

The Impact of Cultural Diversity in Corporate Boards on Firm Performance

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Abstract

We examine the impact of cultural diversity in corporate boards of directors on firm performance. We construct a measure of cultural diversity by calculating the centroid of cultural distances between each board member using Hofstede's cultural framework. Our findings indicate that cultural diversity in boards negatively affects firm performance measured with Tobin's Q and ROA. These results hold after controlling for potential endogeneity using a non-contemporaneous specification and instrumental variables. The results are further robust to a wide range of board and firm characteristics, including various measures of 'foreignness' of a firm, and alternative culture frameworks. Further analysis reveals that only extremely high degree of cultural board diversity hurt firm performance. The impact of cultural diversity is also mitigated by the complexity of the firm and the size of foreign sales and operations. In addition, we find that not all aspects of cultural differences are equally important and that it is mainly the diversity in individualism and masculinity that affect effectiveness of boards of directors.

Keywords: cultural diversity, cultural distance, board of directors' diversity, firm performance

JEL Classifications: C24; G10.

1. Introduction

There is a growing amount of evidence suggesting that culture plays an important role in finance, where numerous studies have documented that culture affects financial decision making and financial outcomes. In corporate finance, this evidence relates mostly to CEO decision making (for example with respect to mergers and acquisitions (see Ahern et al., 2012; Ferris et al., 2013; and Frijns et al., 2013) or cross-listing decisions (Dodd et al., 2013), and firm-level outcomes (e.g. compensation of the CEOs (Tosi and Greckhamer, 2004; Bryan et al., 2014; and Burns et al., 2013), capital structure (Chui et al., 2002), dividend policy (Shao et al., 2010) and corporate debt maturity (Zheng et al., 2012)). Studies so far in this arena either use culture as a national trait that can explain cross-country differences in corporate practices (e.g. Frijns et al., 2013; Bryan et al., 2014; among others), or focus on cultural differences and how they affect financial outcomes.¹ In this paper, we add a new dimension to the growing area of culture and finance by focusing on *cultural diversity*,² and use this concept to examine the relation between the cultural diversity of the board and firm performance.

The board of directors is the key governing institution in a corporation, one of the most important groups to make decisions in corporations. Boards work as corporate monitors and advisors, and are involved in the company's most important strategic, investment and financing

¹ Among these is Ahern et al. (2012) who focus on the impact cultural distance on the outcome of international takeover decisions, Dodd et al. (2013), who examine the role of cultural distance in cross-listing decisions, and Beugelsdijk and Frijns (2010), and Anderson et al. (2011) in their analysis on the impact of cultural distance on foreign asset allocation.

² We define cultural diversity as the total degree of cultural differences within a group. This is different from cultural distance which looks at the cultural differences between groups. A few studies have explored the role of cultural diversity in the context of multinational organizations and how cultural diversity within the multinational affects the performance of these multinational firms (see Hutzschenreuter and Voll, 2008; and De Jong and van Houten, 2014).

decisions, in hiring, assessing and firing top managers.³ Given the importance of corporate boards, many studies have focused on characteristics of the board and how they affect outcomes. Many of these studies highlight the importance of diversity in the board as it should increase the creative thinking of the board and result in better governance. Indeed, many studies have focussed on different characteristics and measures for diversity, such as director independence, gender and ethnicity, education, experience and tenure, and compensation. Though many of these studies highlight the importance of diversity in the above mentioned characteristics, to our knowledge, the role of cultural diversity within the board has not been considered.

In this paper, we focus on the impact of national cultural diversity within corporate boards on firm performance. There is a long-standing literature on cultural diversity and how it affects group outcomes in the management literature. This literature generally identifies cultural diversity as a “double-edged sword” (Milliken and Martins, 1996) recognizing both positive and negative aspects that come from cultural diversity. On the positive side, culturally diversity engenders information elaboration bringing in a diverse range of knowledge and perspectives (Nederveen Pieterse et al., 2013), and diverse groups can bring in specific knowledge of their home countries that can benefit the firm if it has operations in that market (Maznevski, 1994). Indeed, Masulis et al. (2102) show that firms with foreign independent directors make better cross-border acquisitions when the targets are from their home country. On the negative side, cultural diversity itself also imposes frictions, where people may categorize people with similar (different) cultural backgrounds as in-groups (out-groups). This may lead to intergroup biases,

³ Both the management and economic literature recognise the two main roles for boards, the advisory role and the monitoring role (in management pertaining to the agency perspective and resource dependence perspective, respectively), and both strands of literature agree that firms choose directors according to their needs (Hillman et al., 2003; Ferreira, 2010).

favouring the in-group over the out-group (van Knippenberg et al., 2004), which can negatively affect the information exchange (Nederveen Pieterse et al., 2013). This aspect of cultural diversity can explain findings of e.g. Ahern et al. (2012), who document strong evidence that cultural distance between an acquiring firm and its target reduces the likelihood of the acquisition being successful. Hence we could expect both positive and negative externalities flowing from cultural diversity.

To evaluate on the impact of board-level cultural diversity on firm performance, we focus on a sample of UK firms that represent more than 95% of the market capitalization of the London Stock Exchange between 2002 and 2012.⁴ We construct our measure of cultural diversity of a company's board as the centroid of cultural distance between each board member following Hutzschenreuter and Voll (2008). For our main analysis we compute our cultural diversity measure based on the cultural framework of Hofstede (1980, 2001), but we demonstrate that our results also obtain under alternative cultural frameworks.

Our main regressions show that cultural diversity in boards negatively affects firm performance as measured with Tobin's Q and ROA, suggesting that the frictions imposed by cultural diversity outweigh the potential benefits. This result is robust to the inclusion of various firm-level factors that are known to affect firm performance, and to various board-level characteristics. Overall, we note that firms at the 75th cultural diversity percentile achieve a

⁴ We focus on a UK sample, as boards of UK firms are considerably more foreign than boards in the US. In our sample, more than 60% of the firms have at least one foreigner on the board. Masulis et al. (2012) who focuses on the role of foreign directors on corporate governance and firm performance in the US, who documents only 13% of firms having at least one foreign independent director on the board.

Tobin's Q that is 0.18 less than firms at the 25th percentile. Similarly, ROA is 1.26% lower for firms at the 75th percentile compared with firms at the 25th percentile.

We conduct a range of tests to assess the robustness of our results. First, we address the issue of potential endogeneity by estimating a dynamic specification of lagged cultural diversity on current performance, and by implementing an instrumental variables approach. In both specifications, the negative effect of cultural diversity on firm performance remains, lending support to a causal interpretation of our findings.

Second, we assess whether cultural diversity is merely a proxy for other measures of 'foreignness' of a firm. At the board level, we note that the inclusion of the percentage of foreign director, percentage of unique nationalities do not affect our main finding. Neither does the inclusion of a dummy for foreign independent director and the percentage of foreign independent directors, which are the main variables of interest in Masulis et al. (2012), affect our main results. In fact, while many of these variables are significantly related to firm performance on their own accord, they become insignificant after the inclusion of cultural diversity. At the firm level, we observe that neither the inclusion of foreign sales or foreign assets of the firm, nor whether the firm has a listing on the NYSE or other foreign markets explains away our finding.

Third, the notion that cultural diversity is a "double-edged sword" with both positive and negative externalities suggests that not all firms may be affected equally by cultural diversity. When, we classify firms based on their degree of cultural diversity and create dummy variables for these different degrees, we note that only those firms with the highest level of cultural

diversity see a reduction in firm performance. We further find that for complex firms (measured by the number of business segments) performance is not affected by cultural diversity, whereas for non-complex firms performance is negatively affected. This may be due to the benefits of diversity (such as a more diverse range of knowledge) outweighing the costs in complex firms. Likewise, we find that for firms with high levels of foreign sales or high levels of foreign operations the negative relation between performance and cultural diversity disappears. This could be attributed to market specific knowledge that foreign directors may bring to the board, and is in line with the observation of Masulis et al. (2012) on the role of foreign directors in foreign acquisitions.

Fourth, we consider various alternative culture frameworks to construct our measure of cultural diversity of the board. These include the updated Hofstede scores of Tang and Koveos (2008), GLOBE, and Schwartz (2006). We find that our findings of a negative relation between firm performance and cultural diversity obtain, although statistical significance weakens somewhat under the framework of Schwartz.

Finally, we assess the importance of the different cultural dimensions of Hofstede (1980, 2001). Although all dimensions have a negative coefficient on firm performance, we only find statistical significance for cultural diversity based on the Individualism-Collectivism and Masculinity-Femininity dimensions. In line with findings in the literature (e.g. Elron, 1997), our findings suggest that differences in individualism-collectivism and masculinity-femininity dimensions of culture of the board members are the main drivers of intergroup behaviour of boards that translates into firm performance.

Overall, our paper makes two important contributions. First, we contribute to the literature on culture and finance by introducing the new dimension of board diversity. While previous studies in finance have mainly used culture as a country-level determinant of financial outcomes and decision making, or cultural distance as a means to test the impact of differences *between* groups on firm outcomes, we explore cultural diversity as an avenue of assessing the impact of differences *within* groups on firm outcomes. We show that cultural diversity proxies for a highly relevant aspect of board diversity. To our knowledge, this is the first study that examines the role of cultural diversity of the board on firm performance.

Second, our work expands on insights from the board diversity literature and, in line with the well-established finance studies in the area, cautions against “romanticising” cultural diversity when it comes to company outcomes. Benefits of board diversity do not always outweigh the costs. Our baseline results in fact suggest that, on average, costs outweigh the benefits. Our study of the relationship between board diversity and firm performance offers a more nuanced story of board effectiveness.

This paper is related to a few studies in corporate finance. First, our study relates to Masulis et al. (2012), who examine the role of foreign independent directors on corporate governance and firm performance. Their study finds that having a foreign independent director on the board is detrimental for firm performance and attribute this to decreased ability of foreign independent directors to effectively monitor the firm due the geographical distance to the firm’s headquarters. We confirm the finding that foreign directors indeed have a detrimental effect on firm performance, but show that this is primarily due to cultural differences and not due to a foreign director not being geographically close.

