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Board Nationality Diversity and Firm Value

Jing Chen,[1] Elisabeth Dedman,[2] Ja Ryong Kim,[1] Tarek Metwally[1] and Andrew W. Stark[3]

[1]Business School, University of Nottingham, Jubilee Campus, Nottingham, NG8 1BB, UK, [2]Business School, Edge Hill University, St Helens Road, Ormskirk, L39 4QP, UK, and [3]Alliance Manchester Business School, University of Manchester, Booth Street West, Manchester, M15 6PB, UK
Corresponding author email: dedmane@edgehill.ac.uk

Using management, finance and social psychology theories, we challenge the common perception that demographic diversity on boards of directors is unequivocally beneficial for firms. Employing a sample of 3826 UK firm-years, we analyse the dual nature of nationality diversity, recognizing its potential to contribute expertise and reduce groupthink, while also posing risks of conflict and reduced cohesion. We construct measures of the positive and negative aspects of diversity to provide robust evidence that nationality diversity-as-variety within a board of directors is positively associated with firm value, whereas diversity-as-separation has a negative moderating effect on this relationship. Additionally, board longevity weakens the negative effects of diversity-as-separation. This comprehensive approach improves our understanding of the complex relationship between board diversity and firm performance. Our results are informative for researchers because they demonstrate the importance of adopting less simplistic diversity measures in empirical studies. They are also instructive for policymakers, who can benefit from a more nuanced understanding of the issues raised when firms are mandated to increase demographic diversity on their boards. Finally, our study provides information to boards to help them maximize the benefits of diversity while minimizing potential costs.

Introduction

Although management theories present differing views of the 'firm', they generally agree that the board of directors is crucial for its success. According to the theory of the growth of the firm (Penrose, 2009) and the resource-based view (Barney, 1991; Wernerfelt, 1984), firms are combinations of internal resources, their performance depending in part on the skills and expertise of their managers, who provide an important source of sustainable competitive advantage (Mahoney and Pandian, 1992; Pitelis, 2009). Resource dependence theory sees the firm as an open system, reliant upon resources provided by an uncertain external environment (Hillman, Withers and Collins, 2009; Pfeffer, 1972; Pfeffer and Salancik, 1978). The board of directors is key to managing a firm's relationship with its external environment, as well as its internal resources.

Recently, companies have been encouraged to increase demographic diversity on their boards, notably with respect to gender, with valuable additional experience brought to the board being the dominant argument for increasing diversity (e.g. Vinnicombe *et al.*, 2020). Our study focuses on *nationality* diversity and treats it as a double-edged sword (Milliken and Martins, 1996). Considering the benefits, we propose that nationality diversity within a board of directors may provide a valuable resource to the firm, adding to the expertise and experience available to the team and potentially improving board performance (Barney, 1991; Harjoto, Laksmana and Yang, 2018; Sierra-Morán *et al.*, 2021; Webber and Donohue, 2001). Specifically, nationality diversity can add knowledge about international markets and regulatory regimes, thereby reducing environmental uncertainties (Estélyi and Nisar, 2016;

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Pfeffer, 1972). Therefore, our first assertion is that the additional knowledge and experience of foreign directors will be of value to the firm, all else being equal.

Remaining positive, our second assertion is that increasing demographic diversity in the management team may reduce harmful '*groupthink*', which is the tendency of members of small, cohesive groups to seek harmony rather than create dissent, thereby allowing poor decisions to pass unchallenged (Janis, 1972). Importantly, social homogeneity is an antecedent condition for groupthink; therefore, within-group diversity is expected to improve group decision-making, and a demographically diverse board of directors may make better decisions, which increase firm value.

However, one drawback of increasing demographic diversity on boards of directors is the potential conflict arising out of the innate preference of people to group with others who are visibly like themselves. Relatedly, similarity attraction theory (Byrne, 1969; Harjoto, Laksmana and Yang, 2018) and social categorization theory (Tajfel *et al.*, 1979; Turner *et al.*, 1987) predict that board members prefer to work with demographically similar colleagues. Empirical evidence indicates that CEOs and boards tend to appoint people who are similar to themselves (Westphal and Zajac, 1995). These social preferences suggest that even if a diverse board of directors is formed, communication and/or trust issues across demographic divides may undermine the work of the group. Group members may simply fail to coalesce (Jackson, 2003), or naturally align with others who are visibly like themselves, forming subgroups along social 'faultlines' that reduce the effectiveness of the board, with negative consequences for firm value (Lau and Murnighan, 1998; Van Peteghem, Bruynseels and Gaeremynck, 2018). Therefore, our third assertion is that although board diversity may add to the resources available to the firm and reduce harmful groupthink, it may also reduce board effectiveness.

Intergroup contact theory (Williams, 1947) proposes that group conflict and early distrust, rooted in visible differences and prejudice, decrease as the group establishes more contact. Therefore, any conflicts or communication issues suffered because of the introduction of board diversity may reduce over time as members grow accustomed to one another and the group coheres. Accordingly, our fourth assertion is that any group dysfunction introduced by demographic diversity diminishes over time.

Harrison and Klein (2007) develop a typology of group diversity that can be employed in empirical research, including '*diversity-as-variety*' and '*diversity-as-separation*'. Diversity-as-variety is argued to be associated with 'greater creativity, innovation, higher decision quality, more task conflict, increased unit flexibility' (Harrison and Klein, 2007, p. 1203) and is the basis upon which we measure the theoretically positive aspect of diversity in this study. Conversely, diversity-as-separation is conducive to subgroup formation (Lau and Murnighan, 1998) and can lead to 'reduced cohesiveness, more interpersonal conflict, distrust, decreased task performance' (Harrison and Klein, 2007, p. 1203). This is the basis on which we measure the theoretically negative aspects of diversity.

Prior studies attempting to observe the effects of demographic diversity have focused on the *net* effects of diversity rather than on the benefits and costs of increased demographic heterogeneity on boards. This may lead to equivocal or null results in cross-sectional analysis because one effect works against the other (Harjoto, Laksmana and Yang, 2018). Therefore, such research would be more informative if the positive and negative aspects of diversity were measured separately. Accordingly, we develop measures of diversity-as-variety, diversity-as-separation and group maturity for boards of directors and include them in our regression models to investigate our four assertions. This allows us to produce a nuanced view of the impact of nationality diversity on firm value.

We employ a sample of 3826 UK firm-year observations from 1999 to 2022 to examine the association between the theoretically positive and negative aspects of board nationality diversity and firm value. Our measure of firm value is Tobin's Q, the ratio of a firm's market value to the replacement costs of its assets. A higher Q implies either monopolistic power or another source of sustained competitive advantage, such as a superior management team (Kogan and Papanikolaou, 2014; Lindenberg and Ross, 1981). Corporate governance research often employs Q as a measure of good management and governance (Fich and Shivdasani, 2006), and it is frequently employed in diversity research.[1]

We test several hypotheses related to the discussion above, employing a comprehensive set of control variables, various estimation approaches and 2SLS with two alternative instrumental variables (IVs) to mitigate endogeneity issues. We obtain the following results: first, there is a positive association between our measures of nationality diversity-as-variety and Tobin's Q. Second, our measure of diversity-as-separation has a consistent and significantly negative moderating effect on this association. Third, using a measure of board longevity, we report that the time spent on a board significantly reduces the negative relationship between diversity-as-separation and firm value. These results are robust to various subsample analyses, providing a more

[1] For example: Carter, Simkins and Simpson (2003); Adams and Ferreira (2009); Carter *et al.* (2010); Frijns, Dodd and Cimerova (2016); Singh *et al.* (2018); Dodd and Zheng (2022).

refined understanding of the effects of board diversity than prior literature.

Having established the complex relationship between nationality diversity and firm value, we investigate its relationship with other firm outcomes. The outcome measures we select are all positively associated with firm value in prior literature and used as control variables in the aforementioned tests. Cash flows generated from operations, investment in research and development, and the amount paid as dividends are all significantly positively associated with nationality diversity-as-variety. While profitability (return on assets) is significantly *negatively* associated with diversity-as-separation, this effect is moderated by the degree of nationality diversity-as-variety. These results establish that national diversity has a standalone effect on firm value and is also associated with other firm outcomes that affect firm value.

This study makes several empirical, methodological and practical contributions to the literature. From an empirical perspective, we provide evidence that board nationality diversity has potentially valuable attributes, although our main tests do not distinguish whether this is because of additional expertise or reduced groupthink. We explore this in further analyses, which suggest that both effects are at play. Additionally, we provide evidence consistent with social categorization and similarity attraction theories, with our results indicating that greater diversity-as-separation reduces the positive association between nationality diversity and firm value. Next, we provide a simple test of intergroup contact theory, providing evidence that the initial social challenges faced by a board of directors comprising members with greater degrees of diversity-as-separation are ameliorated over time, adding to the currently scarce literature in this area.

