns, to endogeneity, and to alternative sample constructs and alternative specifications of CFP and CR.

Our study makes important contributions to the literature. First, we warn the academic community researching diversity outcomes, as they are sensitive to operationalization and empirical measuring of diversity (e.g., Chen et al. 2025; Zattoni et al. 2023). We suggest researchers to jointly employ various diversity attributes and to interpret results with caution (e.g., Joshi & Roh 2009). Second, we add to the accounting and finance literature investigating the impact of relation-oriented and task-related attributes on corporate outcomes (e.g., Harjoto et al. 2018), and in particular on CFP and CR (e.g., Bernile, Bhagwat & Yonker 2018; Kong et al. 2022), by demonstrating that relation-oriented diversity does not positively

affect firm outcomes and that task-related diversity reduces risk and enhances performance. Third, we contribute to the corporate governance literature by showcasing that cognitive, as opposed to demographic, characteristics significantly impact CFP and CR (e.g., Galbreath 2016; Guest 2019; Schnatterly et al. 2021; Yang et al. 2019).

The remainder of the paper is organized as follows. In Section 2, we review the literature and develop our testable hypotheses. Section 3 describes the research design, variable operationalization and sample, while Section 4 describes our empirical results. Section 5 provides the extensions of our empirical investigations, and Section 6 presents the sensitivity testing and robustness checks. Finally, Section 7 concludes the article.

2 Literature Review and Hypotheses Development

Corporate boards are critical workgroups with significant responsibilities, as their monitoring and services roles entail complex supervising and advising tasks, which require efficient management of information and procedures and decision-making. BoD diversity is often seen as a "double-edged" sword (Webber & Donahue 2001; Zattoni et al. 2023), with both favourable (i.e., diverse perspectives, ideas, and knowledge foster innovation) and disruptive effects (i.e., impairment in group cohesion promotes disagreements and conflicts, which impede group efficiency). As our theoretical framework predicts (see Figure 1), when considering the cognitive resource perspective, higher group-level diversity shall enhance its performance (Fiedler & Garcia 1987; Webber & Donahue 2001) and may lead to favourable corporate outcomes. Diverse groups benefit from access to a wide pool of perspectives and viewpoints (i.e., in terms of abilities, expertise/skills, and values) and to broader information networks (e.g., Gruenfeld et al. 1996), with both elements redounding to innovative solutions and problem-solving efficiency.

Insert Figure 1 about here

However, through the lens of the social categorization theory and similarity/attraction paradigm, the literature advocates detrimental effects of diversity on group processes and performance (Williams & O'Reilly 1998). Thus, people often rely on salient characteristics (such as gender, age, ethnicity) and classify themselves and others into social categories (Turner 1987). This process alleviates comparisons between groups and begets in-group/out-group bias and other cognitive biases (Tajfel & Turner 1986), since people are often attracted to others with similar attributes (e.g., demographics, values, and beliefs) (e.g., Berscheid & Walster 1978). For instance, people might show preference towards in-group members, while viewing out-group members as less reliable and less cooperative (Brewer 1979; Tajfel 1982). As such, bringing more diversity in a group might hamper its dynamics and performance by fostering unfavourable attitudes toward dissimilar individuals and by reducing out-group communication frequency (e.g., Riordan & Shore 1997; Zhang & Hou 2012).

Recent analyses on the impact of board diversity on corporate outcomes, such as CFP and CR, are inconclusive. Zattoni et al. (2023) document the existence of mixed results in the association of tenure and gender diversity on CFP and CR, while advocating positive results for expertise, ethnic diversity, and CFP. Further, the limited research on education and age diversity suggests positive impacts on CFP (Zattoni et al. 2023). Joshi & Roh's (2009) meta-analysis infers a non-significant effect of group diversity on performance when jointly considering various types of diversity attributes. This suggests that not all group attributes are relevant to the task at hand. For instance, experience, expertise/skills, and tenure are more pertinent (i.e., highly job-related), while demographic attributes (including nationality, age, and gender) are less relevant (i.e., less job-related) to the task at hand (Pelled 1996). Following this rationale and prior literature, we distinguish between relation-oriented (surface-level or less job-related) attributes, such as gender, nationality, and age, and task-

related (deep-level or highly job-related) attributes, such as tenure and expertise/skills (e.g., Harjoto et al. 2018; Pelled 1996; Webber & Donahue 2001).

2.1 Relation-oriented diversity attributes, CFP, and CR

We draw on social categorization theory to describe the influence of relation-oriented and task-oriented diversity attributes on group cohesion and performance (Harjoto et al. 2018; McGrath, Berdahl & Arrow 1995). Members within an organization categorize their peers based on their characteristics into different social categories. These categorizations serve as a basis for inferring underlying attributes such as expertise, competencies, values, and beliefs. For example, individuals may presume that members of their gender group share similar values and perspectives, leading to perceptions of greater cooperation and receptiveness to their ideas.

Thus, social categorization, if based on surface-level characteristics, amplifies the perceived in-group similarities and the out-group differences (Pelled, Eisenhardt & Xin 1999; Webber & Donahue 2001). This perception is also supported by the similarity/attraction theory/perspective, as alignment in values, beliefs, and attitudes among individuals may lead to in-group favouritism (i.e., between members of the same social category) and out-group discrimination. This is likely to hamper cohesion and overall group performance. Indeed, prior studies evidence detrimental effects of gender, race, and age diversity on group dynamics and effectiveness (e.g., Kearney et al. 2022; Riordan & Shore 1997; Zhang & Hou 2012).

In contrast, frequent interactions between group members can increase familiarity, and thus, reduce in-group/out-group biases. Intergroup contact theory (Allport 1954) posits that any adverse effects from group-level diversity are temporary, as collaboration, interaction, and communication between group members will mitigate stereotypes and

intergroup conflicts (Pettigrew & Tropp 2006). Higher levels of engagement with out-group members create counterfactual experiences (Dovidio, Gaertner & Kawakami 2003) and force them to adjust their perspectives accordingly, which ultimately can improve trust and cooperation within the organizational group. On top of these, increasing relation-oriented diversity in a workgroup could result in forming a wider pool of resources, as heterogeneity may bring many out-group contacts and experience, and thus improve its performance. In line with these expectations, empirical studies support positive effects of gender, nationality, and age diversity on team-level outcomes (e.g., Ayub & Jehn 2018; Hoogendoorn, Oosterbeek & Van Praag 2012; Li et al. 2021; Wegge et al. 2008).

Studies on the impact of each relation-oriented attribute (i.e., gender, nationality, and age) on team relational processes, performance, and risk have produced mixed results. A strand of the literature informs that female representation enhances firm value (e.g., Herdhayinta, Lau & Shen 2021; Kim, Kuang & Qin 2020). Galbreath (2016) reveals a positive, but *indirect*, association between gender diversity and CFP (i.e., the effects of gender diversity are channelled through improved CSR performance). Another strand of the literature shows that the average effect of gender diversity on CFP is negative (e.g., Adams & Ferreira 2009; Yang et al. 2019). Moving to CR, Farag & Mallin (2017) find that higher levels of female representation on the BoD, beyond a critical mass, lead to lower risk. Recent meta-analyses are also supportive of the risk-reduction effects of board gender diversity (Maxfield & Wang 2024; Teodósio, Vieira & Madaleno 2021). In contrast, Berger, Kick & Schaeck (2014) find a positive effect of female representation on CR, while Sila, Gonzalez & Hagendorff (2016) highlight that it is unobserved company heterogeneity, rather gender diversity *per se*, behind the negative gender–risk relation.

The literature on age diversity suggests either a non-significant (e.g., Prior Jonson et al. 2019; Yang et al. 2019) or a negative impact on CFP (e.g., Talavera, Yin & Zhang 2018;

Xu, Fernando & Schneible 2022). A similar landscape pertains for age diversity and CR, as it is either not related (e.g., Bernile et al. 2018) or positively related to CR (e.g., Berger et al. 2014; Yang et al. 2019). Studies on nationality diversity report a non-significant impact on CFP (e.g., Guest 2019; Yang et al. 2019), while Chen et al. (2025) suggest that ethnic diversity is unequivocally beneficial to CFP. Regarding CR, the literature remains inconclusive as studies fail to establish an association with ethnicity diversity (e.g., Bernile et al. 2018; Yang et al. 2019).

The preceding discussion highlights the existence of diverse theoretical anticipations and inconclusive empirical evidence. Although we anticipate that relation-oriented (surface-level) diversity will impact CFP and CR, we remain agnostic about its sign and magnitude. Therefore, we do not form a strong prediction, and we posit the following hypotheses:

H1: Board relation-oriented diversity attributes are associated with CFP.

H2: Board relation-oriented diversity attributes are associated with CR.

2.2 Task-oriented diversity attributes, CFP, and CR

Within the lens of cognitive resource perspective theory (Webber & Donahue 2001), directors with diverse areas of expertise and experiences (e.g., through prior employment) can foster a more comprehensive and multidimensional approach to decision-making and to collective problem-solving, by complementing one another's knowledge and by broadening the group's cognitive landscape (e.g., Finkelstein, Hambrick & Cannella 2009). As per the social categorization theory (McGrath et al. 1995; Turner 1987), there are two possible outcomes of task-oriented diversity attributes on team performance. First, inferences/categorizations about a member's cognitive resources (such as expertise, function, and tenure) may hinder, rather than facilitate collaborations and processes on the BoD, attributable to in-group/out-group biases. Second, inferences/categorizations may result in the

formation of “groups of experts” (e.g., a member with a finance/accounting degree may be perceived as a finance expert) and thus may trigger positive effects on group performance. Board members could become more receptive to the ideas of members with underlying knowledge, skills, and abilities. This could then facilitate inferences and communication within the group, due to complementarity effects of one another’s knowledge and to improvements in the pool of cognitive resources available, which ultimately will enhance decision-making and collective problem-solving of the BoD.