The second paper we relate to is Anderson et al. (2011) who evaluate the effect of board heterogeneity (measured by an index that considers occupational heterogeneity (education, experience and profession) and social heterogeneity (gender, ethnicity, and age) on firm performance. Overall, they find a positive relation between board heterogeneity and firm performance, which can be attributed to the benefits of overall diversity outweighing the costs. However, when they examine the role of board heterogeneity in complex versus non-complex firms, they find that board heterogeneity is negatively related to the performance of non-complex firms. We extend their work by considering cultural diversity of boards. Although, we do not find a positive relation between cultural diversity and firm performance (which can be due to the fact that we focus on one particular aspect of diversity of which benefits may be smaller),⁵ we do find a negative relation between cultural diversity of the board for non-complex firms.

The paper proceeds as follows. Section 2 offers a more detailed discussion of notions related to national cultural diversity and an overview of the finance literature on board diversity. Section 3 describes the data and discusses results from our univariate analysis. In Section 4, we present our baseline results as well as the results from robustness tests, and discuss the findings. Section 5 concludes and suggests directions for future work.

⁵ Indeed Anderson et al. (2011) find that the positive impact of occupational heterogeneity is much stronger than that of social heterogeneity.

2. Background

In the first part of this section, we discuss the role of boards of directors for strategic decision making in companies and findings from board diversity research and introduce cultural diversity as an important viewpoint, which advances research at the meeting point of the board diversity literature and cross-cultural studies. The second subsection explains concepts related to culture and national cultural diversity in more detail.

2.1 Diversity

There has been a lot of recent discussion around the importance of diversity in corporate boards, highlighting the importance of diversity in terms of age, gender, etc. The question remains, however, whether diversity in corporate boards actually has economic impacts and enhances shareholder value, or whether it simply reflects overall social trends towards assuring equity or is a consequence of tokenism (Carter et al., 2003). The UK Corporate Governance Code which outlines the standards of good practice for UK companies, asserts: “The search for board candidates should be conducted, and appointments made, on merit, against objective criteria and with due regard for the *benefits of diversity* on the board, including gender.” (Financial Reporting Council, 2012, p. 12; emphasis added). Notwithstanding this careful formulation, arguments of board diversity promoters are often rooted in expectations that diversity increases firm value and improves firm performance. However, diversity may be a double-edged sword, having both positive and negative outcomes (see Ferreira, 2010). On one hand, diverse boards may benefit from a greater range of perspectives, experience of its director and offer more creative and innovative solutions to problems. More diverse boards have access to more resources and more connections. Firms with more diverse boards may increase their reputation and overall appeal to stakeholders. They may improve public and investor relations and signal

to future employees that they promote a non-discriminatory promotion policy. On the other hand, board heterogeneity may result in cooperation deadlocks, insufficient communication, conflicts of interest (e.g. Putnam, 2007).

In examining the role of board diversity and its impact on firm value, many studies focus on director independence, i.e. distinguishing between manager and non-manager directors on board (e.g. Hermalin and Weisbach, 1991; Yermack, 1996; Agrawal and Knoeber, 1996; Klein, 1998; Bhagat and Black, 1999; and Coles et al., 2008), or gender and ethnic diversity in management teams (e.g., Wright et al., 1995, Cornell and Welch, 1996, Richard, 2000; and Adams and Ferreira (2009); also see overview in Fields and Keys, 2003). Other papers tackle board diversity by taking into account a number of director characteristics simultaneously, such as their gender, age, ethnicity, race, education, experience, function, rank, profession (Anderson et al., 2011; Wahid, 2012). One factor that thus far has been ignored in the board diversity literature is cultural diversity.

2.2 Cultural Diversity

In this paper, we explore how national cultural diversity on boards of directors affects firm performance. We view national culture, as a set of values and beliefs, guides how people select or evaluate actions, policies, events or other people (Schwartz, 2012) and argue that culture represents one of the bases for decision making. Maznevski (1994) classifies national cultural diversity as an inherent type of diversity.⁶ It is intrinsic to the person, practically unchangeable, not necessarily public or obvious. Inherence makes cultural diversity difficult to understand

⁶ Other examples of inherent diversity are age, gender, or race.

and accept, hence it contributes to conflicts in decision-making groups that are difficult to resolve. Cultural diversity may bring about general and specific advantages (Hayles, 1982, as cited in Ling, 1990). In the case of boards of directors, general advantages of cultural diversity come from the introduction of new worldviews, different ways of perception and interpretation of information to the group. Directors can also become a valuable source of information due to the knowledge of a specific market/country where the company operates or aims to expand; this represents specific advantages of national cultural diversity on boards. Different sources of information, communication networks and linguistic resources increase the value of foreign directors on boards. However, cultural diversity can also have its disadvantages. In culturally diverse groups, communication is slower, more difficult, more confused and more frequently a source of misunderstandings (Doney et al., 1998). Beyond differences in language, there are more subtle differences in style and attribution of meanings (Hayles, 1982, as cited in Ling, 1990).

These two opposing aspects of cultural diversity are highlighted by Amason (1996), who argues that diversity brings about two forms of conflict, cognitive conflict and affective conflict. Cognitive conflict is a functional type of conflict which improves decision quality, consensus and affective acceptance. Affective conflict is a dysfunctional type of conflict with respect to the decision making process. It undermines decision quality, consensus and affective acceptance.

We argue that affective conflict is more likely to be generated by cultural diversity, i.e. different worldviews, different values and beliefs, different thinking and decision-making styles. In the absence of a common cultural framework, affective conflicts are more likely to arise. Affective

conflict per se is costly, it undermines the benefits of cognitive conflict, and tackling affective conflict introduces further costs. The costs involved in overcoming affective conflicts are more likely to exceed the cognitive benefits of cultural diversity as cultural distance increases. We hence expect that performance of firms is negatively affected by cultural diversity of the board.

The negative effect of cultural diversity may be mitigated by some factors though, specifically, when group members (directors) represent a valuable information source for the group (board), which essentially contribute to cognitive, functional conflicts. For cultural diversity, these mitigating factors would sit in the knowledge each member brings to the board. For example, in more complex companies or companies with higher percentage of foreign sales, directors from different national cultural backgrounds are more likely to be present as an information source. Cognitive conflict rather than affective conflict drives the group-decision making process. We thus expect that cultural diversity would have a less negative effect on firms that have complex operations or have a high degree of foreign operations.

2.2. Culture Data and Cultural Diversity

The notion of culture and cultural differences among individuals, groups, regions or countries have received more attention in the other social sciences than in economics and finance. Although cultural factors are featured in works of classical economists, the neoclassical tradition with its strong emphasis on rationality and objectivity left little room for including such frail concepts as culture (Guiso et al. 2006). Such a diverse, hard-to-capture notion as culture is often left out from models and empirical testing. Aggarwal and Goodell (2014) report that within the business domain cultural scholarship has been more prolific in economics and accounting than in finance. They attribute this to the focus of finance literature on larger market

aggregates rather than on examining consequences of financial decision making on the level of individuals, including their interaction within groups. “Cultural finance” emerges as a rather recent research agenda, acknowledging that accounting for cultural factors enriches our understanding of human behaviour and its economic outcomes. Pioneering work in cultural finance confirms that cultural background of the decision-makers plays a role in important economic decisions. National cultural factors have been shown to influence financing decisions (Aggarwal and Goodell, 2009; Aggarwal et al., 2012; Zheng et al. 2012), portfolio diversification and trading strategies (Siegel et al., 2011; Beugelsdijk and Frijns, 2010; Chui et al., 2010), merger and acquisition decisions (Ahern et al., 2012; Ferris et al., 2013; Frijns et al., 2013), cross-listing decisions (Dodd et al., 2013), CEO tournaments and CEO compensation (Tosi and Greckhamer, 2004; Burns et al., 2013; Bryan et al., 2014).⁷

One way to advance cultural scholarship is to learn about national cultural traits through surveys (e.g. World Values Survey, General Social Survey in the U.S., Eurobarometer surveys) and experiments in psychology or neuroscience (e.g. Henrich et al, 2001, 2010). New insights and data availability then make it possible for economics and finance scholars to advance their understanding of impacts of cultural diversity. Guiso et al. (2006) highlight three steps in studying how culture impacts economic outcomes: the influence of culture on values and preferences, the impact of values and preferences on economic outcomes, and establishing causality through focus on stable or slow-changing aspects of culture to minimise endogeneity concerns.⁸ As in Guiso et al. (2006, p. 23), we adopt a narrower definition of culture as “the

⁷ Much of this work is rooted in the model of national cultures by social psychologist Geert Hofstede (1980, 2001), often utilising one or several of the dimensions of national culture (such as individualism, uncertainty avoidance, or masculinity) separately.

⁸ One of the first concepts easily tractable in economic models was trust and, more generally, social capital as a “set of beliefs and values that foster cooperation” (Guiso et al., 2008, p. 299).

customary beliefs and values that ethnic, religious and social groups transmit fairly unchanged from generation to generation.” Our measures of such beliefs and values focus on the inherited invariant aspects of culture due to upbringing in a certain religious and ethnic environment, rather than the unstable/varying, more endogenous aspects of culture accumulated during an individual’s lifetime. Anthropologists and sociologists find that cultural legacy of individuals is fairly stable. People carry on the instilled values and preferences even after changing their cultural environment (moving to another country) and even after these values and preferences become socially inefficient in the new environment. According to Hofstede (1980), “culture is the collective programming of the mind distinguishing the members of one group or category of people from others.” There are systematic differences in people’s beliefs and values which generate different outcomes, different functioning of the same formal institutions (e.g. Guiso et al., 2003, 2004; Tabellini, 2008a, 2008b, 2010). Culture is persistent and economically important.

For the purposes of our investigation, Hofstede’s (1980, 2001) model translates cultural factors into scores and allows us to proxy for an unobservable dimension represented by values and beliefs. It helps us deal with the “black box” nature of culture and allows us to develop a more granular measure of national cultural diversity than if we were to employ dummy variables, for instance. The exogenous nature of national culture is supported by the findings from Hofstede’s work that the differences between national cultures are based mainly on values (as opposed to, for example, practices in organizational cultures), these values are learned approximately before the age of ten, national cultures cannot be managed (as opposed to company cultures), and national cultures are the object of study of anthropology rather than sociology. The measurability of the slow-changing aspects of culture is key to our identification strategy and a way to deal with reverse causality of board structure and firm performance.