Our methodology seeks to improve upon a tendency in the prior literature to rely on simple empirical proxies for diversity, such as dummy variables that indicate the presence of one or more non-domestic directors and a simple binary classification of directors into domestic or foreign directors that reflects the *existence* of diversity but inadequately reflects the available theoretical constructs of diversity. To address this issue, we adopt a measurement framework to capture both the positive and negative effects of diversity from a theoretical perspective. To the best of our knowledge, this is the first study to formally test the positive and negative aspects of nationality diversity together, offering a comprehensive assessment of their joint impact.

The practical implications of this study are relevant for corporate boards and policymakers. Boards of directors should be aware of the benefits and potential costs of increasing their diversity in nationality. In addition to considering the advantages of recruiting non-domestic directors, boards should consider the potential disadvantages of non-domestic director appointments. Time should be allowed for the board members to cohere and become fully effective as a group.

For policymakers, our findings advocate a more nuanced approach to promoting board diversity. While various countries frequently encourage diversity in board composition across factors such as gender, ethnicity and nationality to foster societal equality, these policies should be crafted with an understanding of the challenges they pose. Overall, we believe that this study will be of interest to firms, market participants, academics and policymakers because it offers valuable insights into the multifaceted nature of board diversity and its implications.

The remainder of this study is organized as follows. The next section provides a review of the literature and introduces our hypotheses. The third section details our research design and the fourth section reports our sample construction, description and variable definitions. The fifth section presents the main results. The final section summarizes the study, outlines our conclusions, highlights some limitations of our study and provides suggestions for future research. Discussions of additional tests may be found in the Appendix.

Theoretical perspectives and empirical evidence on the association between nationality diversity and firm value

The board of directors' primary role in a public company is to manage the resources of the firm so that it can efficiently produce goods and services and sell them for a profit in external product markets (Fama and Jensen, 1983; Penrose, 2009). Board members are also responsible for monitoring and controlling top-level managers; providing information and advice to the group; monitoring compliance with applicable laws, regulations and customs; and linking the corporation with its external environment (Carter *et al.*, 2010). Regulators, shareholder groups and social activists have called for greater demographic diversity on boards of directors, arguing that the boardroom can benefit from a wider range of views (Anderson *et al.*, 2011).

Board diversity as an internal resource and a response to its external environment

The degree of managerial competence in the firm limits its growth from the perspective of the theory of the growth of the firm (TGF), which views the ability of the firm's 'central managers' to identify and capitalize on profitable opportunities as crucial to its success (Penrose, 2009). The resource-based view (RBV) positions the firm as a set of resources, including physical, human and organizational capital (Barney, 1991; Wernerfelt, 1984). According to these theories, organizational

management is an important source of firm heterogeneity and sustained competitive advantage (Mahoney and Pandian, 1992). Director internationality may be seen as an additional internal resource that provides particular competencies in terms of knowledge of international markets and different regulatory regimes (Estélyi and Nisar, 2016). Consistent with resource dependence theory (RDT), international directors are likely to play a role in managing a firm's relationship with its external environment, particularly when it operates across borders. Accordingly, the more nationalities a board represents, the higher its diversity-as-variety and the greater the potential benefits.

Board diversity, groupthink and independence

Agency theory considers the separation of ownership from control in organizations (Jensen and Meckling, 1976). The board of directors is one mechanism by which shareholders monitor and control the CEO. Therefore, it is important for board members to be prepared to challenge the CEO when necessary (Fama and Jensen, 1983). Individuals in small, demographically *homogeneous* groups may find it difficult to disagree with a consensus, as described by the conformity paradigm (Asch, 1956) and groupthink theory (Janis, 1982). In ex-post analysis, groupthink is argued to have played a part in various corporate scandals, including Enron and the Volkswagen emissions case (Huckabee, 2018; O'Connor, 2002). Earlier experimental work reveals that individuals exhibit a strong preference to conform with the opinion of the group, even when they are aware that the majority view is incorrect (Asch, 1956).

The homogeneity antecedent of conformity and groupthink theories resonates with social psychology theories. Similarity attraction theory (Byrne, 1969) suggests that individuals are drawn to people like themselves because interaction with them is more straightforward – communication is generally easier and behaviour is more predictable – relative to interactions with dissimilar individuals. This leads to higher levels of immediate interpersonal trust between visibly similar strangers than that between strangers with obvious differences. Additionally, belonging to a group is important for social identity (Tajfel *et al.*, 1979). Being part of an 'in-group' is a potential source of pride and self-esteem. This underpins the general preference for conformity that people do not wish to be ejected from their in-group and are, therefore, reluctant to challenge the views of the group.

A corollary to this discussion is that members of socially *heterogeneous* groups have a weaker preference for consensus and are more likely to risk and tolerate expressions of dissent. Therefore, demographically heterogeneous boards may be more independently minded than those comprising visibly similar individuals, making better decisions as an average outcome.

Nationality diversity

We focus on a particular aspect of demographic diversity, namely, nationality, which is classified as a director's country of birth. Upper echelons theory asserts that the social values held by executives affect the way they interpret and respond to situations (Hambrick and Mason, 1984). According to 'imprinting' theory (Lorenz, 1935), early life experiences have an important and lasting effect on humans and the organizations in which they work (Marquis and Tilcsik, 2013). Although moving countries and having the advantage of an elite education may moderate early cultural and social influences, early social background is found to influence decisions made many years later (Marquis and Tilcsik, 2013). This holds even when the individual has reached adulthood and, for example, became a CEO (Kish-Gephart and Campbell, 2015).

Therefore, our approach differs from prior literature based on skin colour differences among members of the board of directors, which generally fails to find any association between this measure of diversity and corporate outcomes (Carter *et al.*, 2010; Guest, 2019). Reflecting on these (non-)results, Guest (2019) speculates that *nationality*, as opposed to skin colour, is a source of difference within boards of directors. A few prior studies have examined the association between simple measures of board nationality diversity and firm value. For example, the presence of at least one non-domestic director on a board is positively related to Tobin's Q in the United Kingdom (Estélyi and Nisar, 2016) and Scandinavia (Oxelheim and Randøy, 2003). However, little is known about *how* foreign directors can add value to firms. Masulis, Wang and Xie (2012) report that US firms make more successful cross-border acquisitions when they have a foreign independent director from the target firm's region on the board. In the Canadian setting, Ben-Amar *et al.* (2013) report a positive association between announcement returns and demographic diversity, employing a dummy variable to indicate whether any of the directors are non-Canadian in terms of residency.

To contribute to this limited understanding of how nationality diverse boards affect firm value, our initial hypothesis is as follows:

H1: Nationality diversity-as-variety on the board of directors is positively associated with the firm's value, ceteris paribus.

Cultural separation

While group diversity may have benefits, there are also potential costs of having a set of socially disparate

individuals working on important tasks together (Jackson, 2003; Milliken and Martins, 1996). We propose that the cultural distances between board members create a potential barrier to integration, which can be used as the basis for a measure of diversity-as-separation, which we refer to as cultural separation.

Culture may be described as 'the collective programming of the human mind that distinguishes the members of one human group from those of another. Culture, in this sense, is a system of collectively held values' (Hofstede, 1980, p. 24). The cultural values of different societies have been captured and measured along various dimensions, enabling researchers to apply them to various settings. For example, Gaganis *et al.* (2019) use an international sample to relate country-level values to risk-taking in the insurance industry. Using Hofstede's (1980) original four cultural dimensions of individualism, masculinity, power distance and uncertainty avoidance, Frijns, Dodd and Cimerova (2016) assign cultural values to directors based on their nationality and measure cultural distances among the board of directors to investigate their association with firm performance. Employing a UK firm sample from 2002 to 2014, they find strong evidence of a negative relationship between intra-board cultural distance and firm performance, concluding that 'the frictions imposed by cultural diversity outweigh its benefits' (p. 539). However, these associations may be context-specific. In an Australian setting, cultural distance within the board is found to have a strong *positive* association with firm performance (Dodd and Zheng, 2022).

These previous studies report the *net* effects of board nationality diversity on firm performance. In this study, we simultaneously examine the effects of nationality diversity-as-variety, which we expect to benefit the functioning of the board of directors, along with diversity-as-separation, which we expect to present obstacles to the effective functioning of the group. Where both nationality diversity-as-variety and cultural separation exist, we expect cultural separation to offset any positive effects of nationality diversity-as-variety on firm value. Our second hypothesis is as follows:

H2: Nationality diversity-as-separation (cultural separation) on the board of directors will negatively affect the firm's value, either directly or through a moderating effect on the association between nationality diversity-as-variety and the firm's value, or both, ceteris paribus.

Intergroup contact theory

Initially developed by Williams (1947) in relation to racial tensions, intergroup contact theory proposes that group conflicts and initial distrust due to visible differences and prejudice are reduced through contact under certain conditions, such as equality of status, common goals, intergroup cooperation and the support of authorities, laws or customs (Allport, Clark and Pettigrew, 1954; Pettigrew and Tropp, 2006). These conditions are largely met in the average boardroom. Following a meta-analysis of 515 studies, Pettigrew *et al.* (2011) confirm the negative association between group contact and prejudice. Kilduff, Angelmar and Mehra (2000) use a business simulation involving teams of experienced executives to report that team-level '*interpretive ambiguity*' reduces over time. Group longevity has also been associated with fewer task and emotional conflicts in racially diverse teams (Pelled, Eisenhardt and Xin, 1999).