Although the literature advocates a more prominent impact of deep-level attributes, as compared to surface-level attributes, on group results (e.g., Nkomo et al. 2019), their effect on corporate matters remains inconclusive (Zattoni et al. 2023). In his meta-analysis, Makkonen (2022) finds that task-oriented attributes (e.g., expertise and experience), as compared to related-oriented (gender and nationality) attributes, improve team performance. In contrast, He, von Krogh & Siren (2022) reveal that wider expertise diversity may hinder, rather than facilitate, knowledge creation and collaborations in organizational groups.

Increasing expertise/skills diversity in the boardroom has been found to increase corporate value (e.g., Ali et al. 2023; Feldman & Montgomery 2015). Positive effects on CFP are also documented for accounting and finance expertise (e.g., Chan & Li 2008), as well as for directors with specialist business expertise (lawyers, accountants, consultants, bankers, and outside CEOs) (Gray & Nowland 2017). Kim, Mauldin & Patro (2014) suggest that the diverse expertise outside directors bring to the firm enhances both advising and monitoring performance, and thus improves CFP. Other studies' evidence shows detrimental effects of expertise diversity, if “misaligned” with the firm's future risks, on CFP (Schnatterly et al. 2021). Studies also show that significant levels of domain expertise diversity on the BoD can significantly increase the likelihood of company failure (e.g., Almandoz & Tilcsik 2016).

Limited research on expertise/skills diversity indicates negative effects on CR (e.g., Ali et al. 2023; Bernile et al. 2018; Mollah, Liljeblom & Mobarek 2021).

Some studies link tenure diversity with positive effects on CFP (e.g., Ali et al. 2023; Kim et al. 2014) on the basis of enhancing the advising and monitoring performance of the BoD. However, Huang & Hilary (2018) report that the effect of board tenure diversity on firm value and on accounting performance has an inverted U-shaped relationship, while Li & Wahid (2018) evidence no superior financial performance for firms with tenure diverse BoD. Moving to CR, higher levels of tenure diversity trigger risk reduction effects (e.g., Ali et al. 2023; Mollah et al. 2021) and lower the risk of future stock crashes (e.g., Jebran, Chen & Zhang 2020). Ji et al. (2021) reveal a negative effect of board tenure diversity on stock return volatility, which becomes more pronounced among firms with longer board tenures, whereas Bernile et al. (2018) document no effects of tenure diversity on CR.

The aforementioned discussion infers that task-oriented attributes (i.e., expertise and tenure) shall impact upon CFP and CR, but empirical evidence is not monotonic. As such, we remain agnostic on their sign to CFP and to CR, and we form the following hypotheses:

H3: Board task-oriented diversity attributes are associated with CFP.

H4: Board task-oriented diversity attributes are associated with CR.

3 Research Design

3.1 Measuring corporate financial performance (CFP)

Following relevant literature, we use both market-based and accounting-based CFP measures. Return on assets (ROA - defined as the ratio of earnings before interest and taxes (EBIT) to total assets) is used to capture accounting-based CFP (e.g., Adams & Ferreira 2009; Pandey et al. 2022; Richard et al. 2009). Tobin's Q (TOBINQ – defined as the ratio of total market value divided by book value of total assets) serves as our market-based CFP proxy (e.g.,

Adams & Ferreira 2009; Pandey et al. 2022).

3.2 Measuring corporate risk (CR)

The literature suggests the use of both market-based and accounting-based CR measures. As an accounting-based measure of CR, we use the volatility (ROAVOL) of a firm's country- and industry-adjusted operating ROA (EBIT to total assets) over the subsequent five years (e.g., Faccio, Marchica & Mura 2011; John, Litov & Yeung 2008; Koirala et al. 2020; Mohsni, Otchere & Shahriar 2021). First, we take the difference between a firm's ROA and the average ROA of all firms with the same four-digit Thomson Reuters Business Classification and from the country where the company is registered. This approach enables us to create a cleaner CR measure by removing the influence of factors that cannot be controlled by insiders, such as industry- and country-specific economic cycles (Faccio et al. 2011; Mishra 2011). Next, we take the standard deviation of these adjusted returns for each firm, and for a period spanning from year *t* to *t*+4, requiring a minimum of five observations (Faccio et al. 2011).

Following prior studies (e.g., Peltomäki et al. 2021; Sila et al. 2016), we construct two market-based measures of CR, a) the total risk of stock returns (TRISK - measured as the standard deviation of daily stock returns), and b) the idiosyncratic or firm-specific risk (IRISK), captured as the standard deviation of the residuals from the Fama & French (1993) three-factor model, expressed in Equation (1):

$$\mathrm{E(R_{i,t})} = \alpha + \beta_1[\mathrm{E(R_{m,t})}] + \beta_2\mathrm{SMB_t} + \beta_3\mathrm{HML_t} + \varepsilon_{\mathrm{it}} \qquad (1)$$

where α is the constant term; $E(R_{i,t})$ and $E(R_{m,t})$ represent the expected returns of stock *i* and the overall market *m*, respectively, at time *t*; SMB_t indicates the difference between the return on a portfolio of small- versus big capitalisation stocks at time *t*; HML_t represents the difference between the return on a portfolio of high- versus low book-to-market stocks at time *t*; and $\varepsilon_{i,t}$ is the error term. We required up to 40 available trading

weeks of returns within a single calendar year. First, we calculate total risk (TRISK) as the standard deviation of weekly stock returns for each bank per year. Second, we run Equation (1) for each bank's stock *i* every year. We use ε_{it} to capture idiosyncratic risk (IRISK). Finally, we follow similar studies (i.e., Sila et al. 2016) and annualize TRISK and IRISK by multiplying them by the square root of 250.

3.3 Measuring board diversity

Prior studies call on researchers to overcome existing deficiencies in the operationalization of diversity measures and to capture various diversity dimensions (e.g., Kent Baker et al. 2020; Zattoni et al. 2023). We capture five facets of BoD diversity, namely, a) gender, b) age, c) nationality, d) tenure, and e) expertise/skills. We capture directors' skills and experience, by considering each director's a) education/qualifications, b) membership in board committees, and c) employment history. In particular, expertise/skills are measured across nineteen (19)[3] categories (see Appendix B for a detailed description and operationalization), and we aggregate them in our calculations of the skills/expertise diversity measures, meaning that each director could have more than one skills, depending on education and previous and current employment. We make use of the Blau index approach (Blau 1977), a commonly used measure in demographic research:

$$D = 1 - \sum {p_k}^2 \quad (1)$$

where p is the proportion of board members in a category, and k represents the number of possible categories. The diversity index (D) captures the dispersion across board members who might be in of $k = 1, \dots, K$ possible categories, and a value of 1 (0) indicates that the population is perfectly heterogeneous (homogeneous). We use the index of diversity

[3] We make use of the list of skill categories, and the relevant keywords, provided in Appendix B of Adams, Akyol & Verwijmeren (2018, p. 660).

(D) and we calculate BoD diversity across the five aforementioned dimensions (gender (GENDER_D), age (AGE_D), nationality (NATLTY_D), skills (SKILLS_D), and tenure (TENURE_D)).

Considering variations across reporting outcomes, attributable to the sophistication of the method behind approaching diversity (Chen et al. 2025; Zattoni et al. 2023), we also consider commonly used measures across these five dimensions of diversity for benchmarking purposes. Prior studies capture BoD gender and nationality diversity, respectively, through the proportion of female board members over the total board size (FEMRATIO) (e.g., Pandey et al. 2022) and the proportion of foreign board members over the total board size (FORRATIO) (e.g., Ji et al. 2021). Age and tenure diversity are usually measured by the standard deviation of the ages of directors (AGE_SD) (e.g., Aggarwal, Jindal & Seth 2019) and the average tenure of board members (TENUREM) (e.g., Huang & Hilary 2018). Moving to expertise/skills diversity, a common proxy is the ratio of the number of unique skills that the director has to the total number of skills of all directors of the firm (UNQSKILLS) (e.g., Adams et al. 2018).

Following Harjoto et al. (2018), we create diversity indexes to assess the overall impact of board diversity on CFP and CR. We consider both the relation-oriented (RELATION) dimension (consisting of surface-level differences such as gender, nationality, and age), and the task-oriented (TASK) dimension (consisting of deep-level differences such as tenure and expertise/skills). First, we standardize each of the diversity proxies to a value of zero to one (i.e., we divide by the maximum value within each industry (we capture industry through the four-digit Thomson Reuters Business Classification - TRBC) for each year). Next, we sum up the three standardized diversity proxies (gender, nationality, and age) to construct the RELATION diversity measure, and the two standardized diversity proxies (tenure and skills) to construct the TASK diversity measure.

3.4 Empirical model

3.4.1 The association between board diversity and CFP

Equation (2) indicates the functional form of the empirical model used in the investigation of the effect of BoD diversity on CFP:

$$\mathrm{CFP}_{i,t} = \beta_0 + \beta_1 \mathrm{RELATION}_{i,t} + \beta_2 \mathrm{TASK}_{i,t} + \sum_{m=3}^{n=17} \beta_m \mathrm{CONTROLS}_{i,t} + \mu_t + \mu_d + \mu_c + \varepsilon_{i,t} \quad (2)$$

$\mathrm{CFP}_{i,t}$ denotes the financial performance measures (either accounting-based or market-based) for firm i in year t, as presented in section 3.1. RELATION and TASK capture the relation-oriented and task-oriented board diversity, respectively, as discussed in section 3.3. We also use a comprehensive set of board-, firm-, and macro-level characteristics. We add board-level characteristics, such as CEO duality (CEODUAL), to capture the influence of CEO power or discretion over the board (Pandey et al. 2022), board size (BSIZE - log of the number of board members) as it may influence team dynamics and processes, and therefore firm-level outcomes (Aggarwal et al. 2019), board independence (BINDEP - number of independent members over board size) (Adams & Ferreira 2009; Jackling & Johl 2009), and board busyness (BUSYDIR - average number of seats held by board members) (Pandey et al. 2022).