Defining Cultural Diversity

Culture is defined as the collective programming of the mind that distinguishes one group from another. Although culture in itself is not observed, several initiatives have been undertaken to quantify different aspect of culture. The most well-known initiative in this is by Hofstede (1980 [2001]), who constructed various cultural dimensions that characterize different cultural traits of a nation.⁹ Initially, Hofstede introduced four dimensions: Uncertainty Avoidance, Individualism, Masculinity and Power Distance, but later added a fifth (Long-term Orientation) and sixth dimension (Indulgence versus Restraint). We focus in this paper on the initial four dimensions of Hofstede as these have been used most frequently in prior studies (Kirkman et al., 2006).^{10,11} Each country in Hofstede's sample is given a score on each of the dimensions. The Uncertainty Avoidance score represents the degree to which people from that country feel uncomfortable with uncertainty and ambiguity. The Individualism score indicates how much value members of a society place on taking care of themselves and their close families. The Masculinity score measures the importance societies' members place on achievement, assertiveness and material reward for success. Finally, the Power Distance score captures the acceptance of societies' members of an unequal distribution of power amongst people.

⁹ Hofstede analysed value scores obtained from a large respondent group of IBM managers from 70 countries between 1967 and 1973. The first version of the model included 4 dimensions and covered value scores for 40 countries, later for 50 countries. Currently, the Hofstede model accounts for 6 dimensions and scores on the dimensions are available for 76 countries. The importance of Hofstede's culture dimensions is highlighted by Kirkman et al. (2006), who document 180 empirical studies that rely on Hofstede's cultural dimension and are published in leading journals between 1980 and 2002.

¹⁰ In finance, several studies employ the Hofstede culture framework. These studies include Aggerwal and Goodell (2009; 2010); Beugelsdijk and Frijns (2010); Andersen et al. (2011); Zheng et al. (2012); Dodd et al. (2014); Frijns et al. (2013); Bryan et al. (2014); Burns et al. (2013).

¹¹ In the empirical section of this paper we also consider a range of alternative cultural frameworks and measures to assess the robustness of our results.

To construct our measure of cultural diversity of the board, we first compute cultural distance between each board member. We do this by taking the cultural scores on the above mentioned dimensions of the country of nationality for each board member, and compute cultural distance following Kogut and Singh (1988), i.e.

$$CD_{ij} = \sqrt{\sum_{k=1}^4 \{(I_{ki} - I_{kij})^2 / V_k\}} \quad \forall i \neq j, \quad (1)$$

where CD_{ij} is the cultural distance between each pair (i, j) of board members, I_{ki} is the cultural score on dimension k for a board member from country i , I_{kj} is the cultural score on dimension k for a board member from country j , and V_k is the variance of the score of the specific cultural dimension. This measure of cultural distance measures has been applied in various finance studies, such as Beugelsdijk and Frijns (2010), Andersen et al. (2011), and Dodd et al. (2013).

Based on the cultural distance scores, we compute the firm-level cultural diversity of the board following Hutzschenreuter and Voll (2008) using the centroid of cultural distance, i.e.

$$CD\ BOARD_{nt} = \frac{\sum_{i,j} CD_{ij,nt}}{m(m-1)/2} \quad \forall i \neq j, \quad (2)$$

where $CD\ BOARD_{nt}$ is the measure of cultural diversity of the board of firm n in year t , and m is the number of board members. The measure of cultural diversity is scaled by the number of pairs of board members, so that the measure is normalized for the size of the board.

3. Data

3.1. Sample

We use British firms for our investigation as the UK market provides a reasonable variation in terms of cultural diversity in corporate boards. Our sample covers 95% of market capitalization of British firms that are constituents of the FTSEALLSHARES list, excluding firms from finance industry. After checking for data availability on board members and firm characteristics we end up with a sample of 244 firms. We collect board member and firm-level data biannually for the years 2002 to 2012.¹² Overall, we have 1,290 firm-year observations and the annual number of observations increase steadily over time from 173 in 2002 to 244 in 2012.

3.2. Board Member Data

We obtain information on board membership from various sources. Current (2012) data on board membership are obtained from the Orbis database maintained by Bureau van Dijk. This database contains name, gender, age, and nationality for many members of the board. We then back-search board membership in earlier periods by going through annual reports of companies. Where data on a board member is missing (age, nationality) we search the internet and found this information from several sources (Bloomberg Business Week; <http://companycheck.co.uk/>; and www.duedil.com).

Table I reports the distribution of directors from each country by year, and reports the percentage of total directors coming from a specific country in the last column. When we consider the percentages first, we note that nearly 80% of the board members in our sample

¹² We sample data biannually as board membership is persistent over time.

come from the UK (domestic). The second largest group of directors are from the US, representing about 7% of our sample. For the remainder, we note that there are relatively high percentages for other Anglo-Saxon countries (Australia, Canada, Ireland, South Africa) and the more developed countries with close economic ties to the UK (France, Germany, and the Netherlands). Over time, there appears to be an increase in the percentage of foreign directors with a low of 17.98% in 2004 and a high of 24.19% in 2012.

INSERT TABLE I HERE

In Table II, we provide characteristics of directors from the UK versus Foreign directors, where we report the percentage of males, the average age of both groups, and the percentage of independent directors. On average, 92% of UK directors are male versus 87% of the Foreign directors. This difference of about 5% is significant at the 1% level, indicating that there are significantly more female Foreign directors than female UK directors. Foreign directors are, on average, also significantly older than UK directors, with the average age of UK directors at 55 years versus an average age of close to 56.5 years for Foreign directors. Finally, we note that 57.16% of Foreign directors are independent versus 51.5% of UK directors that are independent. The difference is again highly statistically significant.

INSERT TABLE II HERE

In Table III, we present the distribution of the number of foreign board members over time, where Panel A presents the distribution for the number of foreigners and Panel B presents the

distribution for the number of different nationalities that sit on boards. When we consider the last column of Panel A, we notice that for many firms there are no foreign directors sitting on UK boards with 513 firm-year observations. The greatest number of foreigners on a board is 11. In total, about 60% of the firms have at least one foreigner on their board, and since 2004 there seems to be a small increase in the percentage of firms with foreigners on their boards. In Panel B, we present the results for the different nationalities. The maximum number of nationalities represented in a board is 7 in our sample. We note that 67% of the firm-year observations in the sample either have zero or one foreign nationality on their board.

INSERT TABLE III HERE

3.3. Board Diversity Measures

In the first column of Table IV we report summary statistics for our cultural board diversity measure calculated using Hofstede's (2001) cultural dimensions. Average cultural diversity measure is 0.5148 with median of 0.2222 and maximum of 3.3603. If all board members are of the same nationality than cultural diversity of such boards equals zero. We observe that over our sample period, there has been a steady increase in the cultural diversity from 0.4416 in 2002 to 0.6007 in 2012.

INSERT TABLE IV HERE

While our focus is on national cultural diversity, we control for board diversity along other dimensions. First, board size is an important reflection of the firm's advising and monitoring

needs leading to larger boards being more diverse (e.g., Cheng, 2008; Coles et al., 2008). Also research shows that factors such as directors' gender, board independence, age and age differences between board members and CEO power weigh in as determinants of how directors fulfil their advising and monitoring roles, and eventually translate into firm performance (e.g., Adams and Ferreira, 2009; Raheja, 2005; Wahid, 2012; Anderson et al., 2011). To address these factors, we control for board size, gender diversity, directors' age range, chairman-CEO duality, and board independence. Independence in this case encompasses formally independent directors, as declared in company documents, and directors in a non-executive role, with no ties to the company's management.

In Panel A of Table IV we report summary statistics of firm-level characteristics of UK boards and in Panel B distribution of these characteristics over time. We can see that average number of board members is 8.67 with variation from 2 to 19 members and this number is relatively stable over our sample period. Average number of foreign board members is 1.82 with a maximum of 11 and over the sample period this number increases steadily from 1.57 in 2004 to 2.12 in 2012. Males constitute 91.41% of board members and we observe a downward trend in this percentage from 95.06% of male board members in 2002 to 86.82% in 2012. The percentage of independent board members on average is 51.81% with upwards trend from 44.74% in 2002 to 58.10% in 2012. The average age of members on boards is 55.11 and it has increased over the sample period from 53.51 years in 2002 to 56.68 in 2012. However, while the average age has increased, the age range (the difference in age between oldest and youngest board member) has decreased from 25.00 years in 2002 to 23.18 years in 2012. Finally, 8.9% of firms in the sample have a CEO who is also Chairman of the board, with a steady downwards trend in this number from 10.6% in 2004 to 6.4% in 2012.

Additionally Panel A of Table IV reports average firm-level characteristics of boards for a sub-sample of firms with foreign directors on boards and for a sub-sample of firms without foreign directors on boards. We can see that firms with foreign directors on boards on average have larger boards, with lower percentage of male directors, higher percentage of independent directors, greater average age of directors, lower age range and higher occurrence of Chairman/CEO duality.

3.4 Firm Performance Measures

We employ two measures of firm performance widely used in the literature: 1) Tobin's Q and 2) ROA. Tobin's Q is calculated as book value of total assets minus book value of equity plus market value of equity, all divided by book value of total assets. ROA is calculated as operating income divided by year-end book value of total assets. To mitigate the impact of outliers, we winsorize Tobin's Q and ROA variables 1% at each side of distribution. Panel A of Table V reports summary statistics of our firm performance measures. Average Tobin's Q is 1.97 with median of 1.57 and variation from 0.65 to 8.29. Average ROA is 11.05% with median of 9.60 and variation from -14.02 to 38.46. The differences in means of Tobin's Q and ROA between firms with foreign directors and firms without foreign directors are not statistically significant.

INSERT TABLE V HERE

3.4 Firm Characteristics

In our analysis we control for an array of firm characteristics that affect firm performance and board composition. Larger, more leveraged and more complex firms are associated with larger boards and with a larger proportion of independent directors on these boards, which, in turn, affect firm's growth opportunities and stock return volatility and, ultimately, firm performance (Boone et al. 2007; Coles et al., 2008; Linck et al., 2008). Hence, we control for firm size (market value), leverage (ratio of total debt to total assets), firm age (# years), number of business segments (number of product lines), return volatility (annual standard deviation of daily stock returns) and sales growth (annual growth rate of firm's total sales).