Failure to consider group longevity may be another explanation for the equivocal results in the diversity–performance literature. Therefore, we test a third hypothesis, which states that the negative effects of cultural separation are moderated over time. As the group members get to know each other, they should come to accept each other's differences and start working as a coherent team, continuing to benefit from the additional resources brought about by the international directors but no longer suffering from issues related to communication and cultural separation.

H3: Board longevity will have a moderating effect on the association between cultural separation and firm performance, ceteris paribus.

Methodology

In our main tests, we run variants of the following model:

$$\begin{aligned} Q_{it} = {} & \beta_0 + \beta_1 NDIV_{it} + \beta_2 CS_{it} + \beta_3 NDIV_{it} \times CS_{it} \\ & + \beta_4 MATBD + \beta_5 MATBD_{it} \times CS_{it} + \sum_{j \in J} \gamma_j CV_{ijt} \\ & + \sum_{k \in K} \delta_k Industry_k + \sum_{t \in T} \lambda_t Year_t + \varepsilon_{it} \end{aligned} \quad (1)$$

where Q is our measure of firm value, NDIV is a measure of national diversity-as-variety, CS (cultural separation) is a measure of nationality diversity-as-separation, MATBD is a measure of board longevity, CV is a set of firm-specific control variables, Industry is a set of industry dummy variables and Year is a set of annual time dummies.

For H1, we expect $\beta_1 > 0$. For H2, we expect at least one of β_2 and $\beta_3 < 0$. For H3, we expect $\beta_5 > 0$.

Hausman tests indicate that we should employ fixed effects instead of random effects in our regression analyses. Prior literature also tends to employ a fixed-effects approach (e.g. Adams and Ferreira, 2009; Carter *et al.*,

2010). Recent studies (Armstrong *et al.*, 2022; Breuer and DeHaan, 2023; Jennings *et al.*, 2024) have commented on the use of fixed-effects strategies to control for correlated omitted variables. Armstrong *et al.* (2022, p. 29) suggest the use of triangulation across fixed-effect structures in the absence of strong theoretical grounds supporting one particular structure, as is the case here.[2] Consequently, we estimate our main tests using both firm and industry fixed effects.

Additional tests are conducted to support and extend the primary tests. First, we use the IV approach. Second, our main test examines the effects of nationality diversity that are incremental to the effects of the control variables on firm value, which include several aspects of firm performance. We consider the effect of our key IVs on other corporate outcomes by substituting these corporate outcomes with Tobin's Q in Equation (1) and adjusting the set of independent variables. Prior studies have found that our selected corporate outcomes are strongly associated with firm value. This enables us to examine the potential channels via which nationality diversity affects firm value. Third, we perform various subsample analyses, the specifics of which are provided in the Appendix.

Description of variables, data sources and sample

Tobin's Q, our dependent variable, is calculated as total assets (TA) plus the market value of equity, minus the book value of equity, all divided by total assets.[3] Nationality diversity-as-variety is measured using two methods. First, the nationalities ratio (NDR) is obtained by counting the number of nationalities represented on the board of directors, then dividing by board size. The expectation is that the more nationalities are represented on the board of directors, the greater the extent of international expertise available. Second, we calculate the Blau nationality diversity (NDBL) based on the adjusted Blau index and recommended as a measure of diversity-as-variety by Harrison and Klein (2007):

$$NDBL = 1 - \left[\sum_{(i=1)}^{K} n_i(n_i - 1) \div n(n-1) \right] \quad (2)$$

where n_i is the number of directors of the ith nationality on the board and n is the board size at year-end. Both NDR and NDBL are higher when there is greater nationality diversity on the board of directors, with a maximum value of 1.

To develop cultural separation (CS) as a measure of diversity-as-separation, we adopt the measure developed by Frijns, Dodd and Cimerova (2016) based on the original four cultural dimensions, along with scores, developed by Hofstede (1980; Hofstede and Hofstede, 1982):

$$\mathrm{CS} = \sum_{i,j} \sqrt{\sum_{d=1}^{4} \left\{ \frac{\left(I_{di} - I_{dj}\right)^2}{V_d} \right\}} \div \frac{n(n-1)}{2} \; \forall \; i < j \quad (3)$$

where I_{di} is the cultural score in dimension d for director i, I_{dj} is the cultural score in dimension d for director j and V_d is the in-sample variance of the score for a specific Hofstede cultural dimension.

We construct our board maturity variable, MATBD, as a dummy variable coded 1 if all board members have a tenure of at least 2 years, and 0 otherwise. Our choice of 2 years for tenure is somewhat arbitrary, although we reason that this would be the minimum amount of time required for a group to cohere and any valuation effects to be observable. Selecting a longer period (e.g. 3 years) leads to a very small number of observations meeting the criteria.

We include a comprehensive set of control variables to reduce the risk of endogeneity issues rooted in correlated omitted variable(s), which may lead to spurious conclusions (Wintoki, Linck and Netter, 2012). First, we control for other types of demographic and structural diversities present on the board.

It has been argued that the characteristics of women, as compared to men, cause gender-diverse boards to behave differently from fully male boards. Many studies have reported that the presence of women on boards of directors is associated with board processes (Nielsen and Huse, 2010), CEO turnover (Adams and Ferreira, 2009) and dividend payments (Chen, Leung and Goergen, 2017). Therefore, we control for the gender diversity of the sample boards using an adjusted Blau index (Blau, 1977) to develop the variable GENDER.[4] As board members age, they accumulate valuable professional experience and expertise while experiencing changes in their career ambitions (Gibbons and Murphy, 1992) and risk preferences (Serfling, 2014; Shefrin, 2006). Additionally, age *cohort* effects are

[2]All discussed papers argue that using fixed effects can produce anomalous results if independent variables of interest are strongly explained by the fixed-effect structure. As a diagnostic, we regress our ND and CS variables on the two fixed-effect structures and find that the explanatory power of these regressions does not give rise to concern.

[3]This follows other studies, such as those of Fich and Shivdasani (2006), Estélyi and Nisar (2016), van Petegham *et al.* (2018) and Ferris, Jayaraman and Liao (2020).

[4]This measure would record the same value for gender diversity for a board comprising five women and three men as it would for a board made up of five men and three women. Accordingly, we consider this measure superior to using a dummy variable or one which measures the proportion of women directors.

important in the context of group dynamics because having experienced major events (e.g. COVID-19, war or recession) at similar ages may augment interpersonal trust through similarity attraction (Byrne, 1969). Our study includes two measures of director age diversity. AGEDIV is a Blau-based measure that uses the age categories employed by Harjoto, Laksmana and Yang (2018).[5] To control for potential disharmony based in age diversity-as-separation, we calculate AGESEP as the standard deviation of board members' ages.

Huang and Hilary (2018) discuss how director tenure represents a trade-off between independence (for shorter-tenured directors) and firm-specific expertise (for longer-tenured directors). Harjoto, Laksmana and Yang (2018) argue that 'task-oriented' diversity, such as tenure diversity, can 'expand a team's cognitive resource base and collective knowledge, skills and abilities' (p. 42). We construct two measures of tenure diversity. TENDIV is a Blau-based measure that captures variety across six director tenure categories (Harjoto, Laksmana and Yang, 2018). To measure diversity-as-separation with respect to tenure, TENSEP is calculated as the standard deviation of board member tenures.

Next, we control for other board and ownership characteristics. While sitting as non-executive directors on multiple boards may signal director quality (Harjoto, Laksmana and Yang, 2018), heavily loaded directors may not have sufficient time to effectively fulfil their roles. Fich and Shivdasani (2006) and Ferris, Jayaraman and Liao (2020) find a negative association between 'busy' directors and firms' market-to-book ratios, defining busy directors as those with three or more board seats, which is the definition that we adopt. The benefits and harm associated with a director's workload may differ according to the director's status.[6] Therefore, in our models, we include separate variables for the following four categories of busy directors: non-executive foreign (BUSYFORNED); non-executive domestic (BUSYDOMNED); executive foreign (BUSYFORED); and executive domestic (BUSYDOMED).

We also include board independence variables. BDIND is the proportion of independent directors on the sample boards. BDSIZE is the natural log of the number of directors and BDOWN is the natural logarithm of (1 plus) the year-end value of average board member ownership. We also control for foreign ownership (FOROWN) and institutional ownership (INSTOWN) by including the proportion of shares held by foreign and institutional investors owning at least 5% of the firm's equity.