We include several firm-level characteristics. First, we control for the firm's past financial performance (e.g., Jackling & Johl 2009). Second, firm size and age are associated with firm performance and board composition , and thus we control for both (SIZE - log of total assets and LnAGE – log of years since incorporation) (Aggarwal et al. 2019). Third, financial leverage (LEV – total debt over total assets) is also considered (Aggarwal et al. 2019), as it can either negatively affect performance or act as a stimulus for managers to intensify the generation of cash flows to repay interest and principal, which in turn increases

performance. Fourth, we consider firm growth (SGROW - sales growth between t and t-1), as it represents an important determinant of CFP (Green & Jame 2013). Fifth, we consider the degree of complexity (LnBUSSEG - log of the number of business segments) (Adams & Ferreira 2009), as well as for the equity stake of insiders (INSIDOWN) and of institutional shareholders (INSTOWN) in a firm (Aggarwal et al. 2019; Pandey et al. 2022).

We also account for the economic environment using the growth rate of the gross domestic product (GDPGR) (Pandey et al. 2022) and for the quality of governance across countries (GOVINDEX constructed as the first principal component of control for corruption, government effectiveness, political stability, regulatory quality, and voice and accountability, based on Kaufmann & Kraay (2022)). Finally, to address the effect of outliers in this and in subsequent model specifications, we winsorize all continuous variables at the 1st and 99th percentiles. In addition, we include year, industry, and country indicators in the estimates to account for time trends, industry, and country variations that may bias our results. μ_t denotes indicator variables with a value of one for year t and zero otherwise. μ_d denotes indicator variables with a value of one for industry d and zero otherwise. μ_c denotes indicator variables with a value of one for country c and zero otherwise. $\varepsilon_{i,t}$ is the error term. All variables used in this study are described in Appendix A.

3.4.2 The association between board diversity and CR

Following prior literature (e.g., Faccio et al. 2011; John et al. 2008; Mohsni et al. 2021), we propose an array of board-, firm-, and macro-level controls identified as affecting CR:

$$\mathrm{CR}_{i,t} = \beta_0 + \beta_1 \mathrm{RELATION}_{i,t} + \beta_2 \mathrm{TASK}_{i,t} + \sum_{m=3}^{n=19} \beta_m \mathrm{CONTROLS}_{i,t} + \mu_t + \mu_d + \mu_c + \varepsilon_{i,t} \quad (3)$$

In equation (3), $CR_{i,t}$ denotes the CR measures (either accounting-based or market-based) for firm *i* in year *t*, as presented in section 3.2. RELATION and TASK capture the relation-oriented and task-oriented board diversity, respectively, as discussed in section 3.3. We control for several governance-related characteristics that might influence CR, such as BSIZE, BINDEP, and CEODUAL. Larger and more independent BoD are considered better monitors, while CEOs that are also board chairpersons may influence the functioning of the BoD (Ji et al. 2021). We also account for board busyness (BUSYDIR), as busy BoD may not be effective monitors (Fich & Shivdasani 2006).

We use a spectrum of firm-level characteristics that can explain cross-sectional and temporal variations of CR. First, we include SIZE and tangibility (TANG - fixed assets scaled by total assets), as they can influence the ability and appetite of the firm to make investment decisions (Acharya, Amihud & Litov 2011). Second, we capture firm capital structure (LEV), as access to finance affects investment decisions and corporate risk, while creditors exhibit different interest in regards to corporate risk (Acharya et al. 2011). Third, we account for a firm's operating liquidity (CASH – cash holdings over total assets), since higher levels of liquidity could be used to hedge against future credit shocks (Peltomäki et al. 2021). Fourth, firm financial performance (ROA), sales growth (SGROW), and firm growth potentials (MB – market to book ratio) enter our model, as CR could be influenced by profitability and growth potentials of a firm (Bernile et al. 2018; Koirala et al. 2020). Fifth, we consider the effects of life cycle and ownership structure on CR, through LnAGE and for the equity stake of institutional shareholders (INSTOWN) and insiders (INSIDOWN) in a firm (Bernile et al. 2018; Peltomäki et al. 2021).

We conclude our model with macro-related variables. GDPGR controls for the economic environment (Mohsni et al. 2021) and GOVINDEX for the quality of governance across countries (Abdelsalam et al. 2024). Countries of common law origin are more likely to

provide shareholders with better protection than those of French civil law origin (La Porta et al. 1997), and thus we account for legal origin (LEGAL - categorical variable reflecting the country's legal system (1 = civil law, 0 = common law, and 2 = mixed system)) (Mohsni et al. 2021).

3.5 Sample and data

We construct a global sample of active firms from the BoardEx and Refinitiv Workspace databases for the period from 2000 to 2022, as richer datasets are available in BoardEx from 2000 onward (Chen et al. 2025; Li & Wahid 2018). BoardEx is our main source for board composition data, Refinitiv Workspace for accounting and stock data, Thomson Reuters Eikon for ownership structure data, and the World Bank for country-level data.

Insert Table 1 about here

We begin with 25,922 global firms in the BoardEx database, translated into 214,366 firm-year observations. Based on our data requirements for CR and CFP measures, we remove 66,869 observations. We also remove 19,484 observations owing to missing control variables for our model specifications ((2) and (3)), and 586 observations due to missing ownership structure data. We also exclude 19,484 observations of firms operating in the financial industry due to differences in regulations and governance structure (Pandey et al. 2022). We further require a minimum of two firm-year observations per firm, in addition to a minimum of 10 firms in the country (Green 1991; Harrell 2001); as a result, we remove 3,000 observations. Our final sample encompasses 12,284 firms with 107,413 observations. Table 1 provides a description of the process, while Table 2 describes the distribution of the observations over 50 countries.

Insert Table 2 about here

4 Empirical Results

4.1 Univariate analysis

Table 3 provides the descriptive statistics for the variables employed in the analysis. The means (medians) of CFP measures, ROA and TOBINQ, are 0.795 (0.056) and 1.448 (0.986) respectively, which are slightly smaller than previous studies (e.g., Pandey et al. 2022). Regarding CR measures, the mean (median) of ROAVOL is 0.071 (0.046), of TRISK is 0.417 (0.36) and of IRISK is 0.011 (0.003), which are comparable with prior literature (e.g., Mohsni et al. 2021; Peltomäki et al. 2021).

Moving to board diversity measures, we observe that GENDER_D and NATLTY_D have much lower average values as compared to AGE_D, SKILLS_D, and TENURE_D. The zero values of the 25th percentile of GENDER_D and the NATLTY_D suggest that at least 25% (50%) of sample firms maintain BoD of the same gender (nationality). These indicate relative homogeneity in terms of gender and nationality but higher diversity in terms of age, skills, and tenure, consistent with Harjoto et al. (2018).

Insert Table 3 about here

Considering board-level controls, the average board comprises 8.4 members (BSIZE), which are mainly independent (BINDEP mean 0.617) and relatively busy (i.e., directors sit in approximately 3.445 boards (BUSYDIR)), while CEO duality is evident in 45.8% of in sample firms. Such results are consistent with prior studies (Bernile et al. 2018; Harjoto et al. 2018; Pandey et al. 2022). The average firm has a leverage ratio of 0.219, is relatively large (SIZE), and has around 28 years of operation experience (LnAGE). Additionally, the average firm is profitable (ROA mean 0.795) and exhibits positive sales growth (SGROW mean 0.002). Additionally, institutional investors hold a stake of around 57.8% of our in-sample firms. The mean (median) of GOVINDEX and LEGAL are 1.777 (1.841) and 0.289 (0),

respectively, and show that sample firms are domiciled in countries with strong enforcement and a common law legal system.

Insert Table 4 about here

Table 4 presents the Pearson correlation matrix of the variables employed. We observe that board diversity variables are positively correlated with ROA, but when it comes to TOBINQ, we evidence negative correlation coefficients from most of the diversity measures. Moving to CR measures, correlation coefficients indicate a risk-reduction tendency either looking into the five-year volatility of ROA (ROAVOL) or firm total market risk (TRISK). On the contrary, firm-specific risk (IRISK) seems to be positively correlated with board diversity measures. Some pairwise coefficients exceed the threshold of 0.6, which might indicate multicollinearity. Thus, we incorporate these in separate models. Our additional inferences indicate that there is no serious problem of multicollinearity. Moreover, we present each model's mean-variance inflation factors (VIFs), evidencing that multicollinearity probably does not influence the results, as none of them exceeds the conservative cut-off value of 10 (e.g., Kutner et al. 2004).

4.2 Multivariate analysis

4.2.1 Board diversity and CFP

Table 5 provides the results of the analysis of the effect of the two diversity measures on each of the accounting-based (ROA) and market-based (TOBINQ) CFP proxies. Results suggest that relation-oriented diversity has a positive, but non-significant association with either accounting-based or market-based CFP (except for RELATION_D (Column 2) that attains a positive and significant coefficient at 1% when the dependent variable is TOBINQ). Task-oriented diversity yields more consistent results that significantly increase CFP (other than TASK_D (Column 2)). Our analysis confirms our third hypothesis (H3), while we find no

support for H1. Drawing upon our theoretical framework (see Figure 1), these findings appear consistent with the cognitive resource perspective argument and the favourable effect of diversity on corporate outcomes. Additionally, analyses reveal that results are bound to the underlying operationalization of diversity, fuelling concerns related to the sophistication of the method behind approaching diversity (Chen et al. 2025; Zattoni et al. 2023).

Insert Table 5 about here

With regards to the remaining control variables, accounting-based CFP appears to decrease with board size, while firm size, sales growth, and insider and institutional ownership are contributors to better CFP. When considering market-based CFO, it improves with corporate governance (BSIZE, BINDEP, and BUSYDIR), with insider and institutional ownership being also contributors to better CFP, while firm size, leverage, and operational complexity (LnBUSSEG) appear to decrease a firm's market-based CFP.

4.2.2 Board diversity and CR

In Table 6 we investigate the effect of board diversity on CR. We demonstrate that relation-oriented diversity has a positive relationship with CR, regardless of the method used to measure surface-level diversity attributes (i.e., RELATION_D or RELATION), as it increases both the volatility of earnings (ROAVOL) and the total risk of stock returns (TRISK). Conversely, task-oriented diverse boards appear to reduce CR, as indicated by the negative and statistically significant, at 1%, coefficients of TASK_D (Column 3) and TASK (Columns 4 and 5). Our findings support H2 (corroborating the negative effect of diversity on group performance (i.e., as social categorization and similarity/attraction theory posit), while they partially support H4 and align with the cognitive resource perspective argument. Once again, our findings suggest that the approach to diversity matters.