Panel B of Table V reports summary statistics of firm-level variables for the full sample and mean values for sub-samples of firms with foreign directors and without foreign directors. Average size of a sample firm is 4,752.3 million GBP. However, there is a significant difference in the average firm size between firms with foreign directors and without foreign directors, 7,170.1 vs. 1,209.6 million GBP respectively. Leverage on average is 0.23 with no significant difference between firms with and without foreign directors. Average firm age is 69.28 years and average number of business segments is 3.11. Firms with foreign directors are significantly older (74.24 vs. 61.77 years) and operate in significantly greater number of business segments (3.32 vs. 2.81 segments) than firms without foreign directors. Stock return volatility is 2.25% on average with no significant difference between firms with and without foreign directors. Average sales growth is 11%, a similar number for firms with and without foreign directors.

4. Results

4.1 Cultural diversity of boards and firm performance: Main Results

We start our analysis with examination of the fundamental question on the relation between cultural diversity in boards and measures of firm performance. To assess this relationship we conduct regression analysis with the measures of firm performance (measured with Tobin's Q and ROA) as the dependent variables and our measure of cultural board diversity (CD BOARD) as the main explanatory variable. In the regressions we control for other board characteristics, a range of firm level characteristics and also control for industry fixed effects and year fixed effects by including in the regressions industry and year dummy variables. Standard errors are computed following Petersen (2009) controlling for clustering at the firm level. Both Tobin's Q and ROA are winsorized at the 1% level. In Table VI, we report the result for our main regression.

INSERT TABLE VI HERE

In the first column we show the results for the regression with Tobin's Q as the dependent variable, where we include CD BOARD and firm characteristics. We can see that the coefficient on cultural diversity is negative and statistically significant at the 1% level. This suggests that cultural diversity negatively affects firm performance, and that greater cultural diversity in the board lower the value of the firm. The negative impact implies that the costs of cultural diversity outweigh potential benefits of having culturally diverse boards.

INSERT TABLE VI HERE

In terms of other characteristics we note that firm size is significantly positive, suggesting that the larger firms in the sample achieve higher valuations. Firm age is negative and significant, suggesting that older firms achieve lower valuations. Likewise, we find a significantly negative relation between Tobin's Q and the number (N) of business segments, suggesting that firms that are more complex achieve lower valuations. We finally note a positive and significant relation between Tobin's Q and sales growth. Given that cultural diversity of the board may reflect other board characteristics, it is important to control for these. When we include board characteristics, we note that the significant negative relation between cultural diversity of the board and Tobin's Q is not affected. Of the other board characteristics, we note that only board size is marginally significant, and negative, suggesting that firms with larger boards achieve lower valuations.

The next two columns report the results for the regressions where we use ROA as the dependent variable. We note that the results for this regression are similar to those for Tobin's Q. We observe a negative and significant relation (at the 1% level) between cultural diversity of the board and ROA irrespective of whether we control for other board characteristics or not. Of the firm characteristics, firm size remains significantly positive, as does sales growth. We also observe that business segments and return volatility have a negative effect on ROA.

Since a substantial number of firms do not have any Foreign directors on the board, we conduct the analysis reported in Table VI for a subsample of only firms with at least one Foreign director on the board. The reason for doing this is that for a large part of the sample our measure

of board diversity, *CD BOARD*, will be zero by definition, while Tobin's Q will differ for all these firms.

INSERT TABLE VII HERE

We report the results for the analysis that excludes firms without Foreign directors in Table VII. Table VII shows that the exclusion of firms without any Foreign directors strengthens the results for the role cultural diversity in the board. The coefficient remains negative and highly significant for both Tobin's and ROA. For Tobin's Q, we note that only sales growth remains significantly positive, while board size remains significantly negative. For ROA, we note that in addition to sales growth, we also observe that firm size and number of business segments remain significant, both in the directions observed earlier.

4.1.1 Endogeneity of Cultural Diversity in Boards

One of the issues we need to address is that of a potential endogenous relation between measures of firm performance and cultural diversity of board members. The estimation following OLS regressions can only establish a relation between variables, but does not indicate the direction of causality. If causality would run in the other direction, i.e. the performance of a firm affects the degree of cultural diversity of the board, then the inferences from an OLS regression will be biased.

To test directional causality, we estimate our main model with a lagged cultural diversity measure. Since our sample includes biannual observations, lagging a cultural diversity measure

variable means that with such model specification we are estimating whether cultural diversity determines firm performance in two years' time controlling for all other contemporaneous board and firm characteristics.¹³ First column of Table VIII reports estimation results for Tobin's Q as a measure of firm performance. Cultural diversity variable is negative and significant at 5% level. This result confirms that cultural diversity has a significant negative impact on future firm performance.

INSERT TABLE VII HERE

Furthermore, there might be a concern that current firm performance is a function of the past firm performance rather than other factors such as cultural diversity. To rule out this possibility, we additionally include in our model lagged firm performance measure (i.e. the firm's performance two years ago) and report estimation results for Tobin's Q in the second column of Table VIII. Indeed, past Tobin's Q is the most economically significant factor in the model and its inclusion significantly increases R2 of the model. Nevertheless, even after controlling for past firm performance, cultural diversity measure remains negative and highly significant (at 1% level).

The last two columns of Table VIII report the results for ROA. Similar to the results for Tobin's Q, cultural diversity is found to determine ROA in two years' time. Past ROA is a very important determinant of current ROA. After controlling for past ROA, cultural diversity

¹³ We also estimate our model with firm performance and firm characteristics variables led forward by one year to estimate whether cultural diversity determines firm performance in one year's time controlling for other board and firm characteristics. The results (not reported but available upon request) are similar to the results reported in Table VIII.

remains a negative determinant of firm performance but its' statistical significance is reduced ($p=0.11$). Overall, we find no evidence that our main results might be affected by causality of the relationship between cultural diversity and firm performance or by persistence of firm performance over time.

Another source of potential endogeneity is that presence of foreign directors on boards is not random and may be determined by firm's needs for foreign directors that, in turn, is potentially related to firm performance. A common solution to this type of endogeneity problem is to use an instrumental variables approach. In this approach instrumental variables are selected that correlate highly with the variable of interest, but have no other marginal effect on the dependent variable after controlling for all other effects. We select the following instruments in our main analysis. The first instrument that we use is whether the firm is headquartered outside a large metropolitan area (i.e. in a town with population less than 250,000 people). The motivation for the selection of this instrument is that firms that are headquartered in these areas will be less culturally diverse than large metropolitan areas making the available pool of local cultural diversity smaller. In addition, one can argue that firms that are headquartered outside large metropolitan areas are more difficult to reach for foreign directors, and therefore the firm may end up with less foreign directors on the board (this instrument is in similar lines with the instrument used by Masulis et al. (2012) who use a dummy variable for whether a firm is headquartered within 100 km of a large US airport). The second instrument we employ is the average age of board members. As reported in Table II, foreign directors are, on average, older than UK directors, and hence we expect that board with more cultural diversity tend to be older boards.¹⁴

¹⁴ In addition to the instruments reported in the paper, we perform a robustness test on the instrumental variables regression by using Somatic distance as our instrumental variable. Somatic distance has been used in e.g. Guiso

In Table IX, we present the results for the instrumental variables regression, which we estimate by two-stage least squares. In the first column, we report the results for the first stage regression of CD BOARD on the set of control variables and instrumental variables, the next two columns report the results of the second stage regressions of Tobin's Q and ROA respectively.

For the first stage regression of CD BOARD, we observe that of the board characteristics, board size and board independence, are both significant and positive, indicating that larger boards and board with more independent directors are more culturally diverse. For the firm characteristics, we observe that firm size is significantly positive, i.e. larger firms tend to have more culturally diverse boards. In addition, we find that firm age is negative and significant suggesting that older firms have less culturally diverse boards. We further note that the complexity of the business (measured by the number of business segments) has a significant negative relation with CD BOARD. Return volatility is positively related to CD BOARD. Both instrumental variables have the expected signs in the first stage regression. Regarding our instrumental variables, firms located outside large metropolitan areas have significantly less culturally diverse boards. Finally, boards with older directors tend to be more culturally diverse.

INSERT TABLE IX HERE

et al. (2009) as an instrument for culture. Somatic distance is based on the predominant external features of individuals within a country, such as height, cephalic index and predominant hair colour. The Somatic distances are only available for a set of European countries and the use of this instrument considerably reduces the sample size we can employ. However, results for this analysis are in line with those reported in this paper, and show that CD BOARD has a significant negative effect on firm performance. Results for this regression are available on request.

In the next two columns, we report the results for the second stage regressions for Tobin's Q and ROA. For both regressions we observe that CD BOARD is negative and statistically significant. This suggests that the relation found with the OLS regression can indeed be interpreted in a causal way, i.e. the more culturally diverse a board is, the lower the performance of the firm will be. For both instrumental variables regressions of Tobin's Q and ROA, we perform a Hausman-Wu test for endogeneity. The tests for both regressions produce insignificant χ^2 statistics, suggesting that there are no endogeneity issues with our CD BOARD measure. We also test for the validity of the instruments by performing a Sargan test for overidentifying restrictions. Both regression produce insignificant Sargan χ^2 statistics, suggesting that both instruments are valid.

4.2 Further analysis

4.2.1 Other Measures of 'Foreignness' of the Board

The results reported thus far suggest that there is a strong negative relation between the degree of cultural diversity of the board and firm performance. However, cultural diversity may just be a proxy for the degree of foreignness of the board, e.g. a measure of how many foreigners sit on the board. Indeed, Masulis et al. (2012) demonstrate that firm performance is negatively affected when firms have foreigner independent directors on the board and explain this negative relation by foreign directors being less effective due to the physical distance they have from the firm, which affects their ability to attend board meetings and to effectively monitor management. It may be the case that our measure of cultural diversity of the board just capture presence of foreigners on boards. To address this issue, we additionally include in our model a range of alternative variables that measure the degree of foreignness of the board. These

regression are estimated for the sample that excludes firms without any Foreign directors. We exclude these firms, as their inclusion leads to a mechanically introduced collinearity issue with CD BOARD, as for all firms without any foreign directors cultural diversity will be zero and other measures of foreignness will be zero as well. Since we have a substantial number of firms without foreign directors, this mechanically inflates the correlation between cultural diversity and other measures of foreignness.