We control for other firm characteristics, known to be associated with Q, and employed by us in additional tests to explore the corporate outcomes via which nationality diversity may indirectly lead to higher firm valuations. These tests adopt accounting performance measures, investment in R&D and dividend distributions to shareholders as their dependent variables. We measure profitability as earnings before interest and taxation divided by TA (ROA). Earnings are reported using accounting accruals, which may be subject to manipulation; therefore, we also measure performance using operating cash flows divided by TA (CFO). Considering that more R&D-intensive firms have higher intangible assets, which could reflect management expertise (Mahoney and Pandian, 1992), we include RD, measured as R&D expense for the year, scaled by TA. We also consider the distribution of dividends because this reduces agency costs (Easterbrook, 1984; Jensen, 1986; Rozeff, 1982) and reflects better corporate governance (Brown and Caylor, 2004; Farinha, 2003). Our variable (DIV) is measured as the annual cash dividend amount, deflated by TA. All estimated variables are known to be empirically associated with market value (Akbar, Shah and Stark, 2011; Poletti Hughes, 2008). We also control for audit quality using the proportion of audit fees to TA (AUDITFEE) (Francis, 2023) and measure operational efficiency using asset turnover (ASSETT), calculated as sales divided by TA.

We include a number of variables reflecting the importance of international operations to the firm: international sales (SALESFOR); foreign and domestic sales growth (SGROWTHF and SGROWTHD, respectively); the natural log of the number of geographical segments in which the firm operates (SEGMENTS) and an indicator variable, MULTI, which is equal to 1 if the firm operates in more than one geographical segment, and 0 otherwise.

Finally, we control for size (SIZE), leverage (LEV), capital expenditures (CAPEX), capital intensity (CAPINT), volatility (VOLATILITY) and the number of years since the firm incorporated (FIRMAGE). Table 1 details how we measure each variable used in our tests.

Our sample is constructed from UK FTSE All Share firms from 1999 to 2022. The FTSE All Share captures 98% of the market capitalization on the London Stock Exchange. We collect financial data for these companies from the Worldscope database, initially excluding firms with missing industry classification benchmark (ICB) codes. Director and board data are collected from BoardEx and FAME. Our initial sample consisted of 9236 firm-year observations of 633 unique firms. As detailed in Panel A of Table 2, observations are excluded based on the following criteria: (1) belonging to the financial or real estate sectors (ICB industry codes 30 and 35, respectively); (2) domiciled outside the United Kingdom; (3) missing board member age

[5]There are five categories of age, measured as follows: <40; 40–49; 50–59; 60–69; and 70+.

[6]We thank an anonymous reviewer for this suggestion.

Table 1. Variable definitions and data sources

Variable	Definition
Dependent variable	
TOBINSQ	[Total assets (WC02999) + market value of equity (WC08001) − book value of equity (WC03501)] ÷ total assets.
Diversity measures	
NDR	Nationality diversity ratio, calculated as the number of nationalities represented on the board, divided by board size.
NDBL	Nationality diversity on the board, calculated using adjusted Blau index. See Equation (2).
CS	Cultural separation. See Equation (3).
Board characteristics	
MATBD	Mature board, a dummy variable that equals 1 if all board members have at least 2 years of tenure, and 0 otherwise.
GENDER	Gender diversity on the board, calculated using adjusted Blau index.
AGEDIV	Age diversity on the board, calculated using adjusted Blau index and age categories based on Harjoto, Laksmana and Yang (2018).
AGESEP	Age separation, measured as the standard deviation of board members' ages.
TENDIV	Tenure diversity on the board, estimated using adjusted Blau index and tenure categories based on Harjoto, Laksmana and Yang (2018).
TENSEP	Tenure separation, measured as the standard deviation of board member tenures.
BUSYFORNED	Proportion of foreign non-executive board members holding at least three current board appointments.
BUSYDOMNED	Proportion of domestic non-executive board members holding at least three current board appointments.
BUSYFORED	Proportion of foreign executive board members holding at least three current board appointments.
BUSYDOMED	Proportion of domestic executive board members holding at least three current board appointments.
BDIND	Proportion of independent board members.
BDSIZE	Natural logarithm of the number of directors on the board.
BDOWN	Natural logarithm of one plus average director equity ownership as at year-end.
Ownership characteristics	
FOROWN	Proportion of common shares held by foreign investors owning 5% or more (NOSHFR).
INSTOWN	Proportion of common shares held by investment banks or other institutions owning 5% or more (NOSHIC).
Firm characteristics	
AUDITFEE	Audit fees (WC01801) ÷ total assets.
ROA	EBIT (WC18191) ÷ total assets.
ASSETT	Sales (WC01001) ÷ total assets.
SALESFOR	Sales generated from operations in foreign countries (WC07101) ÷ total assets.
SGROWTHF	Foreign sales growth, measured as [foreign sales in the current year (WC07101) – foreign sales in the previous year] ÷ total assets.
SGROWTHD	Domestic sales growth, measured as [domestic sales in the current year (WC01001 minus WC07101) – domestic sales in the previous year] ÷ total assets.
CFO	Operating cash flows (WC04860) ÷ total assets.
RD	R&D expenditures (WC01201) ÷ total assets.
CAPEX	Capital expenditures (WC04601) ÷ total assets.
DIV	Cash common dividends (WC05376) ÷ total assets.
VOLATILITY	Measure of a share's average annual price movement to a high and low from a mean price for each year (WC08806).
SIZE	Natural logarithm of total assets.
LEV	Long-term debt (WC03251) ÷ total assets.
CAPINT	Property, plant and equipment (WC02501) ÷ total assets.
FIRMAGE	Number of years since date of incorporation (WC18273) to reporting date.
MULTI	A dummy variable that equals 1 if a firm is operating in two or more geographical areas, and 0 otherwise.
SEGMENTS	Natural logarithm of the number of geographical segments in which the firm operates (WC19600, WC19610, WC19620–WC19680 and WC19690).

Notes: All data were collected as of the reporting date ending in the current/previous year. Director and board data are sourced from the BoardEx and FAME databases. All financial data were obtained from the Worldscope database, except for ownership characteristics, which were obtained from Datastream. Any financial data scaling is based on total assets (TA). The data item codes are provided in parentheses.

data; (4) missing board member nationality data; and (5) missing data for other required variables. Our final sample comprises 3826 firm-year observations of 265 firms. Panel B of Table 2 provides a breakdown of the final sample by industry and year.

Table 3 provides the descriptive statistics for the variables. The distributions of the variables are similar to those reported in other UK studies.[7]

[7]For example, an average firm has a Tobin's Q of 1.91, ranging from 0.73 to 7.83 (similar to the figures of 2.01, 0.65 and

Table 2. Sample

Panel A: Sample selection

	Firm-years	Unique firms
Initial sample	9236	633
Exclusion criteria		
(1) Belonging to the financial or real-estate sectors	(4004)	(319)
(2) Domiciled outside the United Kingdom	(40)	(4)
(3) Missing age data for at least one board member	(28)	(2)
(4) Missing nationality data for at least one board member	(188)	(5)
(5) Missing data for other required variables	(1150)	(38)
Final sample	**3826**	**265**

Panel B: Sample by industry and year

	ICB industry code									
Year	(10)	(15)	(20)	(40)	(45)	(50)	(55)	(60)	(65)	Total
1999	3		3	21	7	31	8	3	1	**77**
2000	3	2	3	25	10	39	10	3	2	**97**
2001	4	2	4	29	13	45	10	4	3	**114**
2002	5	2	3	32	14	46	13	4	2	**121**
2003	6	3	3	36	14	47	12	4	3	**128**
2004	6	3	5	37	14	51	13	4	3	**136**
2005	5	4	5	40	13	53	13	4	3	**140**
2006	5	3	4	40	12	56	14	5	3	**142**
2007	5	3	5	42	15	51	15	5	3	**144**
2008	5	3	5	42	16	56	13	5	3	**148**
2009	6	4	5	42	15	61	15	5	5	**158**
2010	9	5	6	40	17	62	17	5	5	**166**
2011	10	5	6	49	19	62	20	5	6	**182**
2012	10	5	6	51	17	59	19	5	5	**177**
2013	10	4	6	49	19	60	18	5	6	**177**
2014	11	6	7	58	16	66	20	6	6	**196**
2015	11	5	7	57	17	66	20	6	6	**195**
2016	11	5	8	57	20	64	20	6	6	**197**
2017	11	5	8	61	20	64	22	5	5	**201**
2018	11	6	10	62	19	67	20	5	6	**206**
2019	9	4	10	59	17	66	14	8	8	**195**
2020	12	4	11	58	16	67	14	8	8	**198**
2021	13	3	12	60	16	66	13	7	8	**198**
2022	9	3	7	50	13	35	7	2	7	**133**
Total	**190**	**89**	**149**	**1097**	**369**	**1340**	**360**	**119**	**113**	**3826**
%sample	**5**	**2.3**	**3.9**	**28.7**	**9.6**	**35**	**9.4**	**3.1**	**3**	**100%**
%FTSE*	**6.4**	**2.2**	**4.5**	**30.7**	**8.2**	**31.8**	**7.9**	**5.2**	**3**	**100%**

Notes: The ICB industry (codes) names are as follows: (10) Technology; (15) Telecommunications; (20) Health Care; (40) Consumer Discretionary; (45) Consumer Staples; (50) Industrials; (55) Basic Materials; (60) Energy; (65) Utilities.
*Percentage of firms from each industry represented in the FTSE All Share Index in 2023, after excluding financial firms.