Insert Table 6 about here

With regards to the remaining control variables, we evidence that CR increases with leverage, higher levels of cash holdings, sales growth and firm growth potentials (MB), while older (LnAGE), larger (SIZE), and more profitable firms (ROA) with higher levels of tangibility and institutional ownership are associated with lower levels of CR. These findings are consistent with prior studies (e.g., Bernile et al. 2018; Koirala et al. 2020).

5 Extension of Main Results Using Constituents of Diversity Measures

Our main findings indicate that relation-oriented diversity does not positively affect firm outcomes, whilst task-oriented diversity reduces risk and enhances performance. In this section, we provide further insights, through examining each of the five constituents of our BoD diversity proxies. In Table 7, we investigate how individual constituents affect the accounting-based and market-based CFP measures. Regarding surface-level diversity attributes, we evidence that none of them (gender, age, and nationality) impacts ROA (Columns 1 and 3). On the contrary, gender (GENDER_D and FEMRATIO) and nationality (NATLTY_D and FORRATIO) diversity are contributing factors to better market-based CFP, whereas age (AGE_D and AGE_SD) diversity has a negative relationship with market-based CFP (see Columns 2 and 4). Moving to deep-level attributes, results seem more consistent, as the documented significant impact of task-oriented diversity stems primarily from the positive impact of expertise/skills diversity (SKILLS_D in Column 1, and UNQSKILLS in Columns 3 and 4) and from tenure diversity (TENURE_D in Column 2, and TENUREM in Column 4).

Insert Table 7 and Table 8 about here

Extending our investigation to CR, we find that the positive effect of relation-oriented diversity on CR (ROAVOL and TRISK) comes from nationality diversity (NATLTY_D, in Columns 1 and 2, and FORRATIO, in Columns 4 and 5 of Table 8), and age diversity (but

only for commonly used measures, namely AGE_SD in Columns 4 and 5). Moving to task-oriented diversity, results suggest that maintaining tenure-diverse boards (TENURE_D in Column 2 and TENUREM in Columns 4 and 5) significantly reduces CR.

In a nutshell, these additional analyses inform that relation-oriented diversity brings more consistent results across the Blau and the traditional operationalization, while results for task-related diversity require a more nuanced interpretation. They also inform the academic community researching diversity outcomes that results are sensitive to operationalization and empirical measurement of diversity.

6 Sensitivity Analyses

6.1 Addressing sample selection bias and endogeneity

We perform additional analyses, in an attempt to reinforce and to check the robustness of our primary findings. To conserve space, the results of these tests, and all subsequent tests, are given in the supplementary material file. First, we employ the Heckman's two-stage correction model (Heckman 1979), to address issues related to potential sample selection bias. We create a binary indicator (TREATMENT) that equals 1 if RELATION_D and TASK_D are greater than the sample median, and 0 otherwise, and we use it as dependent variable in our first-stage probit model. We follow prior relevant studies and use the same set of dependent variables (e.g., Gul, Srinidhi & Ng 2011; Harjoto et al. 2018; Srinidhi, Gul & Tsui 2011). Next, we predict the inverse Mills ratio (LAMBDA) and include it as an additional control in our main analysis to control for selection bias. This analysis demonstrates that our inferences remain unchanged.

We also employ a dynamic panel system generalized method of moments (DPS-GMM), to account for any potential impact from endogeneity. Endogeneity could arise either from fixed and time varying omitted unobservable firm level characteristics or from reverse

causality (i.e., firms with different financial performance or risk-taking profiles might strategically choose how to diversify their BoD (e.g., Pandey et al. 2022; Sila et al. 2016)). The two-step DPS-GMM enable us to account for multiple instrumental variables (we use the first lag of both the dependent and independent variables, except from the year, industry, and country dummies (Talavera et al. 2018)), as it simultaneously estimates its models at both levels and differences.[4] Using the Hansen's *J*-test, we reject the null hypothesis of overidentification at the 5% level or better, indicating that the instruments used in the dynamic system GMM specifications are valid and uncorrelated with the error term (Roodman 2009). The m_2 statistic indicates that we reject the hypothesis of second-order serial correlation in the residuals at the 5% level or better. The results of the DPS-GMM are qualitatively similar to our baseline regressions.

6.2 Alternative measures of CFP and CR

To further strengthen our analyses, we employ alternative measures of the dependent variables. First, we follow prior studies (e.g., Aggarwal et al. 2019; Richard et al. 2009) we consider a) the return on equity (ROE - defined as the ratio of EBIT to shareholders' funds) and b) the market-to-book (MTB - defined as the ration of the market value of equity over book value of equity), as alternative measures of accounting-based and market-based CFP, respectively.

Second, we use alternative constructs of accounting-based CR (e.g., Faccio et al. 2011; John et al. 2008; Mishra 2011), namely the difference between the maximum and minimum ROA reported over a five-year interval (ROAVOLD); b) ROE instead of ROA, and calculate i) the standard deviation of ROE over five consecutive year overlapping periods

[4] We use Hansen's *J*-test for instrument validity (i.e., to control overidentification issues) and Arellano and Bond's (1991) m_2 statistic for lack of second-order serial correlation in the first-difference residual. We also collapse the instruments to avoid their proliferation (Roodman 2009).

(ROEVOL), and ii) the difference between the maximum and minimum ROE reported over a five-year interval (ROEVOLD). Third, we re-estimate market-based CR as the standard deviation of the residuals from the standard Capital Asset Pricing Model (IRISK_CAPM), annualized by multiplying them with the square root of 250 (Abdelsalam et al. 2024). We find that our inferences remain the same, further supporting the robustness of our findings.

6.3 Additional analyses

We conduct several additional tests to further examine the robustness of our findings. First, we test for the influence of omitted variables through the impact threshold for a confounding variable (ITCV) method (Busenbark et al. 2022). We implement ITCV on the models where the coefficients of RELATION_D and/or TASK_D are statistically significant and we observe that the ITCV value is greater than the absolute value of the impact factor (Impact) of the control variables, indicating that the influence of correlated omitted variables on the results is unlikely to be significant. Second, we utilize panel data analysis with firm fixed effects, in an attempt to account for unobserved heterogeneity. Third, we explore alternative sample constructs by individually and collectively excluding firms from overrepresented countries, namely the US and the UK that account for more than half of our sample.

7 Conclusion

Our study examines how various BoD diversity attributes influence two corporate outcomes, namely CR and CFP. Using a large international sample, our results show that firms with more task-related diverse BoD (e.g. tenure and expertise/skills) are related with lower CR and better CFP (e.g., Feldman & Montgomery 2015; Mollah et al. 2021), while relation-oriented attributes (e.g., gender, age, and nationality) do not positively affect firm outcomes (i.e., increase CR and do not improve CFP) (e.g., Bernile et al. 2018; Yang et al. 2019). These findings are consistent with the cognitive resource perspective argument (i.e., cognitive

attributes favourably influence CFP and CR) and the social categorization and similarity/attraction theories (i.e., relation-oriented attributes increase CR). Therefore, we extend the empirical evidence and reveal that BoD diversity is more beneficial when it emphasizes cognitive attributes over demographic characteristics. Additionally, our results support studies claiming that the operationalization of diversity measures causes variations across reporting outcomes (Chen et al. 2025; Zattoni et al. 2023), as we evidence that results are sensitive to operationalization and empirical measuring of diversity.

Our study demonstrates the tangible value that board diversity brings to firms, reinforcing stakeholder calls for greater accountability and transparency in DE&I practices within boards of directors. Rather than supporting a blanket endorsement or dismissal of DE&I initiatives, our findings advocate for a more targeted, evidence-based approach, revealing the specific contexts in which diversity is most beneficial to firms. These findings carry important implications for a wide range of stakeholders, including policymakers, governments, practitioners, and academics.

For policymakers and regulators, who play a critical role in shaping board composition through legislation and governance codes, our results underscore the importance of enhancing cognitive diversity on boards. They offer empirical support for strengthening rather than retracting diversity policies, and may encourage the implementation of mandatory disclosure requirements related to diversity and inclusion metrics. Practitioners are also likely to benefit from our findings, which suggest that diversity is most effective when it prioritizes cognitive attributes, such as professional background and expertise, over purely demographic characteristics. As such, corporate leaders should actively foster cognitively diverse boards to enhance strategic decision-making and long-term firm performance. Academics, are informed that diversity outcomes are sensitive to operationalization and empirical measuring of

diversity, while they shall factor for various diversity attributes in their empirical investigations.

We acknowledge several limitations that open avenues for future research. First, although we employ an international sample, we do not distinguish between jurisdictions with mandatory and voluntary DE&I reporting initiatives. Future research could explore how regulatory variation across institutional contexts influences the relationship between board diversity and firm outcomes. Second, while we adopt Blau's index and a traditional operationalization of BoD diversity, future studies could investigate alternative conceptualizations, such as separation, variety, and disparity (Harrison & Klein 2007) , as well as alternative measurement techniques, including mean Euclidean distance, Teachman entropy, coefficient of variation, and the Gini coefficient. Finally, future research could examine how board diversity contributes to organizational resilience and recovery in response to exogenous shocks, such as the COVID-19 pandemic or the introduction of mandatory diversity regulations.