In Panel A of Table X we report the estimation results for Tobin's Q and ROA as the dependent variables (note that all other control variables are included in these regression, but not reported for brevity's sake). The first measure of foreignness that we include is the percentage of foreign directors that sit on the board. In column 1.1 we include this variable (without the inclusion of cultural diversity measure), and note that on its own accord this variable is negative and highly significant, suggesting that firms with more 'foreign' boards have lower firm performance. However, when we add our measure of cultural diversity (column 1.2), we note that the percentage of foreign directors becomes insignificant, whereas our measure of cultural diversity is negative and significant (at the 10% level). This suggests that it is not just having foreigners on the board that affects firm performance, but that the cultural diversity between them plays an important role.

INSERT TABLE X HERE

A similar measure of foreignness is the ratio of nationalities represented on the board (the number of different nationalities represented on the board divided by the total number of board members). This controls for the possibility that performance may not just be affected by the

percentage of foreigners, but could be affected by the number of different nationalities on the board. We report the results for the regressions where we include the ratio of nationalities in columns 1.3 and 1.4. We note that this variable on its own is negatively and significantly related to Tobin's Q. However, when we include CD BOARD, the ratio of nationalities becomes insignificant, whereas CD BOARD remains significantly negative.

The next measure of the foreignness of the board follows Masulis et al. (2012). They construct their measure of foreign independent directors (FID) as a dummy variable equal to one if the firm has any foreign independent directors on the board.¹⁵ In addition to the foreign independent director dummy variable, we also calculate the ratio of foreign independent directors to the total number of directors on the board. In columns 1.5 and 1.6, we include the foreign independent director dummy (FID dummy). We note that in our regressions on Tobin's Q, this dummy variable is not significant and its inclusion does not affect the significance and negative sign of CD BOARD. The inclusion of the percentage of foreign independent directors (FID share) (reported in Columns 1.7 and 1.8) reveals that on its own accord, the percentage of foreign independent directors negatively affects Tobin's Q. However, the inclusion of CD BOARD in the regression leads to an insignificant coefficient on the percentage of foreign independent directors while CD BOARD remains significantly negative.

Columns 2.1 – 2.8 in Panel A of Table X report the estimation results for ROA. We see that foreign independent director dummy variable is negative and significant determinant of ROA, however, after accounting for the level of cultural board diversity it becomes insignificant

¹⁵ Note that while our definition of foreign directors is based on directors' nationalities, Masulis et al. (2012) define foreign directors based on their physical locations irrespective of their nationalities.

while CD BOARD remains negative and statistically significant. Overall, inclusion of alternative measures of foreignness of the board does not affect the magnitude and statistical significance of CD BOARD. These results indicate that our cultural diversity measure is not merely a proxy for foreignness of boards and has a significant explanatory power as a measure of cultural diversity. These results also extend the findings of Masulis et al (2012) suggesting that in addition to the ability of foreign independent directors to effectively fulfil their role due to geographical distance, cultural distance and cultural diversity provides an additional argument for their findings.

4.2.2 Other Measures of 'Foreignness' of the Firm

Cultural diversity of a boards could be correlated with a degree of the firm's presence in foreign product and financial markets. Since companies choose directors according to their advising and monitoring needs, firms with higher degree of foreign orientation, i.e. foreignness, are likely to have greater share of foreign board members and, accordingly, greater cultural board diversity (Hillman et al., 2003; Ferreira, 2010; Oxelheim and Randøy, 2003; Masulis et al., 2012). The extent of foreign operations, in turn, may be related to firm performance. Hence, the observed impact of cultural board diversity on firm performance could be a consequence of a firm's presence in foreign markets, and our CD BOARD measure could be a just proxy for the degree of a firm's foreignness.

We consider two variables to capture the degree of a firm's presence in foreign product markets and the degree of foreign operations: a firm's foreign sales (as % of firm's total sales) and a firm's foreign assets (as % of firm's total assets). While our sample firms, on average, have 43% of their total sales coming from foreign markets, this number is 55% for firms with foreign

directors and only 23% for firms without foreign directors. Similarly, foreign assets constitute on average 26% of total assets for the full sample, 34% for the sub-sample of firms with foreign directors and only 3% for the sub-sample of firms without foreign directors.

In addition, we control for a firm's presence in foreign financial markets. First, we consider whether the firm is listed on the NYSE. Doidge et al. (2004) report that non-US firms listed on the NYSE have significantly higher valuations measured with Tobin's Q compared to firms from the same countries that do not list on the NYSE. Also, a listing on the NYSE potentially calls for a foreign expertise on the board and, therefore, leads to a greater number of foreigners and greater cultural diversity on the board. We collect data on the NYSE listings from the NYSE's web-site. Lastly, we account for a firm having its shares listed any foreign stock exchange outside of the home market. Around 9% of our sample firms have a NYSE listing; this number is 14% for firms with foreign directors and 1% for firms without foreign directors. Similarly, firms with foreign directors are more likely to have a foreign listing compared to firms without foreign directors (26% vs. 3% with sample average of 17%). To control for a firm's presence in foreign financial markets we include a NYSE listing variable (dummy variable that equals one if a firm is listed on the NYSE) and a foreign listing variable (dummy variable that equals one if a firm is listed on a stock exchange outside of the home market (the UK)).

In Panel B of Table X we report the estimation results for Tobin's Q and ROA where we control for different measures of foreignness of the firm. Because these measures are not mechanically correlated with CD BOARD, we conduct these regressions for the full sample. Columns 1.1 and 1.2 of Panel B report the results for foreign sales. We observe that the ratio of foreign sales

is not related to Tobin's Q and its inclusion does not affect the negative effect of CD BOARD on Tobin's Q. Foreign assets is a negative and highly significant determinant of Tobin's Q (reported in columns 1.3 and 1.4), indicating that firms with higher shares of assets located overseas have lower valuations. Nevertheless, CD BOARD remains negative and significant even after controlling for the extent of a firm's foreign operations. Further, we observe that the inclusion of the NYSE listing (columns 1.5 and 1.6) and foreign listing variable (columns 1.7 and 1.8) does not affect Tobin's Q and CD BOARD is not affected by the inclusion of these two variables.

Columns 2.1 – 2.8 in Panel B of Table X report the estimation results of the same analysis for ROA. The results for ROA are broadly consistent with those for Tobin's Q, and our measure of cultural diversity of the board remains to have a significantly negative impact on ROA in all specifications. For the alternative measures of foreignness of the firm, we observe that foreign assets is significantly negative suggesting that ROA is negatively affected when a firm has foreign operations. Also we observe that firms listed on the NYSE have significantly higher ROAs. Both foreign assets and NYSE listing variables are significant whether we exclude or include CD BOARD. However, CD BOARD remains its negative and significant relation with ROA in all specifications.

The results of these tests demonstrate that our measure of cultural diversity of the board is not a proxy for other measures of foreignness, such as foreignness of the board or foreignness of the firm. The results demonstrate that cultural diversity has an important impact on firm performance beyond what can be attributed to members of the board just being foreign or a firm having foreign operations.

4.2.3 The Degree of Cultural Diversity and Its' Impact on Firm Performance

So far we have documented that cultural diversity in boards is negatively related to firm performance. In this section we evaluate whether the degree of cultural diversity matters in explaining firm performance. In order to do this, we break down the CD BOARD variable into four variables depending on the degree of the cultural diversity: 1) no cultural diversity (CD_0), which is a dummy variable that equals one if CD BOARD is zero, and zero otherwise; 2) low degree of cultural diversity (CD_Low), which is a dummy variable that equals one if CD BOARD is greater than zero and less or equal the median value of CD BOARD (0.2222), and zero otherwise; ; 2) medium degree of cultural diversity (CD_Medium), which is a dummy variable that equals one if CD BOARD is greater than the median value of CD BOARD (0.2222) and less or equal the 75th percentile value of CD BOARD (0.8688), and zero otherwise; 2) high degree of cultural diversity (CD_High), which is a dummy variable that equals one if CD BOARD is greater than the 75th percentile value of CD BOARD (0.8688), and zero otherwise. We re-estimate our regressions with these variables instead of CD BOARD. Table XI reports the estimation results for Tobin's Q and ROA (the table does not report the estimation results for control variables for brevity's sake). We can see that the low degree of cultural diversity is positive both for Tobin's Q and ROA and statistically significant for ROA. Medium degree of diversity is insignificant in explaining firm performance. It is the high degree of cultural diversity that significantly negatively affects both Tobin's Q and ROA. This means that when boards are culturally diverse to some degree (low to medium), benefits of presence on the board directors from difference cultural backgrounds compensate or even outweigh the costs associated with cultural diversity. However, in cases when boards have high degrees of cultural diversity, the costs significantly outweigh the benefits of cultural diversity.

4.2.4 Cultural Diversity and Firm Operations

Benefits of cultural diversity could be higher for firms that have more complex operations or have extensive presence in foreign product markets and significant foreign operations. This is because such firms have greater need for international expertise and foreign markets specific knowledge in their boards. Anderson et al. (2011) show that the impact of board heterogeneity on firm performance depends on the degree of firm complexity. In particular, they find that for firms with more complex operations board heterogeneity has a positive impact on firm performance, while for firms with less complex operations board heterogeneity has a negative impact on firm performance. Masulis et al. (2012) show that negative impact of foreign independent directors (FID) on board is mitigated if the firm has stronger presence in the FID's country (measured by foreign sales). In this section we extend analysis of Anderson et al. (2011) and Masulis et al. (2012) and examine how the degree of complexity of a firm's operations and the degree of a firm's foreign operations affect the relationship between cultural board diversity and firm performance.

First, we split the sample into two sub-samples based on the degree of complexity of firm's operations. We use the number of business segments (# of product lines) to measure the degree of complexity of firm's operations. In spirit of our previous finding that the negative impact of cultural diversity is driven by the extreme values of cultural diversity (that are greater than the 75th percentile value) (as reported in Table XI), we focus our analysis on the extreme values (top quarter) of the complexity of a firm's operations. We classify a firm as having complex operations if it operates in more than 4 business segments (4 is the 75th percentile value of this variable) and as having less complex operations if it operates in 4 or less business segments.