Table 4 presents the correlations between the variables. NDR and NDBL are highly correlated. However, we consider them to be alternatives and do not include them in the same model. The high positive correlation between CS and each of the variety measures (NDR and NDBL) works against us finding the opposite results predicted for them in our hypotheses. We also note that approximately 40% of our firm-years have no nationality diversity, in which case NDR, NDBL and CS are constants.[8] Table 4 also reveals significantly positive correlations between Q and our national diversity-as-variety measures. However, the correlations between CS and MATBD are insignificant. Consistent with previous literature, our corporate outcome

8.29 reported in Frijns, Dodd and Cimerova (2016). Independent directors account for 56% of the board on average (54.4% in Frijns, Dodd and Cimerova, 2016) and the average ROA is 0.10, ranging from −0.11 to 0.38 (compared to 0.11, −0.14 and 0.39 in Frijns, Dodd and Cimerova, 2016).

[8]In untabulated results, we calculate the correlations between CS and NDR, then CS and NDBL for firms with non-zero nationality diversity; they are 0.68 and 0.73, respectively.

Table 3. Descriptive statistics

Variable	N	Mean	SD	Min	p25	p50	p75	Max
TOBINSQ	3826	1.91	1.15	0.73	1.19	1.56	2.20	7.83
NDR	3826	0.26	0.13	0.09	0.14	0.22	0.33	0.62
NDBL	3826	0.29	0.28	0.00	0.00	0.25	0.52	0.86
CS	3826	1.04	1.32	0.00	0.00	0.48	1.71	5.04
MATBD	3826	0.13	0.33	0.00	0.00	0.00	0.00	1.00
GENDER	3826	0.26	0.20	0.00	0.00	0.29	0.44	0.57
AGEDIV	3826	0.66	0.12	0.25	0.60	0.68	0.73	0.87
AGESEP	3826	8.79	2.40	3.87	7.13	8.57	10.14	15.93
TENDIV	3826	0.70	0.16	0.00	0.64	0.73	0.81	0.93
TENSEP	3826	5.11	3.14	0.67	2.97	4.25	6.37	16.20
BUSYFORNED	3826	0.06	0.11	0.00	0.00	0.00	0.11	0.46
BUSYDOMNED	3826	0.16	0.12	0.00	0.09	0.14	0.25	0.50
BUSYFORED	3826	0.00	0.02	0.00	0.00	0.00	0.00	0.13
BUSYDOMED	3826	0.01	0.03	0.00	0.00	0.00	0.00	0.17
BDIND	3826	0.56	0.16	0.05	0.45	0.57	0.67	0.86
BDSIZE	3826	2.11	0.26	1.61	1.95	2.08	2.30	2.71
BDOWN	3826	6.98	1.88	3.31	5.71	6.75	7.91	12.35
FOROWN	3826	0.06	0.11	0.00	0.00	0.00	0.09	0.63
INSTOWN	3826	0.09	0.09	0.00	0.00	0.07	0.14	0.39
AUDITFEE	3826	0.00	0.00	0.00	0.00	0.00	0.00	0.01
ROA	3826	0.10	0.08	−0.11	0.06	0.09	0.14	0.38
ASSETT	3826	1.12	0.74	0.13	0.60	0.94	1.41	4.00
SALESFOR	3826	0.47	0.45	0.00	0.06	0.38	0.71	2.07
SGROWTHF	3826	0.03	0.11	−0.36	0.00	0.01	0.06	0.51
SGROWTHD	3826	0.03	0.14	−0.48	−0.01	0.01	0.07	0.54
CFO	3826	0.10	0.08	−0.09	0.06	0.10	0.14	0.37
RD	3826	0.01	0.03	0.00	0.00	0.00	0.01	0.18
CAPEX	3826	0.04	0.04	0.00	0.02	0.03	0.06	0.22
DIV	3826	0.03	0.04	0.00	0.01	0.03	0.04	0.24
VOLATILITY	3826	26.93	8.35	13.15	21.03	25.49	31.25	53.11
SIZE	3826	13.94	1.75	10.44	12.72	13.78	15.06	18.59
LEV	3826	0.18	0.16	0.00	0.05	0.16	0.28	0.64
CAPINT	3826	0.29	0.24	0.00	0.09	0.23	0.43	0.90
FIRMAGE	3826	3.43	0.90	1.39	2.77	3.40	4.22	4.86
MULTI	3826	0.84	0.37	0.00	1.00	1.00	1.00	1.00
SEGMENTS	3826	1.13	0.65	0.00	0.69	1.10	1.61	2.30

Note: Variable definitions are provided in Table 1.

variables (ROA, CFO, RD and DIV) are all strongly positively correlated with Q. Significant correlations are also found between Q and other board structure variables and other firm characteristics (including measures capturing non-domestic activity). Overall, these correlations highlight complexity in determining firm value (Q).

In Table 5, to further portray the structure of our key variables, we create independent sorts of firm-years ranked by NDBL and CS. For each ranking variable, group 1 contains firms with no nationality diversity, while groups 2 to 4 rank the remaining firms into equally sized groups. Next, we calculate the average Q value for each group. The distribution shows that firms with diverse boards tend to have higher Qs than those with non-diverse boards. The average Q tends to decrease as CS increases, despite the lack of a significant correlation between Q and CS in Table 4.

Main analyses

Table 6 presents the results of our hypothesis testing. Regressions using industry and year fixed effects are reported in columns (1) and (2), and our models employing firm and year fixed effects are presented in columns (3) and (4).

Each model provides evidence supporting H1, with a strongly significant positive association between nationality diversity-as-variety (NDR and NDBL) and firm value Q. We do not find evidence of a *direct* negative association between CS and Q. However, supporting H2, each of the four models in Table 6 reports a significantly negative association between the interaction terms, NDR×CS and NDBL×CS, and Q. These results suggest that although nationality diversity-as-variety is positively associated with firm value, this relationship is negatively affected by the coexistence of cultural separation (nationality diversity-as-separation) on boards.

Finally, although there is no direct effect of group longevity (MATBD), its interaction with cultural separation (MATBD×CS) has a significantly positive coefficient. This suggests that when the board is well established as a team, the negative effect of cultural separation on firm value is significantly reduced, supporting our third hypothesis.

The results with respect to our hypotheses are established under stringent conditions because we include other board diversity variables, board structure variables and firm ownership characteristics in our control variables, along with other firm characteristics that are known to have a direct and significant relationship with firm value. Therefore, the results are *incremental* to the effects of these variables on Q. This is relevant because the results in Table 6 suggest that our other demographic diversity variables (gender and age) have no direct incremental association with firm value. This result does not rule out the possibility that they have an indirect effect through their impact on firm outcomes that are positively associated with the market value of the company, however.

Among other board characteristics, tenure separation (TENSEP) and board ownership (BDOWN) have significant negative and positive relationships with Q, respectively. Regarding other firm characteristics, return on assets (ROA), cash flow from operations (CFO), sales growth, whether domestic or foreign (SGROWTHD/SGROWTHF) and dividends (DIV) have significantly positive relationships, while capital intensity (CAPINT) and size (SIZE) are negatively associated with firm value. These associations are robust to the estimation approach. Several additional variables are significant only when industry fixed effects are considered (BUSYFORED, BUSYDOMED, BDSIZE, FOROWN, SALESFOR, MULTI, RD,