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9 Appendix A – Variable Definitions

Variable	Definition
Panel A: Corporate Financial Performance Measures	
ROA	Return on assets, defined as the ratio of EBIT to total assets.
TOBINQ	Tobin's Q, defined as the ratio of total market value divided by book value of total assets.
Panel B: Corporate Risk-taking Measures	
ROAVOL	The volatility of a firm's country- and industry-adjusted operating ROA (EBIT to total assets) over the subsequent five years.
TRISK	Total risk of stock returns, measured as the standard deviation of daily stock returns. We multiply this measure by a square root of 250 to annualize it.
IRISK	Idiosyncratic risk, calculated as the standard deviation of the residuals from the CAPM model, augmented for Fama & French (1993) three factors. We multiply this measure by a square root of 250 to annualize it.
Panel C: Board Diversity Measures	
RELATION_D	Relation-oriented board diversity index (less job-related) for the firm, using the Blau index method. It is constructed as the sum of the following components, namely GENDER_D, AGE_D, and NATLTY_D.
TASK_D	Task-oriented board diversity index (highly job-related) for the firm, using the Blau index method. It is constructed as the sum of the following components, namely SKILLS_D, and TENURE_D.
GENDER_D	Blau index of gender heterogeneity. Higher Blau scores indicate higher levels of gender heterogeneity among directors.
AGE_D	Blau index of age heterogeneity. Higher Blau scores indicate higher levels of age heterogeneity among directors.
NATLTY_D	Blau index of nationality heterogeneity Higher Blau scores indicate higher levels of nationality heterogeneity among directors.
SKILLS_D	Blau index of skills heterogeneity. Higher Blau scores indicate lower concentration of skills and lower common ground among directors.
TENURE_D	Blau index of tenure heterogeneity. Higher Blau scores indicate higher levels of tenure heterogeneity among directors.
RELATION	Relation-oriented board diversity index (less job-related) for the firm, using commonly used measures of diversity. It is constructed as the sum of the following components, namely FEMRATIO, AGE_SD, and FORRATIO.
TASK	Task-oriented board diversity index (highly job-related) for the firm, using commonly used measures of diversity. It is constructed as the sum of the following components, namely UNQSKILLS and TENUREM.
FEMRATIO	The proportion of female board members over the total board size.
AGE_SD	Standard deviation of the ages of directors. Higher values indicate higher levels of age heterogeneity among directors.
FORRATIO	The proportion of foreign board members over the total board size.
UNQSKILLS	The ratio of the number of unique skills that the director has to the total number of skills of all directors of the firm.
TENUREM	Average tenure of board members.
Panel D: Board-level controls	
CEODUAL	Binary variable coded with 1 if the CEO is also chairperson of the board, and 0 otherwise.
BSIZE	Natural logarithm of number of board members.
BINDEP	Ratio of independent board of the board over total board size.
BUSYDIR	Average number of seats held by a board member.
Panel E: Firm-level controls	
SIZE	Natural logarithm of total assets.
LnAGE	Natural logarithm of number of years since incorporation
LEV	Total debt over total assets.
SGROW	Sales growth between year t and t-1.
LnBUSSEG	Natural logarithm of the number of business segments.
INSIDOWN	Equity stake of insiders in the firm.
INSTOWN	Equity stake of institutional investors in the firm.
TANG	Firm fixed assets scaled by total assets.

Variable	Definition
CASH	Firm cash holdings over total assets.
MB	Market to book ratio.
Panel F: Country-level controls	
GDPGR	Annual growth of GDP.
GOVINDEX	First principal component of the control for corruption (CORRUP), government effectiveness (GOVEFF), political stability (POLSTAB), regulatory quality (REGQ), and voice and accountability (VOICACC). More specifically, CORRUP refers to perceptions of corruption, including petty and grand corruption. GOVEFF refers to perceptions of the quality of public services, the quality of the civil service, the degree of its independence from political pressures, the quality of policy formulation, and the credibility of government's commitment to such policies. POLSTAB refers to the perceptions of the likelihood of political instability and motivated violence. REGQ refers to the perceptions of the government's ability to formulate and implement sound policies and regulations that promote private sector development. VOICACC refers to perceptions of the extent to which a country's citizens are able to participate in selecting their government, freedom of expression, freedom of association, and a free media.
LEGAL	Categorical variable reflecting the country's legal system, coded 1 for civil law, 0 for common law, and 2 for mixed system.

10 Appendix B – Operationalization of Board Expertise/Skills Measure

We capture directors' skills and experience, by considering each director's a) education/qualifications, b) membership in board committees, and c) employment history. To accomplish this task, we draw upon the list of skill categories, and the relevant keywords, provided in Appendix B of Adams et al. (2018, p. 660). In particular, directors' skills and experience are measured across nineteen (19) categories, namely, 1) academic, 2) compensation, 3) entrepreneurial, 4) finance and accounting, 5) governance, 6) government and policy, 7) leadership, 8) legal, 9) management, 10) manufacturing, 11) marketing, 12) risk management, 13) scientific, 14) strategy, 15) sustainability, 16) technology, 17) outside board, 18) outside executive, and 19) international.

First, we scrutinized each directors' qualifications, available in "Individual Profile Education" section of BoardEx database, for his/her educational background. Second, we considered for membership in board committees (advise Chen & Wu (2016) for the list of various board committees). We examined the "Board and Director Committees" files in BoardEx database, and we took into account not only the company of each director's current employment, but his/her entire committee membership history in BoardEx. Third, we also factored for functional expertise acquired through managerial positions, in order to have a comprehensive appreciation of the relevant skills obtained during each director's career. For this reason, we scrutinized the entire universe of BoardEx directors for current and previous roles held.

Considering that we use three sources to capture directors' skills and experience (education, participation in committees, and previous/current employment), we aggregate them in our calculations of the skills/expertise diversity measures. For instance, a director is considered to have "compensation" skills if (s)he a) received relevant training, and/or b) serves/served in a compensation committee, and/or c) has/had a role in a compensation and

benefits related position. The same applies to the rest of the skills in our list. To indicate, a director is considered to have finance and accounting skills if (s)he a) has educational background in banking, finance, accounting, or economics, and/or b) serves/served in an audit, finance, or banking related committee, and/or c) has a role in a finance or accounting related position. As an outcome of this process, each director could have more than one skills, depending on education and previous and current employment, and thus in our calculations we employ the total number of skills a director has. The maximum number of skills a director can hold is nineteen (19).

11 Tables and Figures

Figure 1 Theoretical framework

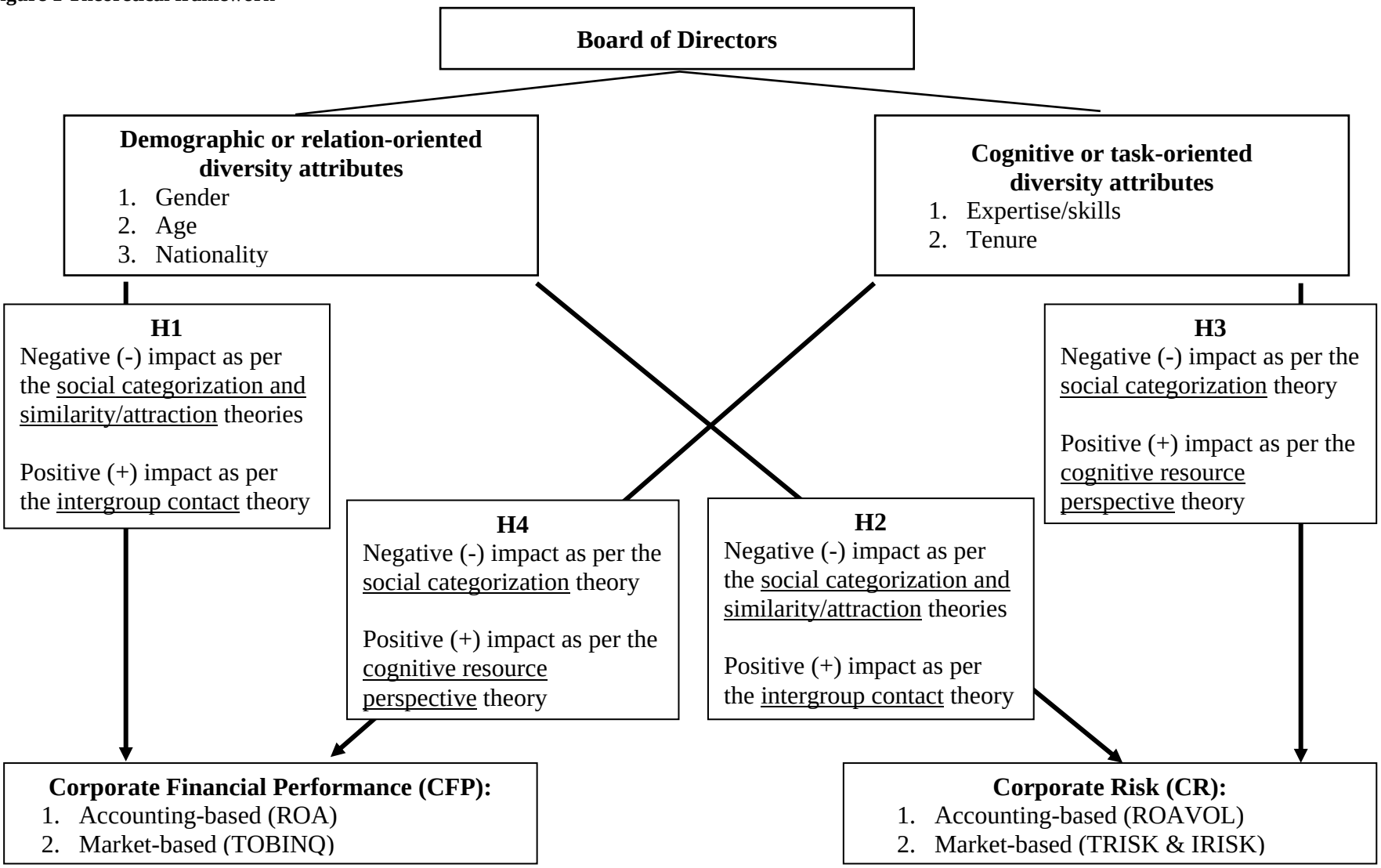

Table 1 Sample Selection Process

Sample selection stages	No. firms	No. firm-years
Global firms with diversity data available from BoardEx database (2000-2022).	25,922	214,366
Delete: Firms with missing data for CFP or CR.	6,670	66,869
Delete: Firms with missing financial data for our empirical model.	2,193	19,484
Delete: Firms with missing ownership structure data.	68	586
Delete: Firms operating in the financial industry.	2,374	17,014
Delete: Less than four firms per country and two observations per firm.	2,333	3,000
Final sample.	**12,284**	**107,413**