Panel A of Table XII reports the estimation results for Tobin's Q and ROA (the table does not report control variables for brevity's sake). We can see that both for Tobin's Q and ROA cultural diversity is negative and significant for the sub-sample of firms with less complex operations and is insignificant for the sub-sample of firms with complex operations.

Second, we consider the extent of a firm's export orientation. We split the sample into two sub-samples based on a firm's foreign sales (as % of total sales). We classify a firm as having strong export orientation if more than 75.87% of its sales comes from foreign markets (75.87% is the 75th percentile value of this variable). Panel B of Table XII reports the estimation results. We can see that both for Tobin's Q and ROA cultural diversity is negative and significant for the sub-sample of firms that have 75.87% or less foreign sales and is insignificant for the sub-sample of firms with strong export orientation.

Third, we consider the extent of a firm's foreign operations measured by a firm's foreign assets (as % of total assets). We classify a firm as having significant foreign operations if more than 51.02% of its assets are located abroad (51.02% is the 75th percentile value of this variable). Panel C of Table XII reports the estimation results. We can see that both for Tobin's Q and ROA cultural diversity is negative and significant for the sub-sample of firms that have 51.02% or less foreign assets and is insignificant for the sub-sample of firms with significant foreign operations.

The findings reported in Table XII suggest that firms with complex operations, strong export orientation and significant foreign operations extract greater benefits from having culturally diverse boards as they utilize unique expertise of foreign directors. The benefits compensate

for the costs of cultural diversity moderating the net impact on firm performance. However, for firms with less complex operations, lower degree of export orientation and lower degree of foreign operations the costs of cultural diversity outweigh the benefits as for these firms we observe a negative and significant impact of cultural diversity on firm performance.

4.3 Robustness Test: Alternative Cultural Frameworks

To examine whether our findings on the impact of cultural diversity on firm performance are robust to the choice of the measure of cultural diversity, we employ three alternative cultural frameworks. First, we use the cultural value scores of Tang and Koveos (2008) that are effectively an updated version of the Hofstede culture scores, as the Hofstede cultural framework is relatively outdated. Tang and Koveos (2008) update the Hofstede culture scores by controlling for changes in economic conditions, such as GDP per capita. Although the Tang and Koveos (2008) updated culture scores are different from the original scores, they build on the same cultural framework. Second, we employ cultural scores from the GLOBE project (House et al., 2004). The GLOBE project relies on alternative cultural dimensions, and produces nine different dimensions along which cultures can differ: performance orientation, assertiveness orientation, future orientation, humane orientation, institutional collectivism, family collectivism, gender egalitarianism, power distance, and uncertainty avoidance. The GLOBE cultural framework also distinguishes between societal practices (“as is”) and societal values (“ought to be”). We use societal practices scores (as employed by Dodd et al., 2013) because these scores reflect actual behaviour and practices. On the other hand, societal values reflect desired behaviour and practices (Smith, 2006). Although some of the cultural dimensions of Hofstede and the GLOBE are comparable, there are significant conceptual and methodological differences between the two cultural frameworks (e.g., Smith, 2006). Third,

we use cultural framework of Schwartz (2006) that is different from both frameworks of Hofstede and the GLOBE. Schwartz's cultural frameworks contains seven cultural value orientations that are interdependent and form three cultural value dimensions. We use Schwartz's three dimensions to calculate the cultural diversity measure.

For each alternative cultural framework, we recalculate the cultural diversity measure as in equation (2) and re-estimate our main model for the full sample (as in Table VI) and for the sub-sample of firms that have at least one foreign director on the board (as in Table VII). In Table XIII we report the results, in Panel A for Tobin's Q and in Panel B for ROA (the table does not report control variables for brevity's sake). In Panel A, we observe that the coefficient estimate on the CD BOARD measure is negative and significant, in line with the findings of our main analysis. The only exception in terms of statistical significance is the relation between the CD BOARD measure based on Schwartz's cultural scores and Tobin's Q, which is negative but not significant at conventional confidence levels. Panel B reports the findings for ROA as the dependent variable. The findings for ROA are similar to those reported in Panel A. CD BOARD measures calculated based on cultural frameworks of Tang and Koveos (2008), GLOBE and Schwartz (2006) yield significant negative relations with ROA. Overall, the results suggest that irrespective of the choice of a cultural framework used to estimate cultural board diversity, cultural diversity of boards has a significant negative impact on firm performance measured with Tobin's Q and ROA.

4.4 Individual Cultural Dimensions

Our results so far strongly suggest that cultural diversity of the board has a negative effect on firm performance. In this section, we address the question of what specific cultural traits may

drive this relation. To assess this, we consider the differences in the individual Hofstede scores, and calculate a measure of cultural diversity of the board (using the centroid measure) based on each cultural dimension. We report the results of these regressions in Table XIV.

INSERT TABLE XX HERE

When we consider the role of individual cultural dimension, we note that all measures of board diversity produce a negative coefficient for both Tobin's Q (Panel A) and ROA (Panel B). However, we observe a significant coefficient for the CD BOARD measure only based on individualism and masculinity. These results suggest that the most important drivers of intergroup behavior on boards are the differences rooted in the individualism-collectivism and masculinity-femininity dimensions of culture. Differences in the perceived importance of self-assertion, competitiveness, group cohesiveness and group integration (examples of differences that characterize the individualism-collectivism dimension), and also differences in the perceived importance of assertive behavior, competition, material success, interpersonal relationships (examples of differences pertaining to the masculinity-femininity dimension), seem to be the principal source of affective conflict on boards.¹⁶ These findings are in line with findings from the related literature. For example, Gudykunst and Bond (1997) and Kirkman et al. (2006) show that the individualism dimension of culture is the most salient dimension of cultural heterogeneity in intergroup processes. Elron (1997) also finds that individualism and masculinity dimensions are the most relevant for top management team performance, and, consequently, for firm performance.

¹⁶ Differences between cultural dimensions of masculinity and femininity are not the same as gender differences.

We do not find that the differences in power distance and uncertainty avoidance among members in corporate boards are significant in explaining firm performance. Since board members have a similar position and status in the company, culturally determined perceptions of power differences are not likely to weigh in on board decision-making. There are no superior-subordinate relationships in boards to activate such perceptions. Uncertainty avoidance dimension of cultural diversity is linked in the literature to the level of tolerance toward uncertainty and need for rules. Elron (1997) links uncertainty avoidance to cognitive conflict (positive relationship).

5. Conclusion

In this paper, we examine the impact of cultural diversity in corporate boards of directors on firm performance. We construct a measure of cultural diversity by calculating the centroid of cultural distances between each board member using Hofstede's cultural framework. We find that cultural diversity in boards negatively affects firm performance (measured with Tobin's Q and ROA), indicating that the frictions imposed by cultural diversity outweigh the potential benefits. We conduct a range of tests to assess the robustness of our results. The results hold after controlling for potential endogeneity using a dynamic specification of lagged cultural diversity on current performance, and by implementing an instrumental variables approach. The results are further robust to a wide range of board and firm characteristics, including various measures of 'foreignness' of the board (i.e. presence on the board of foreigners and representatives of various nationalities) and 'foreignness' of the firm (i.e. a firm's presence in foreign product markets and foreign financial markets). Furthermore, we find that not all firms are affected equally by cultural diversity. Only firms with the highest levels of cultural diversity

see a reduction in firm performance. The negative impact of cultural diversity is also mitigated by the complexity of the firm and the size of the firm's foreign sales and foreign operations. Finally, we find that not all aspects of cultural differences are equally important and that it is mainly the diversity in individualism and masculinity that affect effectiveness of boards of directors.

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Table I. Number of Directors from each Country by Year

Nationality	2002	2004	2006	2008	2010	2012	Total	% Total
Australia	16	16	21	22	25	31	131	1.19%
Austria	1	1	1	3	3	7	16	0.14%
Belgium	5	5	6	7	6	7	36	0.33%
Brazil	1	2	1	1	1	2	8	0.07%
Canada	7	10	9	13	20	23	82	0.74%
Chile	3	5	7	7	6	5	33	0.30%
China	1	2	1	1	1	1	7	0.06%
Colombia	0	0	1	1	1	1	4	0.04%
Czech Republic	1	0	0	0	0	2	3	0.03%
Denmark	0	0	4	2	4	4	14	0.13%
Finland	0	0	2	2	1	1	6	0.05%
France	22	25	26	30	31	35	169	1.53%
Germany	17	15	19	34	22	26	133	1.20%
Ghana	1	0	0	0	1	1	3	0.03%
Greece	3	4	6	5	4	4	26	0.24%
Hong Kong	1	1	1	1	0	0	4	0.04%
India	1	4	9	7	11	15	47	0.43%
Indonesia	0	0	0	0	0	4	4	0.04%
Ireland	23	27	31	26	26	28	161	1.46%
Israel	1	1	4	4	2	1	13	0.12%
Italy	5	5	5	4	5	10	34	0.31%
Jordan	0	0	3	4	4	4	15	0.14%
Kazakhstan	0	0	3	3	4	4	14	0.13%
Kenya	0	0	0	0	2	4	6	0.05%
Korea	0	0	1	0	0	0	1	0.01%
Malaysia	3	2	2	3	2	2	14	0.13%
Mexico	0	0	0	5	4	6	15	0.14%
Netherlands	17	16	24	35	32	35	159	1.44%
New Zealand	2	2	0	3	7	8	22	0.20%
Nigeria	0	0	2	3	2	1	8	0.07%
Norway	0	1	3	2	3	2	11	0.10%
Pakistan	0	1	1	0	1	1	4	0.04%
Peru	0	0	2	1	2	2	7	0.06%
Philippines	0	0	1	1	1	1	4	0.04%
Poland	0	0	0	1	0	0	1	0.01%
Portugal	1	1	1	1	2	3	9	0.08%
Russian Federation	2	2	3	4	1	8	20	0.18%
Singapore	5	5	4	5	5	5	29	0.26%
South Africa	22	17	20	20	26	29	134	1.21%
Spain	0	3	5	8	7	5	28	0.25%

Table I (continued)								
Nationality	2002	2004	2006	2008	2010	2012	Total	% Total
Sweden	14	13	14	11	14	16	82	0.74%
Switzerland	2	2	2	8	8	8	30	0.27%
Turkey	1	1	1	0	0	0	3	0.03%
Ukraine	0	0	0	2	2	3	7	0.06%
United Arab Emirates	1	1	2	3	3	4	14	0.13%
United Kingdom	1,192	1,373	1,479	1,560	1,613	1,620	8,837	79.94%
United states of America	96	111	132	145	135	158	777	7.03%
Total	1,467	1,674	1,859	1,998	2,050	2,137	11,054	
% of foreign directors	18.75%	17.98%	20.44%	21.92%	21.32%	24.19%	20.06%	

Note: This table report the distribution of directors from different countries on a year-by year basis. Data are reported biannually for the years 2002-2012. Totals are reported in director-year; Percentage Total reports the percentage of directors coming from a specific country.