Table 4. Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	TOBINSQ																	
2	NDR	**0.06**																
3	NDBL	**0.06**	**0.90**															
4	CS	−0.01	**0.82**	**0.85**														
5	MATBD	0.02	**−0.04**	**−0.13**	**−0.09**													
6	GENDER	**0.09**	**0.20**	**0.20**	**0.16**	**−0.17**												
7	AGEDIV	0.01	**−0.08**	**−0.11**	**−0.07**	**0.06**	**−0.15**											
8	AGESEP	0.02	**−0.11**	**−0.13**	**−0.07**	**0.10**	**−0.19**	**0.70**										
9	TENDIV	0.03	**−0.13**	**−0.13**	**−0.10**	0.01	**−0.05**	**−0.05**	**−0.05**									
10	TENSEP	0.00	**−0.18**	**−0.19**	**−0.15**	**0.06**	**−0.15**	0.02	**0.13**	**0.52**								
11	BUSYFORNED	−0.01	**0.57**	**0.67**	**0.59**	**−0.09**	**0.16**	**−0.12**	**−0.16**	**−0.07**	**−0.14**							
12	BUSYDOMNED	0.01	**−0.14**	**−0.15**	**−0.14**	−0.02	0.01	−0.02	**−0.07**	**−0.05**	**−0.12**	**−0.11**						
13	BUSYFORED	−0.02	**0.21**	**0.29**	**0.29**	−0.02	**−0.06**	−0.01	0.00	**−0.07**	**−0.06**	**0.36**	**−0.02**					
14	BUSYDOMED	−0.02	0.03	**0.07**	**0.06**	−0.02	**−0.09**	0.00	0.02	0.01	0.02	**0.11**	**0.00**	**0.13**				
15	BDIND	−0.01	**0.28**	**0.28**	**0.24**	**−0.16**	**0.49**	**−0.15**	**−0.26**	**−0.12**	**−0.39**	**0.29**	**0.12**	0.00	**−0.08**			
16	BDSIZE	−0.02	**0.09**	**0.41**	**0.33**	**−0.28**	**0.13**	**−0.12**	**−0.14**	−0.01	**−0.09**	**0.37**	**−0.09**	**0.21**	**0.08**	**0.11**		
17	BDOWN	**0.30**	**0.07**	**0.10**	**0.12**	**0.09**	**0.03**	0.03	**0.09**	**0.16**	**0.38**	**0.08**	**−0.12**	**0.06**	−0.02	**−0.16**	**0.09**	
18	FOROWN	**−0.04**	**0.21**	**0.23**	**0.34**	0.00	**0.09**	−0.01	0.02	**−0.07**	−0.01	**0.21**	**−0.07**	**0.15**	**−0.03**	**0.04**	**0.07**	**0.12**
19	INSTOWN	**0.04**	**−0.07**	**−0.13**	**−0.13**	−0.02	0.00	0.00	**−0.05**	−0.03	**−0.08**	**−0.13**	**0.06**	**−0.08**	−0.01	0.02	**−0.19**	**−0.14**
20	AUDITFEE	**0.18**	**−0.07**	**−0.16**	**−0.17**	**0.09**	**−0.28**	**0.11**	**0.13**	−0.01	0.01	**−0.20**	0.03	**−0.10**	0.02	**−0.21**	**−0.32**	**−0.12**
21	ROA	**0.59**	0.00	0.00	−0.03	**0.05**	−0.02	0.00	0.00	**0.09**	**0.07**	0.02	0.03	0.00	**−0.04**	**−0.04**	**−0.04**	**0.21**
22	ASSETT	**0.19**	**−0.15**	**−0.23**	**−0.21**	**0.11**	**−0.13**	**0.07**	**0.07**	0.03	**0.06**	**−0.18**	0.00	**−0.12**	**−0.03**	**−0.17**	**−0.22**	**0.06**
23	SALESFOR	**0.13**	**0.29**	**0.27**	**0.19**	0.01	**−0.04**	**−0.04**	**−0.07**	0.02	−0.03	**0.15**	−0.01	**0.03**	0.02	**0.05**	**−0.04**	−0.01
24	SGROWTHF	**0.15**	**0.03**	0.03	0.00	**0.04**	**−0.07**	0.01	0.01	0.01	0.02	−0.01	−0.03	0.01	**0.04**	**−0.07**	−0.03	**0.09**
25	SGROWTHD	**0.14**	**−0.11**	**−0.12**	**−0.09**	**0.07**	**−0.06**	**0.07**	**0.08**	**0.03**	**0.04**	**−0.09**	**−0.04**	**−0.05**	0.00	**−0.13**	**−0.04**	**0.13**
26	CFO	**0.51**	**0.05**	**0.06**	0.03	0.02	0.01	0.01	0.00	**0.07**	**0.08**	**0.05**	0.01	0.03	−0.03	−0.02	−0.02	**0.22**
27	RD	**0.23**	**0.07**	**0.06**	0.02	0.00	**−0.08**	0.01	0.00	0.01	−0.01	0.02	**0.04**	−0.03	0.00	−0.01	**−0.07**	−0.03
28	CAPEX	**0.06**	0.01	0.02	**0.03**	**0.06**	**−0.14**	**0.06**	**0.08**	**0.03**	**0.08**	0.01	−0.01	**0.05**	**−0.05**	**−0.10**	−0.01	**0.11**
29	DIV	**0.58**	0.02	0.02	−0.02	0.00	**0.09**	−0.02	−0.03	**0.05**	0.02	0.03	**0.05**	−0.02	−0.03	0.03	−0.01	**0.13**
30	VOLATILITY	**−0.05**	−0.03	**−0.08**	−0.03	**0.05**	**−0.19**	**0.10**	**0.17**	**−0.13**	**−0.05**	**−0.15**	0.02	**−0.04**	0.01	**−0.12**	**−0.21**	0.02
31	SIZE	**−0.24**	**0.28**	**0.47**	**0.39**	**−0.21**	**0.34**	**−0.19**	**−0.27**	**−0.08**	**−0.22**	**0.52**	0.01	**0.23**	**0.07**	**0.42**	**0.64**	**0.05**
32	LEV	**−0.13**	0.02	**0.07**	**0.08**	**−0.10**	**0.16**	−0.01	**−0.04**	**−0.10**	**−0.17**	**0.07**	0.00	0.01	**−0.04**	**0.14**	**0.19**	**−0.09**
33	CAPINT	**−0.17**	**−0.04**	0.00	0.03	0.01	−0.01	0.01	**0.04**	0.00	**0.06**	**0.04**	**−0.05**	**0.07**	**−0.04**	**−0.07**	**0.06**	0.00
34	FIRMAGE	**−0.13**	0.02	0.02	0.01	**−0.03**	**0.06**	**−0.06**	**−0.07**	**0.20**	**0.20**	**0.08**	**−0.04**	0.01	**0.05**	0.03	0.02	**−0.13**
35	MULTI	**0.05**	**0.29**	**0.32**	**0.24**	−0.02	**−0.06**	**−0.07**	**−0.11**	−0.02	**−0.09**	**0.20**	−0.03	**0.07**	0.02	**0.08**	**0.10**	**−0.07**
36	SEGMENTS	**0.04**	**0.43**	**0.47**	**0.38**	**−0.07**	**0.05**	**−0.12**	**−0.17**	0.01	**−0.08**	**0.37**	**−0.04**	**0.17**	**0.03**	**0.20**	**0.18**	−0.02

Table 4. *(Continued)*

		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
18	FOROWN																		
19	INSTOWN	**0.07**																	
20	AUDITFEE	**−0.13**	**0.18**																
21	ROA	**0.02**	**−0.02**	**0.05**															
22	ASSETT	**−0.15**	**0.04**	**0.22**	**0.28**														
23	SALESFOR	**−0.02**	**0.05**	**0.27**	**0.19**	**0.36**													
24	SGROWTHF	**−0.01**	**−0.01**	**0.05**	**0.23**	**0.21**	**0.40**												
25	SGROWTHD	**−0.05**	**−0.04**	**−0.04**	**0.16**	**0.26**	**−0.19**	**−0.19**											
26	CFO	**0.04**	**−0.05**	**0.03**	**0.71**	**0.19**	**0.15**	**0.13**	**0.12**										
27	RD	**−0.03**	**0.11**	**0.32**	**−0.03**	**−0.12**	**0.16**	**0.00**	**−0.07**	**−0.02**									
28	CAPEX	**0.06**	**−0.10**	**−0.01**	**0.12**	**0.01**	**−0.02**	**0.00**	**0.06**	**0.31**	−0.01								
29	DIV	**−0.05**	**0.02**	**0.10**	**0.64**	**0.21**	**0.12**	**0.07**	**0.06**	**0.55**	0.01	**0.04**							
30	VOLATILITY	**0.07**	**0.13**	**0.24**	**−0.13**	**0.05**	**0.01**	**−0.01**	**0.00**	**−0.08**	0.07	**0.07**	**−0.20**						
31	SIZE	**0.15**	**−0.22**	**−0.57**	**−0.17**	**−0.34**	**−0.08**	**−0.07**	**−0.11**	**−0.14**	−0.17	**−0.07**	**−0.14**	**−0.30**					
32	LEV	**0.04**	**−0.02**	**−0.19**	**−0.19**	**−0.29**	**−0.17**	**−0.07**	**−0.11**	**−0.12**	−0.16	**0.06**	**−0.15**	**−0.03**	**0.35**				
33	CAPINT	**0.13**	**−0.12**	**−0.23**	**−0.07**	**−0.19**	**−0.23**	**−0.09**	**−0.02**	**0.13**	−0.15	**0.58**	**−0.09**	**−0.01**	**0.15**	**0.33**			
34	FIRMAGE	**−0.13**	**−0.08**	**−0.08**	**−0.06**	**−0.01**	**0.07**	**−0.04**	**−0.04**	**−0.10**	−0.01	**−0.09**	**−0.05**	**−0.23**	**0.11**	**−0.04**	**0.01**		
35	MULTI	**0.02**	**0.00**	**0.18**	**0.02**	**−0.09**	**0.44**	**0.12**	**−0.17**	**0.03**	0.16	**−0.01**	**0.00**	**−0.03**	**0.06**	**−0.04**	**−0.13**	**0.06**	
36	SEGMENTS	**0.10**	**−0.05**	**0.09**	**0.02**	**−0.16**	**0.53**	**0.13**	**−0.21**	**0.05**	0.18	**−0.02**	**0.02**	**−0.07**	**0.20**	**−0.04**	**−0.15**	**0.10**	0.76

Notes: Variable definitions are provided in Table 1. Coefficients significant at the 5% level are presented in bold.