Table 2 Sample Distribution per Country

No	Country	No. firms	Obs	%
1	Argentina	12	116	0.11
2	Australia	736	5,604	5.22
3	Austria	39	373	0.35
4	Belgium	77	834	0.78
5	Bermuda	38	355	0.33
6	Brazil	113	718	0.67
7	Canada	632	4,656	4.33
8	Cayman Islands	12	73	0.07
9	Chile	34	262	0.24
10	China	623	3,659	3.41
11	Colombia	11	77	0.07
12	Cyprus	15	110	0.10
13	Denmark	69	503	0.47
14	Egypt	10	43	0.04
15	Finland	105	718	0.67
16	France	444	4,063	3.78
17	Germany	156	1,718	1.60
18	Greece	29	297	0.28
19	Hong Kong	455	3,483	3.24
20	Iceland	10	60	0.06
21	India	204	573	0.53
22	Indonesia	106	680	0.63
23	Ireland	79	846	0.79
24	Israel	105	745	0.69
25	Italy	184	1,295	1.21
26	Japan	512	4,014	3.74
27	Luxembourg	26	191	0.18
28	Malaysia	252	1,663	1.55
29	Mexico	58	407	0.38
30	Netherlands	106	1,027	0.96
31	New Zealand	69	464	0.43
32	Nigeria	15	130	0.12
33	Norway	144	983	0.92
34	Philippines	69	453	0.42
35	Poland	38	227	0.21
36	Portugal	26	290	0.27
37	Russia	56	472	0.44
38	Saudi Arabia	32	72	0.07
39	Singapore	379	2,317	2.16
40	South Africa	172	1,545	1.44
41	South Korea	60	338	0.31

No	Country	No. firms	Obs	%
42	Spain	98	948	0.88
43	Sri Lanka	15	65	0.06
44	Sweden	217	1,595	1.48
45	Switzerland	154	1,651	1.54
46	Thailand	46	178	0.17
47	Turkey	44	258	0.24
48	United Arab Emirates	23	115	0.11
49	United Kingdom	1,214	12,068	11.24
50	United States of America	4,161	44,081	41.04
	Total	**12,284**	**107,413**	**100**

Table 3 Descriptive Statistics

Variables	N	Min	25th	Mean	Median	75th	Max	StDev
Panel A: Corporate Financial Performance Measures								
ROA	107,413	-1.494	0.005	0.795	0.056	0.126	8.302	2.316
TOBINQ	107,413	0.044	0.559	1.448	0.986	1.714	9.09	1.517
Panel B: Corporate Risk Measures								
ROAVOL	74,799	0.002	0.023	0.071	0.046	0.088	0.457	0.078
TRISK	107,413	0.114	0.26	0.417	0.36	0.508	1.341	0.228
IRISK	107,413	0	0	0.011	0.003	0.017	0.079	0.016
Panel C: Board Diversity Measures								
RELATION_D	107,413	0	0.92	1.493	1.508	1.838	3	0.568
TASK_D	107,413	0	1.382	1.52	1.606	1.749	2	0.32
GENDER_D	107,413	0	0	0.202	0.219	0.375	0.5	0.186
AGE_D	107,413	0	0.75	0.781	0.815	0.857	0.945	0.11
NATLTY_D	107,413	0	0	0.12	0	0.245	0.5	0.174
SKILLS_D	107,413	0	0.611	0.652	0.694	0.75	0.9	0.154
TENURE_D	107,413	0	0.64	0.701	0.776	0.84	0.943	0.202
RELATION	107,413	0	0.427	0.611	0.588	0.768	2.143	0.267
TASK	107,413	0	0.288	0.446	0.421	0.571	1.714	0.227
Panel D: Board-level controls								
CEODUAL	107,413	0	0	0.458	0	1	1	0.498
BSIZE	107,413	1.386	1.792	2.077	2.079	2.303	2.89	0.327
BINDEP	107,413	0.029	0.429	0.617	0.625	0.8	1	0.219
BUSYDIR	107,413	0.75	2.25	3.446	3	4.167	79	1.982
Panel E: Firm-level controls								
SIZE	107,413	15.464	19.15	21.054	20.829	22.626	29.695	2.802
TANG	107,413	0.003	0.086	0.286	0.214	0.434	0.914	0.244
LnAGE	107,413	0	2.398	2.935	2.996	3.611	4.836	1.034
LEV	107,413	0	0.053	0.219	0.201	0.34	0.713	0.18
CASH	107,413	0.001	0.046	0.178	0.113	0.239	0.866	0.188
SGROW	107,413	-0.007	0	0.002	0.001	0.002	0.036	0.005
LnBUSSEG	107,413	0.693	0.693	1.315	1.386	1.792	2.398	0.5
MB	107,413	0.001	0.268	1.228	0.733	1.522	8.982	1.557
INSIDOWN	107,413	0	0	0.013	0	0	0.975	0.08
INSTOWN	107,413	0	0.356	0.578	0.615	0.818	1	0.285
Panel F: Country-level controls								
GDPGR	107,413	-0.112	0.014	0.021	0.023	0.03	0.245	0.03
GOVINDEX	107,413	0.719	1.775	1.777	1.841	1.927	2.156	0.31
LEGAL	107,413	0	0	0.289	0	1	2	0.485

Notes: All continuous variables are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix A.

Table 4 Pearson Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. ROA	1.00												
2. TOBINQ	0.01***	1.00											
3. ROAVOL	-0.38***	0.18***	1.00										
4. TRISK	-0.12***	0.03***	0.29***	1.00									
5. IRISK	0.08***	-0.17***	-0.20***	-0.23***	1.00								
6. RELATION_D	0.05***	-0.01**	-0.08***	-0.16***	0.08***	1.00							
7. TASK_D	0.06***	0.00	-0.05***	-0.14***	0.00	0.35***	1.00						
8. RELATION	0.04***	-0.02***	-0.02***	-0.06***	0.05***	0.66***	0.23***	1.00					
9. TASK	0.03***	-0.01***	-0.07***	-0.10***	0.01***	0.02***	0.30***	0.04***	1.00				
10. CEODUAL	0.02***	0.10***	0.04***	0.05***	-0.18***	-0.02***	0.26***	-0.02***	0.13***	1.00			
11. BSIZE	0.04***	-0.12***	-0.24***	-0.30***	0.16***	0.35***	0.45***	0.19***	0.14***	0.10***	1.00		
12. BINDEP	0.04***	0.16***	0.13***	0.03***	-0.20***	0.16***	0.30***	0.07***	0.05***	0.34***	-0.06***	1.00	
13. BUSYDIR	-0.01**	-0.02***	-0.04***	-0.09***	0.08***	0.11***	0.04***	0.10***	-0.01***	-0.15***	0.06***	-0.09***	1.00
14. SIZE	0.06***	-0.34***	-0.34***	-0.35***	0.23***	0.26***	0.19***	0.12***	0.09***	-0.07***	0.58***	-0.14***	0.09***
15. TANG	0.02***	-0.19***	-0.08***	-0.04***	0.09***	0.00	0.05***	0.03***	0.01***	-0.01***	0.10***	-0.02***	0.01*
16. LnAGE	0.01**	-0.11***	-0.16***	-0.16***	0.14***	0.08***	0.14***	-0.02***	0.20***	-0.08***	0.16***	-0.06***	-0.04***
17. LEV	0.01***	-0.17***	-0.11***	-0.06***	0.05***	0.12***	0.11***	0.10***	0.00	0.02***	0.21***	0.01**	0.07***
18. CASH	-0.07***	0.34***	0.21***	0.20***	-0.13***	-0.05***	-0.10***	-0.03***	-0.04***	0.01**	-0.19***	0.04***	-0.02***
19. SGROW	0.02***	0.14***	0.12***	0.06***	-0.09***	-0.03***	-0.07***	0.00	-0.07***	-0.01***	-0.08***	-0.01*	0.03***
20. LnBUSSEG	0.03***	-0.21***	-0.22***	-0.26***	0.18***	0.18***	0.14***	0.09***	0.07***	-0.07***	0.33***	-0.07***	0.06***
21. MB	0.01***	0.99***	0.19***	0.04***	-0.17***	-0.02***	-0.01***	-0.03***	-0.01***	0.09***	-0.14***	0.15***	-0.03***
22. INSIDOWN	0.02***	-0.02***	-0.05***	-0.05***	0.05***	0.05***	0.02***	0.10***	0.05***	-0.02***	0.05***	-0.11***	0.03***
23. INSTOWN	0.09***	0.09***	-0.09***	-0.14***	-0.06***	0.16***	0.24***	0.04***	0.05***	0.19***	0.22***	0.27***	0.02***
24. GDPGR	0.04***	0.00	0.01**	-0.16***	-0.02***	0.00	0.00	0.02***	-0.03***	-0.01***	-0.02***	-0.01***	0.04***
25. GOVINDEX	-0.03***	0.17***	0.12***	-0.02***	-0.07***	0.00	0.01***	-0.02***	0.01*	0.06***	-0.13***	0.22***	-0.02***
26. LEGAL	0.01***	-0.18***	-0.20***	-0.10***	0.19***	0.10***	-0.05***	0.12***	-0.01***	-0.15***	0.21***	-0.37***	0.05***

Variables	14	15	16	17	18	19	20	21	22	23	24	25	26
14. SIZE	1.00												
15. TANG	0.21***	1.00											
16. LnAGE	0.21***	0.00	1.00										
17. LEV	0.30***	0.30***	-0.01**	1.00									
18. CASH	-0.25***	-0.38***	-0.10***	-0.40***	1.00								
19. SGROW	-0.08***	-0.01***	-0.12***	-0.04***	0.12***	1.00							
20. LnBUSSEG	0.45***	0.05***	0.20***	0.19***	-0.26***	-0.10***	1.00						
21. MB	-0.36***	-0.22***	-0.11***	-0.28***	0.38***	0.14***	-0.22***	1.00					
22. INSIDOWN	0.00	-0.02***	0.08***	0.01**	-0.03***	-0.02***	0.04***	-0.02***	1.00				

Variables	14	15	16	17	18	19	20	21	22	23	24	25	26
23. INSTOWN	0.22***	-0.01***	-0.01***	0.08***	-0.04***	-0.03***	0.06***	0.08***	-0.21***	1.00			
24. GDPGR	0.02***	-0.01*	-0.05***	-0.03***	0.03***	0.11***	-0.03***	0.00	-0.04***	-0.02***	1.00		
25. GOVINDEX	-0.28***	-0.02***	0.00	-0.06***	-0.04***	0.01***	-0.06***	0.17***	0.02***	0.00	-0.22***	1.00	
26. LEGAL	0.36***	-0.02***	0.12***	0.09***	-0.04***	-0.04***	0.21***	-0.19***	0.20***	-0.20***	-0.01***	-0.20***	1.00

Notes: All continuous variables are winsorized at the 1st and 99th percentiles. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively. All variables are defined in the Appendix A.