Table II. Characteristics of Domestic versus Foreign Directors

Nationality	Gender (% Male)	Age	Independence
All Directors	91.10%	55.31	52.67%
Domestic (UK)	92.20%	54.99	51.48%
Foreign	86.93%	56.53	57.16%
Difference	-5.28%***	1.54***	5.68%***

Note: This table reports differences in Gender, Age and Independence for the UK directors versus non-UK directors. For Gender, we report the percentage of males on the board. For Age, we report the average age in years. For Independence, we report the percentage of independent directors on the board. The last row of the table reports the difference between UK versus non-UK directors, and we test significance of this difference using a t-test. *** indicates significance at the 1% level.

Table III. Foreign Board Members/Nationalities in Companies

<i>Panel A: Number of Foreigners on Board</i>							
# of Foreign Board Members	2002	2004	2006	2008	2010	2012	Total
0	75	88	92	87	90	81	513
1	34	29	33	39	53	52	240
2	25	29	30	38	29	34	185
3	13	17	15	16	18	18	97
4	10	9	15	14	16	17	81
5	1	10	14	15	12	18	70
6	6	1	5	6	9	7	34
7	4	5	5	7	5	6	32
8	3	2	1	6	1	4	17
9	1	1	2	0	1	3	8
10	1	0	1	0	2	2	6
11	0	1	1	1	2	2	7
Total	173	192	214	229	230	244	1,290
% of Firms with Foreigners	56.65%	54.17%	56.81%	62.01%	62.18%	66.80%	60.20%

<i>Panel B: Number of Nationalities Represented on Board</i>							
# of Foreign Nationalities	2002	2004	2006	2008	2010	2012	Total
0	75	88	92	87	90	81	513
1	53	50	55	60	67	74	359
2	26	29	36	43	40	38	212
3	14	18	16	21	20	23	112
4	4	4	11	13	15	17	64
5	0	2	3	4	4	8	22
6	1	1	1	0	2	1	6
7	0	0	0	0	0	2	2
Total	173	192	214	229	238	244	1,290

Note: This table reports the distribution of foreigners on corporate boards in the UK for the sample period 2002-2012. Panel A reports the number of companies for which X members of the board are foreigners. Panel B report the number of companies for which X nationalities sit on the board. We present firm-year observations.

Table IV. Firm-level Characteristics of Boards

	CD BOARD	# of Board Members	# of Foreign Directors	Gender (% male)	% Independent	Avr. Age	Age Range	Chairman / CEO
<i>Panel A. Summary Statistics</i>								
Mean	0.5148	8.67	1.82	91.41%	51.81%	55.11	24.18	0.089
Median	0.2222	8.00	1.00	92.31%	50.00%	55.27	23.00	0.0
Min	0.0	2.00	0.0	40.00%	0.0%	39.00	3.00	0.0
Max	3.3603	19.0	11.0	100.0%	100.0%	70.33	50.00	1.0
Firms with FDs	0.8546	9.37	3.02	90.82%	53.74%	55.51	23.18	0.10
Firms without FDs	0.0	7.60	0.0	92.30%	48.90%	54.52	24.58	0.07
<i>Difference</i>	<i>0.855***</i>	<i>1.77***</i>	<i>3.02***</i>	<i>-1.5%***</i>	<i>4.84%***</i>	<i>0.99***</i>	<i>-1.40**</i>	<i>0.028*</i>
<i>Panel B. Average Value By Year</i>								
2002	0.4416	8.48	1.58	95.06%	44.74%	53.51	25.00	0.097
2004	0.4284	8.72	1.57	94.13%	46.24%	54.05	24.98	0.106
2006	0.5022	8.69	1.78	91.68%	50.52%	54.50	24.50	0.096
2008	0.5426	8.72	1.92	91.49%	52.55%	55.14	24.38	0.095
2010	0.5341	8.61	1.84	90.95%	55.47%	56.06	23.50	0.081
2012	0.6007	8.76	2.12	86.82%	58.10%	56.68	23.18	0.064

Note: This table presents firm-level characteristics of the board of our sample of UK firms per year. CD BOARD is our centroid measure cultural diversity in the board and is computed following Equation (2). # of Foreign Directors is the average number of board members that have a foreign nationality. # of Board Members is the average board size measures by the number members. Av. Gender is the percentage of male board members. % Independent is the percentage of independent board members. Av. Age is the average age (in years) of all board members. Age Range is the average difference between the oldest and youngest member of the board (in years).

Table V. Summary Statistics: Firm Performance and Firm Characteristics

Variable	N	Mean	Median	Min	Max	Mean for sub-samples		Difference
						Firms with FDs	Firms without FDs	
<i>Panel A. Firm performance</i>								
Tobin's Q	1,260	1.97	1.57	0.65	8.29	1.99	1.95	0.04
ROA	1,289	11.05	9.60	-14.02	38.46	10.77	11.49	-0.73
<i>Panel B. Firm Characteristics</i>								
Firm size	1,261	4,752.3	976.2	9	111,714.9	7,170.1	1,209.6	5,940.5***
Leverage	1,289	0.23	0.21	0	1.33	0.229	0.234	-0.01
Firm age	1,290	69.28	48.0	0	297.0	74.24	61.77	12.47***
N business segments	1,245	3.11	3.00	1	10	3.32	2.81	0.51***
Return volatility	1,261	2.25	1.90	0.61	10.79	2.26	2.24	0.02
Sales growth	1,250	0.11	0.08	-0.42	1.05	0.114	0.104	0.01

Table VI. Cultural Diversity and Firm Performance

	Tobin's Q		ROA	
CD BOARD	-0.23*** (-2.81)	-0.21** (-2.46)	-1.57*** (-2.62)	-1.45** (-2.42)
<i>Board characteristics</i>				
Directors' age range		0.16 (0.98)		0.81 (0.59)
Gender (male)		-0.29 (-0.52)		2.62 (0.65)
Board size		-0.43* (-1.74)		-2.01 (-1.26)
Chairman/CEO duality		0.13 (0.65)		0.05 (0.04)
Board independence		-0.12 (-0.31)		-2.23 (-0.99)
<i>Firm characteristics</i>				
Firm size	0.10** (2.11)	0.14** (2.58)	0.76** (2.31)	1.04*** (2.84)
Leverage	-0.60 (-1.50)	-0.54 (-1.39)	-1.44 (-0.49)	-1.01 (-0.35)
Firm age	-0.15** (-2.54)	-0.15** (-2.44)	-0.28 (-0.72)	-0.21 (-0.51)
N business segments	-0.20** (-2.36)	-0.19** (-2.19)	-2.04*** (-3.25)	-1.97*** (-3.11)
Return volatility	-0.06 (-0.98)	-0.05 (-0.81)	-0.96** (-2.57)	-0.89** (-2.35)
Sales growth	0.73*** (3.45)	0.69*** (3.23)	5.21*** (2.79)	4.80** (2.59)
Constant	2.10*** (4.32)	2.49** (1.49)	14.31*** (4.00)	11.94 (1.55)
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	1,200	1,200	1,200	1,200
R-squared	0.18	0.18	0.11	0.11

Note: Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

SE clustered by firm

Table VII. Tobin's Q & ROA: Directional Causality and Performance Persistence

	Tobin's Q		ROA	
CD BOARD $t-2$	-0.18**	-0.20***	-1.79**	-0.92
	(-2.38)	(-2.86)	(-2.29)	(-1.57)
Firm Performance Var $t-2$		0.52***		0.46***
		(8.31)		(8.02)
<i>Board characteristics</i>				
Directors' age range	0.13	0.04	-0.28	-0.65
	(0.77)	(0.31)	(-0.21)	(-0.75)
Gender (male)	-0.58	-0.23	0.86	1.40
	(-0.93)	(-0.53)	(0.19)	(0.42)
Board size	-0.52*	-0.37*	-1.49	-1.09
	(-1.96)	(-1.86)	(-0.85)	(-0.86)
Chairman/CEO duality	0.30	0.05	1.46	1.00
	(1.04)	(0.28)	(0.84)	(0.86)
Board independence	-0.20	-0.13	-1.07	-0.25
	(-0.47)	(-0.38)	(-0.39)	(-0.13)
<i>Firm characteristics</i>				
Firm size	0.09	0.10**	0.97**	0.57*
	(1.55)	(2.01)	(2.24)	(1.95)
Leverage	-0.34	-0.30	0.61	0.19
	(-0.73)	(-1.06)	(0.16)	(0.08)
Firm age	-0.14**	-0.03	-0.36	-0.17
	(-2.29)	(-0.62)	(-0.76)	(-0.52)
N business segments	-0.19**	-0.08	-1.81***	-0.97*
	(-2.18)	(-1.40)	(-2.73)	(-1.88)
Return volatility	-0.18***	-0.10*	-0.99**	-0.93**
	(-2.89)	(-1.82)	(-2.17)	(-2.39)
Sales growth	0.62***	0.12	4.58**	4.93**
	(2.98)	(0.57)	(2.09)	(2.53)
Constant	4.31***	2.36***	17.72**	12.10**
	(3.76)	(2.89)	(2.01)	(2.13)
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	780	765	780	779
R-squared	0.20	0.42	0.11	0.35

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

SE clustered by firm

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Table VIII. Instrumental Variables Regressions