Table 5. Average firm value (Q) across NDBL and CS groups

		CS		
NDBL	Q1	Q2	Q3	Q4
Q1	1.76			
Q2		2.29	1.94	1.49
Q3		2.16	2.14	1.71
Q4			2.02	1.90

Notes: This table reports the average Tobin's Q for firms across quartile groups. Firms were allocated to quartiles based on their scores for NDBL and CS. Q1 represents the lowest-scoring quartile and Q4 represents the highest. The firms in Q1 for both NDBL and CS are those with homogeneous nationality boards.

CAPEX, LEV), and one (VOLATILITY) is significant only when firm fixed effects are considered. The main difference between the two estimation approaches is that using industry fixed effects considers the relationship between within-industry variations in the variables, whereas using firm fixed effects considers the relationship between within-firm variations.

To address generalized endogeneity concerns, we conduct IV regressions using 2SLS. An effective set of instruments must be directly correlated with our explanatory variables of interest, but not with the dependent variable. We select measures of NDR, NDBL and CS for other firms in the same city as a set of instruments because many firms hire directors from the area around their headquarters owing to their geographical proximity (Davis and Henderson, 2008; Pirinsky and Wang, 2006). If the local region is more diverse with respect to the country of birth of its population, it creates a more nationality diverse pool from which to select board members and increases the chance that a firm will hire more non-domestic board members. However, the demography of the local region is outside the direct control of management and consequently, unlikely to affect a firm's value. Therefore, our approach is very similar to that adopted by Anderson *et al.* (2011) and Frijns, Dodd and Cimerova (2016), who use attributes of the firm's county population and surrounding metropolitan area, respectively, as instruments for board heterogeneity.

We report the results of our IV tests in Table 7.

The results of the first-stage estimation, reported in columns (1)–(3), show that the instruments are strong predictors of their associated potentially endogenous variables.[9] The final two columns present the second-stage results. These results are consistent with the main results.

To increase confidence in the robustness tests, we also conduct 2SLS using an alternative set of instruments, specifically, the average nationality diversity of sample firms within the same *industry* for the same year. Considering that firms within the same industry share some commonalities, researchers report that they share similar board characteristics, such as board diversity (Nuhu and Alam, 2023; Venturelli *et al.*, 2024). However, the board nationality diversity in other firms in the industry is unlikely to affect the focal firm's value. These untabulated results are consistent with those reported in Table 7.

To reduce any endogeneity concerns caused by measurement errors in our key explanatory variables, we employ measures of nationality diversity and cultural separation using ranks. Additionally, we estimate the models using lagged independent variables to avoid reverse-causality concerns. In both cases, the untabulated results are consistent with the main results.

We next explore some of the corporate outcomes via which nationality diversity may affect firm value, which are also controlled for in Table 6. To do this, we exclude the outcome variable from the right-hand side of our regression models, making it the dependent variable, and report the results in Table 8. For brevity, we report the results using NDBL as our diversity measure, although consistent outcomes are obtained employing NDR. All coefficients have the expected sign, although not all are significant.

Columns (1) and (2) report our models when profitability (ROA) and operating cash flows (CFO) are the dependent variables. For ROA, the relationship between the main effect of nationality diversity-as-variety and profitability is insignificant, although there is a significantly negative association between CS and ROA. The interaction term (CS×NDBL) is significantly positive. Although nationality diversity-as-separation (CS) is negatively associated with firm profitability, this association weakens in the presence of nationality diversity-as-variety (NDBL) on the board. For CFO, we find a straightforward positive association between NDBL and CFO. We then consider R&D expenditure (RD). If diverse boards are more likely to make long-term investments valued by the market, this may be an additional vehicle through which value is added. Column (3) of Table 8 reports a significantly positive association between RD and NDBL and a significantly negative association between RD and CS. Finally, we examine dividend payouts (DIV). As reported in column (4), boards with higher nationality diversity-as-variety tend to distribute higher dividends than boards with less diversity, while firms whose boards have higher levels of cultural separation make significantly lower dividend payments. Given that the four variables are positively

[9]We test the validity of our instruments using the Stock–Yogo test and the Kleibergen–Paap–LM statistic for both models. The results suggest that our instruments are strong. For the model in column 4 (5), where nationality diversity-as-variety is measured using NDR (NDBL), the value of the Cragg–Donald F-statistic is 35.65 (65.39) larger than the Stock–Yogo critical value of 7.03 (Stock and Yogo, 2005). The p-values of the Kleibergen–Paap–LM statistic are also below 0.001, confirming instrument validity.

Table 6. Association between nationality diversity and firm value

	(1)	(2)	(3)	(4)
	Industry and year fixed effects		Firm and year fixed effects	
NDR	1.787***		0.883**	
	(8.357)		(2.460)	
NDBL		0.750***		0.452**
		(8.012)		(2.557)
CS	0.062*	0.043	0.061	0.073
	(1.878)	(1.270)	(1.299)	(1.551)
NDR×CS	−0.458***		−0.275**	
	(−5.813)		(−2.315)	
NDBL×CS		−0.237***		−0.208***
		(−5.083)		(−2.839)
MATBD	−0.023	−0.008	−0.049	−0.043
	(−0.507)	(−0.168)	(−1.294)	(−1.139)
MATBD×CS	0.066**	0.054**	0.088***	0.083***
	(2.432)	(1.985)	(2.985)	(2.822)
GENDER	0.135	0.144	−0.111	−0.106
	(1.537)	(1.636)	(−0.574)	(−0.551)
AGEDIV	−0.199	−0.199	−0.032	−0.031
	(−1.461)	(−1.462)	(−0.234)	(−0.224)
AGESEP	0.008	0.007	−0.002	−0.003
	(1.075)	(0.982)	(−0.197)	(−0.234)
TENDIV	0.092	0.096	0.150	0.149
	(0.999)	(1.048)	(1.231)	(1.229)
TENSEP	−0.043***	−0.043***	−0.031***	−0.030***
	(−7.794)	(−7.889)	(−3.608)	(−3.600)
BUSYFORNED	0.098	0.116	−0.217	−0.211
	(0.654)	(0.762)	(−0.991)	(−0.958)
BUSYDOMNED	0.123	0.106	−0.054	−0.056
	(1.284)	(1.108)	(−0.386)	(−0.399)
BUSYFORED	1.896***	1.982***	1.467	1.427
	(3.973)	(4.143)	(1.608)	(1.624)
BUSYDOMED	1.228***	1.178***	0.448	0.383
	(3.313)	(3.178)	(0.936)	(0.803)
BDIND	0.039	0.048	0.198	0.198
	(0.357)	(0.438)	(1.374)	(1.391)
BDSIZE	0.835***	0.619***	0.224**	0.122
	(11.192)	(8.801)	(2.154)	(1.338)
BDOWN	0.127***	0.127***	0.141***	0.141***
	(13.878)	(13.829)	(6.395)	(6.442)
FOROWN	−0.443***	−0.443***	0.214	0.220
	(−3.270)	(−3.317)	(0.756)	(0.772)
INSTOWN	0.172	0.167	−0.189	−0.179
	(1.195)	(1.162)	(−1.139)	(−1.074)
AUDITFEE	9.132	9.399	−29.206	−29.299
	(0.566)	(0.582)	(−1.493)	(−1.504)
ROA	4.513***	4.472***	4.736***	4.717***
	(11.719)	(11.634)	(7.028)	(7.057)
CFO	1.397***	1.391***	0.956***	0.963***
	(5.127)	(5.077)	(3.362)	(3.419)
ASSETT	0.025	0.027	0.016	0.023
	(1.185)	(1.288)	(0.130)	(0.194)
SALESFOR	−0.211***	−0.217***	0.019	0.009
	(−4.924)	(−5.091)	(0.159)	(0.077)
SGROWTHF	0.613***	0.622***	0.291**	0.290**
	(4.510)	(4.575)	(2.333)	(2.324)
SGROWTHD	0.470***	0.464***	0.210**	0.206**
	(4.455)	(4.412)	(2.165)	(2.127)
MULTI	0.130***	0.118**		
	(2.729)	(2.482)		
SEGMENTS	−0.014	−0.003		
	(−0.403)	(−0.104)		

Table 6. (Continued)

	(1)	(2)	(3)	(4)
	Industry and year fixed effects		Firm and year fixed effects	
RD	7.812***	7.791***	0.254	0.312
	(7.931)	(7.912)	(0.150)	(0.187)
CAPEX	1.320***	1.364***	0.983*	1.004*
	(3.071)	(3.163)	(1.794)	(1.867)
CAPINT	−0.445***	−0.465***	−0.607**	−0.613**
	(−7.122)	(−7.419)	(−2.342)	(−2.360)
DIV	8.044***	8.070***	3.849***	3.870***
	(11.362)	(11.382)	(4.250)	(4.283)
VOLATILITY	0.000	−0.001	0.009**	0.009**
	(−0.212)	(−0.476)	(2.518)	(2.500)
SIZE	−0.193***	−0.193***	−0.152***	−0.150***
	(−11.530)	(−11.450)	(−2.732)	(−2.714)
LEV	0.746***	0.736***	0.249	0.259
	(8.376)	(8.282)	(1.212)	(1.273)
FIRMAGE	−0.011	−0.014	−0.104	−0.103
	(−0.875)	(−1.076)	(−1.017)	(−1.007)
Industry fixed	Yes	Yes	No	No
Firm fixed	No	No	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes
N	3826	3826	3826	3826
adj. R-sq	0.627	0.627	0.419	0.421

Notes: This table presents the results of Equation (1). Definitions of the variables are provided in Table 1. Columns (1) and (2) use industry and year fixed effects. Columns (3) and (4) use firm and year fixed effects, respectively. Below the coefficient estimates, given in parentheses, we present robust t-statistics based on standard errors adjusted for heteroscedasticity (White, 1980). The significance of the coefficients is represented as follows: $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

related with firm value, these results suggest various channels through which nationality diversity-as-variety and cultural separation may affect firm value.