Table 5 Board Diversity Influence on Accounting-Based (ROA) and Market-Based (TOBINQ) CFP

	(1)	(2)	(3)	(4)
	Blau indices		Commonly used	
Dependent variable:	**ROA**	**TOBINQ**	**ROA**	**TOBINQ**
RELATION_D	-0.005	0.028***		
	(-0.16)	(4.32)		
TASK_D	0.093*	0.009		
	(1.90)	(0.75)		
RELATION			0.005	0.002
			(0.09)	(0.13)
TASK			0.135**	0.045***
			(2.11)	(3.48)
$ROA_{(t-1)}$	0.047***		0.047***	
	(35.58)		(35.68)	
$TOBINQ_{(t-1)}$		0.720***		0.721***
		(146.08)		(146.47)
CEODUAL	-0.016	0.014*	-0.014	0.014*
	(-0.46)	(1.80)	(-0.40)	(1.78)
BSIZE	-0.213***	0.086***	-0.183***	0.101***
	(-3.15)	(6.31)	(-2.87)	(7.95)
BINDEP	0.062	0.052***	0.086	0.069***
	(0.66)	(2.89)	(0.94)	(3.89)
BUSYDIR	-0.010	0.005***	-0.010	0.005***
	(-1.46)	(3.09)	(-1.51)	(3.08)
SIZE	0.040***	-0.038***	0.040***	-0.036***
	(3.18)	(-14.30)	(3.27)	(-13.96)
LnAGE	-0.039*	0.007**	-0.041*	0.005
	(-1.84)	(2.11)	(-1.94)	(1.58)
LEV	-0.100	-0.094***	-0.095	-0.094***
	(-1.15)	(-4.89)	(-1.10)	(-4.90)
SGROW	21.233***	0.983	21.192***	0.995
	(14.19)	(1.01)	(14.20)	(1.02)
LnBUSSEG	-0.057	-0.017***	-0.058	-0.017***
	(-1.60)	(-2.62)	(-1.61)	(-2.72)
INSIDOWN	0.610**	0.089**	0.602**	0.086**
	(2.22)	(2.32)	(2.19)	(2.22)
INSTOWN	0.341***	0.143***	0.348***	0.146***
	(5.23)	(10.64)	(5.33)	(10.88)
GDPGR	0.310	0.345**	0.322	0.368**
	(0.64)	(2.16)	(0.66)	(2.30)
GOVINDEX	-0.084	-0.030	-0.070	-0.026
	(-0.44)	(-0.71)	(-0.37)	(-0.62)
(intercept)	2.539***	0.498***	2.512***	0.443***
	(3.56)	(4.43)	(3.53)	(4.03)
Year FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes
Country FEs	Yes	Yes	Yes	Yes
R^2	0.149	0.721	0.149	0.721
Adj. R^2	0.148	0.72	0.148	0.72
Mean VIF	1.308	1.572	1.236	1.499
Observations	107,413	107,413	107,413	107,413

Notes: This table presents the OLS estimates of the effect of board diversity on accounting-based and market-based measures of CFP. The dependent variables are ROA (in Columns 1 and 3) and TOBINQ (in Columns 2 and 4). In Columns 1 and 2, we construct the measures of related-oriented and task-oriented diversity using the Blau index method (RELATION_D and TASK_D, respectively). In Columns 3 and 4, related-oriented and task-oriented diversity is approximated through commonly used measures of board diversity (RELATION and TASK, respectively). The t-statistics in parentheses are based on heteroskedasticity corrected robust standard errors, clustered on firms. All continuous variables are winsorized at the 1st and 99th percentiles. The statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***. All variables are defined in the Appendix A.

Table 6 Board Diversity Influence on Accounting-Based (ROAVOL) and Market-Based (TRISK and IRISK) CR

	(1)	(2)	(3)	(4)	(5)	(6)
	Blau indices			Commonly used		
Dependent variable:	**ROAVOL**	**TRISK**	**IRISK**	**ROAVOL**	**TRISK**	**IRISK**
RELATION_D	0.003***	0.015***	-0.001			
	(3.49)	(6.20)	(-0.68)			
TASK_D	0.002	0.000	-0.001***			
	(1.10)	(0.07)	(-2.98)			
RELATION				0.008***	0.043***	-0.002
				(4.84)	(9.38)	(-0.83)
TASK				-0.007***	-0.048***	0.000
				(-3.99)	(-9.72)	(1.09)
CEODUAL	-0.002**	0.000	-0.001***	-0.002**	0.001	-0.001***
	(-2.33)	(0.01)	(-4.06)	(-2.11)	(0.32)	(-4.30)
BSIZE	0.000	-0.039***	0.002***	0.002	-0.035***	0.002***
	(0.11)	(-7.59)	(5.05)	(1.02)	(-7.09)	(4.05)
BINDEP	0.009***	-0.024***	-0.004***	0.010***	-0.023***	-0.004***
	(3.76)	(-3.40)	(-6.26)	(4.21)	(-3.30)	(-6.90)
BUSYDIR	0.000	0.001*	-0.000*	0.000	0.001*	-0.000*
	(1.15)	(1.68)	(-1.87)	(1.31)	(1.92)	(-1.93)
SIZE	-0.006***	-0.040***	0.001***	-0.006***	-0.040***	0.001***
	(-15.34)	(-38.96)	(16.23)	(-15.36)	(-39.87)	(16.23)
TANG	-0.014***	0.025***	0.000	-0.014***	0.024***	0.000
	(-5.63)	(3.72)	(0.38)	(-5.74)	(3.57)	(0.46)
LEV	0.009***	0.135***	-0.005***	0.008***	0.133***	-0.005***
	(2.89)	(18.35)	(-8.31)	(2.74)	(18.11)	(-8.22)
CASH	0.015***	0.103***	0.002***	0.015***	0.101***	0.002***
	(4.11)	(13.01)	(3.42)	(4.06)	(12.82)	(3.50)
ROA	-0.110***	-0.008***	0.000***	-0.109***	-0.007***	0.000***
	(-11.23)	(-19.41)	(11.23)	(-11.20)	(-19.19)	(11.22)
SGROW	0.557***	0.756***	-0.173***	0.543***	0.675***	-0.170***
	(6.17)	(4.61)	(-20.15)	(6.02)	(4.13)	(-19.92)
MB	0.002***	-0.011***	-0.000***	0.002***	-0.011***	-0.000***
	(4.69)	(-12.90)	(-4.66)	(4.82)	(-12.81)	(-4.75)
LnAGE	-0.002***	-0.012***	0.001***	-0.002***	-0.009***	0.001***
	(-5.15)	(-8.89)	(9.71)	(-4.14)	(-6.97)	(8.88)
INSTOWN	-0.008***	-0.042***	-0.002***	-0.007***	-0.042***	-0.002***
	(-4.06)	(-7.92)	(-4.27)	(-4.07)	(-7.99)	(-4.48)
INSIDOWN	-0.012***	-0.057***	-0.001	-0.012***	-0.057***	-0.001
	(-2.99)	(-4.06)	(-0.75)	(-3.03)	(-4.16)	(-0.66)
GDPGR	0.008	-0.273***	-0.004	0.007	-0.282***	-0.004
	(0.44)	(-6.86)	(-1.21)	(0.36)	(-7.05)	(-1.16)
GOVINDEX	-0.004	-0.110***	-0.001	-0.004	-0.106***	-0.002
	(-0.70)	(-6.88)	(-0.90)	(-0.58)	(-6.64)	(-1.13)
LEGAL	-0.003	-0.022**	-0.000	-0.002	-0.022**	-0.000
	(-0.83)	(-2.16)	(-0.30)	(-0.77)	(-2.24)	(-0.37)
(intercept)	0.204***	1.740***	-0.005	0.199***	1.715***	-0.004
	(13.16)	(36.91)	(-1.34)	(12.91)	(37.21)	(-0.93)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
Country FEs	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.296	0.394	0.22	0.296	0.397	0.22
Adj. R^2	0.295	0.393	0.219	0.295	0.396	0.219
Mean VIF	1.387	1.370	1.351	1.320	1.309	1.290
Observations	74,799	107,413	107,413	74,799	107,413	107,413

Notes: This table presents the OLS estimates of the effect of board diversity on the accounting-based and market-based measures of CR. The dependent variables are ROAVOL (in Columns 1 and 4), TRISK (in Columns 2 and 5), and IRISK (in Columns 3 and 6). In Columns 1 to 3, we construct the measures of related-

oriented and task-oriented diversity using the Blau index method (RELATION_D and TASK_D, respectively). In Columns 4 to 6, related-oriented and task-oriented diversity is approximated through commonly used measures of board diversity (RELATION and TASK, respectively). The t-statistics in parentheses are based on heteroskedasticity corrected robust standard errors, clustered on firms. All continuous variables are winsorized at the 1st and 99th percentiles. The statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***. All variables are defined in the Appendix A.