	First Stage	Second Stage	
	CD BOARD	Tobin's Q	ROA
CD BOARD		-0.58** (-2.11)	-3.45* (-1.92)
<i>Board characteristics</i>			
Directors' age range	0.03 (0.40)	0.18* (1.67)	0.92 (1.10)
Gender (male)	0.08 (0.46)	-0.25 (-0.61)	2.87 (1.05)
Board size	0.30*** (3.93)	-0.32 (-1.59)	-1.41 (-1.17)
Chairman/CEO duality	-0.08 (-1.58)	0.12 (0.94)	-0.03 (-0.04)
Board independence	0.19* (1.62)	-0.04 (-0.16)	-1.81 (-1.26)
<i>Firm characteristics</i>			
Firm size	0.07*** (4.99)	0.18*** (3.77)	1.24*** (4.06)
Leverage	0.11 (1.24)	-0.50* (-1.76)	-0.82 (-0.42)
Firm age	-0.06*** (-3.58)	-0.17*** (-4.33)	-0.32 (-1.29)
N business segments	-0.07*** (-2.61)	-0.21*** (-3.74)	-2.09*** (-5.12)
Return volatility	0.04** (2.08)	-0.03 (-0.49)	-0.79** (-2.35)
Sales growth	0.14 (1.56)	0.73*** (3.43)	5.03*** (3.11)
<i>Instrumental variables</i>			
UK small town	-0.22*** (-7.25)		
Directors' average age	0.94*** (3.69)		
Constant	-3.91*** (-3.84)	2.29*** (3.29)	10.87** (2.26)
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
Observations	1,200	1,200	1,200
R-squared	0.30	0.16	0.09
Wu-Hausman $\chi^2(1)$ (p-value)		1.989 (0.1584)	1.2734 (0.2591)
Sargan $\chi^2(1)$ (p-value)		0.7241 (0.3948)	1.5801 (0.2087)

z-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Robust SEs

Table IX. Tobin's Q & ROA: Firms with foreign directors sub-sample

	Tobin's Q		ROA	
CD BOARD	-0.36***	-0.37***	-1.72**	-1.71**
	(-2.88)	(-2.92)	(-2.15)	(-2.17)
<i>Board characteristics</i>				
Directors' age range		0.23		0.29
		(1.22)		(0.19)
Gender (male)		-0.74		-3.09
		(-1.12)		(-0.73)
Board size		-0.53*		-2.18
		(-1.75)		(-1.19)
Chairman/CEO duality		-0.02		-0.33
		(-0.09)		(-0.22)
Board independence		-0.02		-0.61
		(-0.03)		(-0.21)
<i>Firm characteristics</i>				
Firm size	0.06	0.09	0.67*	0.84*
	(0.97)	(1.37)	(1.72)	(1.93)
Leverage	-0.79	-0.69	-4.63	-4.11
	(-1.29)	(-1.17)	(-1.24)	(-1.15)
Firm age	-0.12	-0.12	0.22	0.18
	(-1.51)	(-1.53)	(0.49)	(0.39)
N business segments	-0.19	-0.19	-1.68**	-1.65**
	(-1.59)	(-1.55)	(-2.14)	(-2.06)
Return volatility	0.00	0.01	0.11	0.15
	(0.02)	(0.08)	(0.21)	(0.28)
Sales growth	0.74***	0.67***	5.97**	5.68**
	(3.15)	(2.95)	(2.51)	(2.44)
Constant	2.43***	3.26**	10.68**	16.51*
	(3.45)	(2.43)	(2.11)	(1.73)
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	714	714	714	714
R-squared	0.16	0.18	0.14	0.15

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1
SE clustered by firm

Table X. Alternative Measures of ‘Foreignness’ of Board and Firm

	Tobin’s Q								ROA								
	(1.1)	(1.2)	(1.3)	(1.4)	(1.5)	(1.6)	(1.7)	(1.8)	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)	(2.6)	(2.7)	(2.8)	
<i>Panel A. ‘Foreignness’ of Board</i>																	
Foreign directors share	-1.10*** (-2.96)	-0.56 (-1.06)							-2.07 (-0.81)	1.85 (0.58)							
Nationalities ratio			-1.10* (-1.74)	0.29 (0.30)							-5.15 (-1.21)	1.28 (0.22)					
FID dummy					-0.19 (-1.14)	-0.06 (-0.37)							-2.43** (-1.97)	-1.92 (-1.56)			
FID share							-1.16** (-2.19)	-0.37 (-0.57)								-4.08 (-0.90)	-0.02 (-0.00)
CD BOARD		-0.28* (-1.66)		-0.40** (-2.14)		-0.36*** (-2.75)		-0.33** (-2.24)		-2.01** (-2.10)		-1.86* (-1.74)		-1.42* (-1.79)		-1.71* (-1.95)	
Control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Industry FEs	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Year FEs	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Observations	714	714	714	714	714	714	714	714	714	714	714	714	714	714	714	714	
R-squared	0.17	0.18	0.16	0.18	0.15	0.18	0.16	0.18	0.13	0.15	0.14	0.15	0.14	0.15	0.13	0.15	
<i>Panel B. ‘Foreignness’ of Firm</i>																	
Foreign sales	-0.00 (-1.31)	-0.00 (-0.82)							-0.01 (-0.54)	0.00 (0.07)							
Foreign assets			-0.66*** (-3.45)	-0.60*** (-3.18)							-2.99** (-2.37)	-3.58*** (-2.69)					
NYSE listing					0.13 (0.59)	0.17 (0.73)							2.65* (1.93)	2.91** (2.10)			
Foreign listing							-0.06 (-0.43)	-0.03 (-0.21)							-0.05 (-0.06)	0.18 (0.18)	
CD BOARD		-0.18** (-2.24)		-0.14* (-1.79)		-0.21** (-2.47)		-0.20** (-2.40)		-1.46** (-2.40)		-1.36** (-2.25)		-1.53*** (-2.63)		-1.47** (-2.52)	
Control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Industry FEs	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Year FEs	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Observations	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	
R-squared	0.18	0.19	0.20	0.20	0.18	0.19	0.18	0.19	0.10	0.11	0.11	0.12	0.11	0.12	0.10	0.11	

Table XI. The Degree of Cultural Diversity: Subsample Analysis

	Tobin's Q					ROA				
CD_0	-0.00 (-0.01)					0.01 (1.15)				
CD_Low	0.15 (1.29)					0.02** (2.35)				
CD_Medium	0.09 (0.72)					-0.00 (-0.38)				
CD_High	-0.31*** (-2.72)					-0.02*** (-2.75)				
	-0.24* (-1.74)					-0.02** (-2.44)				
Control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
R-squared	0.18	0.18	0.18	0.19	0.19	0.11	0.11	0.10	0.11	0.12

Note: Robust t-statistics in parentheses
 *** p<0.01, ** p<0.05, * p<0.1
 SE clustered by firm

Table XII. Cultural Diversity, Firm Performance and Firm's Operations

	Tobin's Q		ROA	
<i>Panel A. By Complexity of Firm's Operations</i>				
	# of business segments ≤4	# of business segments >4	# of business segments ≤4	# of business segments >4
CD BOARD	-0.22** (-2.42)	0.23 (0.88)	-0.01* (-1.94)	-0.02 (-1.61)
Control variables	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	955	273	955	273
R-squared	0.20	0.17	0.09	0.23
<i>Panel A. By Firm's Presence in Foreign Product Markets</i>				
	foreign sales ≤75.87%	foreign sales >75.87%	foreign sales ≤75.87%	foreign sales >75.87%
CD BOARD	-0.21** (-2.11)	-0.03 (-0.29)	-0.02** (-2.37)	0.00 (0.09)
Control variables	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	892	308	892	308
R-squared	0.20	0.32	0.13	0.22
<i>Panel B. By Firm's Foreign Operations</i>				
	foreign assets ≤51.02%	foreign sales >51.02%	foreign assets ≤51.02%	foreign sales >51.02%
CD BOARD	-0.23** (-2.15)	-0.08 (-0.83)	-0.02** (-2.23)	-0.01 (-0.92)
Control variables	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	893	307	893	307
R-squared	0.20	0.28	0.13	0.22

Note: Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

SE clustered by firm

Table XIII. Alternative Cultural Frameworks

<i>Panel A: Tobin's Q</i>						
	Tang & Koveos		GLOBE		Schwartz	
	all firms	# foreign board members >0	all firms	# foreign board members >0	all firms	# foreign board members >0
CD BOARD	-0.21** (-2.41)	-0.43*** (-2.86)	-0.12* (-1.71)	-0.32*** (-2.76)	-0.33 (-1.24)	-0.95** (-2.24)
Control variables	YES	YES	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	1,155	669	1,123	637	1,081	595
R-squared	0.19	0.18	0.19	0.17	0.19	0.17

<i>Panel B: ROA</i>						
	Tang & Koveos		GLOBE		Schwartz	
	all firms	# foreign board members >0	all firms	# foreign board members >0	all firms	# foreign board members >0
CD BOARD	-0.02** (-2.59)	-0.02** (-2.11)	-0.01** (-2.24)	-0.01** (-2.00)	-0.03* (-1.70)	-0.04* (-1.90)
Control variables	YES	YES	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	1,155	669	1,123	637	1,081	595
R-squared	0.11	0.14	0.11	0.12	0.11	0.14

Robust t-statistics in parentheses ***
p<0.01, ** p<0.05, * p<0.1

Table XIV. Individual Culture Scores

<i>Panel A: Tobin's Q</i>				
CD BOARD (IDV)	-0.20**			
	(-2.56)			
CD BOARD (MAS)		-0.15*		
		(-1.93)		
CD BOARD (PDI)			-0.09	
			(-1.11)	
CD BOARD (UAI)				-0.03
				(-0.34)
Control variables	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	1,200	1,200	1,200	1,200
R-squared	0.18	0.19	0.18	0.18
<i>Panel B: ROA</i>				
CD BOARD (IDV)	-1.44***			
	(-2.70)			
CD BOARD (MAS)		-1.13**		
		(-2.19)		
CD BOARD (PDI)			-0.81	
			(-1.42)	
CD BOARD (UAI)				-0.61
				(-1.14)
Control variables	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	1,200	1,200	1,200	1,200
R-squared	0.10	0.11	0.10	0.11