Additional tests, including the impact of macroeconomic events, non-linearity in the relationship between board nationality diversity and Q, and further tests of the theories used – RBV, groupthink, fault line and intergroup contact theories – are provided in the Appendix.

Summary and conclusions

This study contributes to the understanding of board diversity in several ways. First, we highlight the importance of defining 'diversity', which we show has different effects on firm value when measured in ways that distinguish 'variety' from 'separation'. This distinction advances the theoretical discussions on board diversity by empirically demonstrating that different types of diversity have opposing relationships with corporate outcomes. Second, we report a positive association between board nationality diversity-as-variety and firm value, which is negatively moderated by the degree of cultural separation on the board (our measure of diversity-as-separation). Finally, we provide evidence that these negative effects dissipate once a group has time to cohere. Additionally, we demonstrate that nationality diversity has standalone effects but may also affect firm value through its relationships with levels of accounting performance, R&D activities and dividend distributions, all corporate characteristics that are positively related with firm value.

This study makes a significant empirical contribution by providing evidence supporting the RBV, groupthink, faultline and intergroup contact theories in the context of board diversity. Our findings highlight that these theories are interconnected and collectively influence board effectiveness. This integrated perspective contributes to the literature, which has traditionally been dominated by the RBV in discussions on board diversity. Moreover, the research shows that prolonged intergroup contact can mitigate the negative effects of diversity-as-separation, suggesting that more interaction among board members helps alleviate initial conflicts and fosters better decision-making. By illustrating how intergroup contact can ameliorate the challenges associated with nationality diversity, this study offers novel insights into corporate governance and the practical application of these theories to enhance board performance.

The practical implications of this study are particularly relevant for policymakers and boards of directors considering the level of board composition diversity. These findings advocate for a balanced cost–benefit analysis before increasing board diversity, challenging the widespread assumption that diversity is inherently

Table 7. Instrumental variable analysis

	(1)	(2)	(3)	(4)	(5)
	First stage			Second stage	
	NDR	NDBL	CS	TOBINSQ	TOBINSQ
NDR_PEER	0.288***				
	(11.223)				
NDBL_PEER		0.284***			
		(13.416)			
CS_PEER			0.288		
			(11.105)		
NDR_HAT				5.243***	
				(3.821)	
NDBL_HAT					2.226***
					(3.192)
CS_HAT				−0.115	−0.245*
				(−0.849	(−1.667)
NDR_HAT*CS_HAT				−0.794***	
				(−5.296)	
NDBL_HAT*CS_HAT					−0.269***
					(−4.653)
MATBD				−0.026	−0.005
				(−0.519)	(−0.099)
MATBD*CS_HAT				0.071**	0.046
				(2.144)	(1.391)
Controls	Yes	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes	Yes
N	3450	3450	3450	3450	3450
Adj. R-sq	0.519	0.642	0.529	0.619	0.617

Notes: The instrument is calculated as the average peer firm diversity measure in the same city and year, excluding the focal firm. NDR_HAT, NDBL_HAT and CS_HAT are the values obtained from the first-stage estimation. Below the coefficient estimates, given in parentheses, we present robust t-statistics based on standard errors adjusted for heteroscedasticity (White, 1980). The significance of the coefficients is denoted as follows: $^{*}p < 0.10$; $^{**}p < 0.05$; and $^{***}p < 0.01$.

Table 8. Association between nationality diversity and value-relevant corporate outcomes

	(1) ROA	(2) CFO	(3) RD	(4) DIV
NDBL	0.000	0.015**	0.015***	0.008**
	(0.080)	(2.572)	(4.122)	(2.224)
CS	−0.007***	−0.001	−0.003***	−0.002**
	(−2.669)	(−0.599)	(−3.180)	(−1.979)
CS×NDBL	0.008***	0.001	0.002	0.002
	(2.646	(0.246)	(1.279)	(1.413)
Controls	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes
N	3826	3826	3826	3826
Adj. R-sq	0.663	0.608	0.274	0.492

Notes: Variable definitions are provided in Table 1. Below the coefficient estimates, given in parentheses, we present robust t-statistics based on standard errors adjusted for heteroscedasticity (White, 1980). The significance of the coefficients is represented as follows: $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.

net beneficial. Although initiatives to enhance board diversity are common, this study underscores the importance of considering both the positive and negative aspects of such changes. Policymakers are advised to consider potential drawbacks, such as initial communication barriers and conflict, alongside the benefits of diverse perspectives and expertise when considering regulating aspects of board structure. Additionally, boards of directors should adopt a long-term perspective when assessing the benefits of increasing nationality diversity. Evidence from this study should encourage sustained efforts to build cohesive and effective diverse boards, instead of expecting immediate and unequivocal benefits.

Our study has limitations. For example, we assign directors' nationalities by their country of birth. Some directors are likely to have been influenced by socialization and experience in a country other than their birthplace, adding noise to our measures of nationality and cultural distance. Therefore, we must accept that there is some noise in the measurements, which is a limitation of this study. Additionally, we acknowledge that there may have been minor sample selection bias rooted in the unavailability of nationality data in our sample selection. Panel A of Table 2 shows that 188 of the 9236 initial observations (2%) were excluded

because of missing nationality information, equivalent to 1% (5 out of 633) of the total number of firms. Given that the industry distributions of our sample are similar to those of the index, it is unlikely that these omissions were driven by a systematic factor. However, we cannot rule out the possibility of sample selection bias.

Future research may develop a finer understanding of the nature of the relationship between board nationality diversity and firm outcomes. It is likely possible to find more channels through which diverse boards can add value to their firms, such as employee welfare, wages and working conditions for overseas employees, and investment proposal acceptance. Furthermore, firms might benefit differently from board diversity based on industry, organizational lifecycles or distinct circumstances, suggesting the need for further nuanced analysis. Alternative methodologies, such as examining short-run stock returns around the appointments and departures of directors of varying nationalities, could offer valuable insights into how investors perceive the impact of board diversity. These investigations are left for future research.

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Jing Chen is an Assistant Professor at the University of Nottingham with research expertise in corporate governance, board dynamics, executive compensation and market-based accounting. Her work has been published in journals including the *British Journal of Management* and the *Journal of Corporate Finance*. Dr Chen has served as an external examiner at King's College London and as a PhD examiner at the University of Nottingham. She has successfully supervised numerous doctoral candidates to completion.

Elisabeth Dedman is Professor of Accountancy at Edge Hill University. She has previously held faculty positions at the universities of Bristol, Liverpool, Manchester, Warwick and Nottingham. Her research addresses issues in corporate governance, audit, corporate disclosure and payout policies.

Ja Ryong Kim, CFA, is an Assistant Professor of Accounting and Finance at the University of Nottingham Business School. He holds a PhD in Accounting and Finance from the University of Edinburgh and his research interests include equity valuation, corporate governance and the impact of technology in society. His scholarly work has been published in highly regarded journals, such as *Energy Economics*. He holds board-level leadership experience across several organizations, including the Co-operative Group PLC and Life Multi-Academy Trust.

Tarek Metwally is an Assistant Professor in Accounting at the University of Nottingham. His research centres on corporate governance, including board diversity, faultlines and the influence of cultural differences on board decision-making. He also has a keen interest in firm valuation, sustainable accounting and corporate reporting. His research has been presented at several national and international conferences, and he serves as an ad hoc reviewer for various peer-reviewed academic journals.

Andrew W. Stark is an Emeritus Professor at the Alliance Manchester Business School, having held prior faculty positions at Yale School of Management (visiting) and the universities of Essex, Ulster, Maryland and Manchester. He was given the British Accounting and Finance Association Distinguished Academic Award in 2003 and was made a Fellow of the Academy of Social Sciences in 2014.

Supporting Information

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