Table 7 Constituents of Board Diversity Measures and Their Influence on Accounting-Based (ROA) and Market-Based (TOBINQ) CFP

	(1)	(2)	(3)	(4)
	Blau indices		Commonly used	
Dependent variable:	**ROA**	**TOBINQ**	**ROA**	**TOBINQ**
GENDER_D	0.099	0.084***		
	(1.14)	(4.61)		
AGE_D	0.121	-0.090**		
	(0.71)	(-2.15)		
NATLTY_D	-0.139	0.053***		
	(-1.50)	(2.77)		
SKILLS_D	0.158*	-0.020		
	(1.69)	(-0.90)		
TENURE_D	0.062	0.040**		
	(0.85)	(2.24)		
FEMRATIO			0.194	0.101***
			(1.49)	(3.53)
AGE_SD			-0.031	-0.068***
			(-0.41)	(-4.10)
FORRATIO			-0.038	0.054**
			(-0.31)	(2.48)
UNQSKILLS			0.205**	0.063***
			(2.32)	(3.13)
TENUREM			0.088	0.039**
			(0.99)	(2.29)
$ROA_{(t-1)}$	0.047***		0.047***	
	(35.54)		(35.61)	
$TOBINQ_{(t-1)}$		0.720***		0.720***
		(146.06)		(146.16)
CEODUAL	-0.020	0.017**	-0.014	0.013
	(-0.55)	(2.17)	(-0.39)	(1.60)
BSIZE	-0.241***	0.105***	-0.186***	0.100***
	(-3.34)	(7.27)	(-2.92)	(7.84)
BINDEP	0.042	0.058***	0.063	0.048***
	(0.44)	(3.20)	(0.68)	(2.64)
BUSYDIR	-0.010	0.005***	-0.011	0.005***
	(-1.38)	(3.36)	(-1.52)	(2.90)
SIZE	0.039***	-0.038***	0.038***	-0.039***
	(3.17)	(-14.38)	(3.06)	(-14.57)
LnAGE	-0.038*	0.005	-0.040*	0.006*
	(-1.75)	(1.53)	(-1.84)	(1.71)
LEV	-0.103	-0.093***	-0.096	-0.091***
	(-1.19)	(-4.83)	(-1.11)	(-4.73)
SGROW	21.272***	1.040	21.195***	1.054
	(14.21)	(1.06)	(14.21)	(1.08)
LnBUSSEG	-0.058	-0.017***	-0.058	-0.017***
	(-1.63)	(-2.73)	(-1.61)	(-2.71)
INSIDOWN	0.593**	0.089**	0.600**	0.093**
	(2.16)	(2.31)	(2.18)	(2.43)
INSTOWN	0.339***	0.145***	0.342***	0.143***
	(5.19)	(10.77)	(5.24)	(10.66)
GDPGR	0.290	0.339**	0.264	0.339**
	(0.60)	(2.12)	(0.54)	(2.11)
GOVINDEX	-0.079	-0.029	-0.053	-0.023
	(-0.42)	(-0.69)	(-0.28)	(-0.55)
(intercept)	2.539***	0.551***	2.579***	0.535***
	(3.56)	(4.83)	(3.61)	(4.66)
Year FEs	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes
Country FEs	Yes	Yes	Yes	Yes

R^2	0.149	0.721	0.149	0.721
Adj. R^2	0.148	0.72	0.148	0.721
Mean VIF	1.378	1.603	1.236	1.460
Observations	107,413	107,413	107,413	107,413

Notes: This table presents the OLS estimates of the effect of the constituents of board diversity measures on accounting-based and market-based measures of CFP. The dependent variables are ROA (in Columns 1 and 3) and TOBINQ (in Columns 2 and 4). In Columns 1 and 2, we proxy related-oriented diversity through GENDER_D, AGE_D, and NATLTY_D, and task-oriented diversity through SKILLS_D and TENURE_D, all constricted using the Blau index method. In Columns 3 and 4, related-oriented is captured through FEMRATIO, AGE_SD, and FORRATIO and task-oriented diversity through UNQSKILLS and TENUREM, constructed approximated through commonly used measures of board diversity. The t-statistics in parentheses are based on heteroskedasticity corrected robust standard errors, clustered on firms. All continuous variables are winsorized at the 1st and 99th percentiles. The statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***. All variables are defined in the Appendix A.

Table 8 Constituents of Board Diversity Measures and Their Influence on Accounting-Based (ROAVOL) and Market-Based (TRISK and IRISK) CR

	(1)	(2)	(3)	(4)	(5)	(6)
	Blau indices			Commonly used		
Dependent variable:	**ROAVOL**	**TRISK**	**IRISK**	**ROAVOL**	**TRISK**	**IRISK**
GENDER_D	-0.001	-0.010	-0.000			
	(-0.29)	(-1.36)	(-0.08)			
AGE_D	-0.000	0.021	0.002			
	(-0.07)	(1.46)	(0.26)			
NATLTY_D	0.013***	0.065***	-0.003			
	(4.95)	(9.18)	(-0.58)			
SKILLS_D	0.005*	0.037***	-0.002***			
	(1.88)	(4.39)	(-3.20)			
TENURE_D	0.000	-0.024***	-0.001			
	(0.01)	(-4.19)	(-1.57)			
FEMRATIO				0.004	-0.009	-0.000
				(0.99)	(-0.90)	(-0.29)
AGE_SD				0.005**	0.032***	-0.001
				(2.06)	(5.00)	(-0.70)
FORRATIO				0.017***	0.091***	-0.005
				(5.25)	(10.47)	(-0.21)
UNQSKILLS				0.004	0.009	-0.003***
				(1.55)	(1.22)	(-4.88)
TENUREM				-0.014***	-0.086***	0.003***
				(-5.82)	(-13.36)	(4.64)
CEODUAL	-0.002**	-0.000	-0.001***	-0.002**	0.002	-0.001***
	(-2.30)	(-0.15)	(-4.31)	(-2.03)	(0.55)	(-4.43)
BSIZE	0.001	-0.040***	0.002***	0.002	-0.031***	0.002***
	(0.38)	(-7.28)	(3.69)	(1.36)	(-6.23)	(3.55)
BINDEP	0.011***	-0.019***	-0.005***	0.010***	-0.021***	-0.004***
	(4.12)	(-2.71)	(-6.84)	(3.99)	(-2.99)	(-6.89)
BUSYDIR	0.000	0.000	-0.000	0.000	0.000	-0.000
	(0.67)	(0.56)	(-1.44)	(0.60)	(0.70)	(-1.16)
SIZE	-0.006***	-0.040***	0.001***	-0.006***	-0.040***	0.001***
	(-15.31)	(-38.79)	(16.14)	(-15.32)	(-38.41)	(15.97)
TANG	-0.013***	0.025***	0.000	-0.013***	0.025***	0.000
	(-5.62)	(3.71)	(0.35)	(-5.64)	(3.71)	(0.36)
LEV	0.009***	0.135***	-0.005***	0.008***	0.129***	-0.005***
	(2.91)	(18.34)	(-8.33)	(2.65)	(17.76)	(-7.95)
CASH	0.014***	0.099***	0.002***	0.014***	0.096***	0.002***
	(3.96)	(12.52)	(3.64)	(3.90)	(12.23)	(3.95)
ROA	-0.109***	-0.008***	0.000***	-0.108***	-0.007***	0.000***
	(-11.20)	(-19.32)	(11.14)	(-11.15)	(-18.92)	(11.10)
SGROW	0.544***	0.665***	-0.170***	0.524***	0.568***	-0.164***
	(6.02)	(4.06)	(-19.86)	(5.82)	(3.49)	(-19.37)
MB	0.002***	-0.011***	-0.000***	0.002***	-0.011***	-0.000***
	(4.78)	(-12.75)	(-4.72)	(4.70)	(-12.85)	(-4.68)
LnAGE	-0.002***	-0.011***	0.001***	-0.001***	-0.007***	0.001***
	(-4.80)	(-7.71)	(9.37)	(-3.11)	(-5.01)	(7.45)
INSTOWN	-0.008***	-0.043***	-0.002***	-0.008***	-0.045***	-0.002***
	(-4.09)	(-8.10)	(-4.32)	(-4.42)	(-8.63)	(-4.05)
INSIDOWN	-0.011***	-0.053***	-0.001	-0.011***	-0.050***	-0.001
	(-2.82)	(-3.84)	(-0.93)	(-2.77)	(-3.65)	(-0.94)
GDPGR	0.009	-0.271***	-0.004	0.008	-0.271***	-0.004
	(0.48)	(-6.79)	(-1.23)	(0.42)	(-6.75)	(-1.26)
GOVINDEX	-0.005	-0.111***	-0.001	-0.004	-0.107***	-0.002
	(-0.73)	(-6.88)	(-0.90)	(-0.59)	(-6.70)	(-1.13)
LEGAL	-0.002	-0.019*	-0.000	-0.002	-0.017*	-0.001
	(-0.65)	(-1.93)	(-0.44)	(-0.57)	(-1.69)	(-0.63)
(intercept)	0.202***	1.713***	-0.005	0.198***	1.691***	-0.003

	(12.75)	(35.90)	(-1.33)	(12.50)	(36.88)	(-0.72)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
Country FEs	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.296	0.396	0.22	0.297	0.4	0.222
Adj. R^2	0.295	0.396	0.219	0.296	0.4	0.221
Mean VIF	1.446	1.426	1.409	1.315	1.302	1.285
Observations	74,799	107,413	107,413	74,799	107,413	107,413

Notes: This table presents the OLS estimates of the effect of the constituents of board diversity on the accounting-based and market-based measures of CR. The dependent variables are ROAVOL (in Columns 1 and 4), TRISK (in Columns 2 and 5), and IRISK (in Columns 3 and 6). In Columns 1 to 3, we proxy related-oriented diversity through GENDER_D, AGE_D, and NATLTY_D, and task-oriented diversity through SKILLS_D and TENURE_D, all constricted using the Blau index method. In Columns 4 to 6, related-oriented is captured through FEMRATIO, AGE_SD, and FORRATIO and task-oriented diversity through UNQSKILLS and TENUREM, constructed approximated through commonly used measures of board diversity. The t-statistics in parentheses are based on heteroskedasticity corrected robust standard errors, clustered on firms. All continuous variables are winsorized at the 1st and 99th percentiles. The statistical significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***. All variables are defined in the Appendix A.