THE IMPACT OF BOARD DIVERSITY ON FIRM PERFORMANCE – THE CASE OF GERMANY

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Abstract

Numerous mergers and acquisitions, and the rise of MNCs with global customer bases have exposed the German board of directors to a variety of cultures. Despite the obvious relevance for corporate governance, the effect that cultural diversity of boards exerts on firm performance, Germany has been a blank spot in this literature. Using a sample of 101 German publicly listed companies, this empirical study answers if the level of *cultural variety* and *cultural distance* in boards of directors have an influence on firm performance. The results of this study indicate that cultural variety in boards of directors has a linear, negative influence on operational firm performance (as measured by ROI and ROE). This reinforces the fundamental assertion that executives' cultural values shape their mindsets and orientations, and thus influence their decision-making. The results of this study, therefore, indicate that cultural diversity is an important diversity dimension that further on should be given careful consideration in research. Based on the findings, we argue against the blindfold implementation of (political) regulations in the area of board diversity.

Keywords: Corporate Governance, Board of Directors, Firm Performance, Cultural Diversity, Cultural Variety, Cultural Distance, Internationalization

Authors' individual contribution: Conceptualization – U.B., M.S., and K.A.; Methodology – U.B. and M.S.; Investigation – U.B. and M.S.; Data Curation – U.B., M.S. and K.A.; Writing – U.B., M.S., K.A., and E.D.

1. INTRODUCTION

In 2006 German Chancellor Angela Merkel became the patron of Germany's Diversity Charter ("Charta der Vielfalt"), a company initiative promoting diversity in firms. Yet numerous firms have voluntarily signed the charter, affirming their compliance to diversity reinforcement and encouragement. The German Corporate Governance Code (GCGC), a soft-law regulation aiming to foster good corporate governance, especially for listed companies, also included the subject of diversity since 2009 (GCGC, 2009). In fact, during the last few years the concept of diversity has increasingly gained in popularity (Díaz-Fernández, González-Rodríguez, & Simonetti, 2020), and has simultaneously remained a topic of public discourse ever since (Naciti, 2019). Consider the following four examples that reflect the increasing importance of diversity: first, Germany pursued a controversial debate about the introduction of fixed quotas for women on corporations' supervisory boards (Bschorr & Lorenz, 2013, pp. 34–35), an attempt to increase diversity among the gender. Second, caused by demographic change and affected by a raised retirement age — retirement age is to be increased gradually from 65 to 67 years by 2023 — a growing number of older age group German employees will

prospectively account for a larger proportion of economic performance, hence creating unprecedented age differences among the workforce. Third, current European megatrends such as migration and the anticipated shortage of skilled labor in Germany both cause advancing labor migration and attempts to recruit skilled foreign employees (Geis, 2012), so that the workforce is steadily becoming more diverse concerning its national origin and cultural background. Last but not least, the expansion of the European Union, numerous joint ventures and the rise of multinational companies (MNCs) with global customer bases have exposed boards to a variety of cultures (Brunow & Nijkamp, 2018).

Despite this obvious relevance, the effect that cultural board diversity exerts on firm performance has mostly been considered in empirical studies from the international research arena (e.g., Nielsen B. B. & Nielsen S., 2013). Rarely have researchers included Germany in their analyses of the subject (Süß, 2012, p. 159). With growing levels of international activities of German firms and in view of the fact that the German labor market is characterized by increasing internationalization as well, reliable scientific knowledge for the case of Germany is yet urgently required. The purpose of this study is to draw on this research gap by investigating the effect that cultural diversity on the board of directors has on German firms' performance. We are doing so, in answering the following four research questions:

1. Does the level of *cultural variety* on boards of directors have an influence on firm performance? This question is intended to investigate how the sheer existence of various cultures impacts on performance.

2. Does the level of cultural distance between board members have an influence on firm performance? Compared to and extending the first question, the focus is on each culture's unique characteristics (following the concepts of Hofstede and GLOBE).

3. Does the effect of board cultural diversity on firm performance vary depending on the level of engagement in international activities?

4. Does the level of cultural variety and cultural distance vary depending on a firm's industry membership?

Based on the results, the paper stresses the importance of looking at different attributes of diversity and firm performance in Germany. Most of the studies on diversity only focused on one single attribute. It also highlights the importance of more qualitative and quantitative methods and studies for the development of an understanding of the diversity in boards and firm performance relationship. The remainder of this study is organized as follows. Section 2 provides an overview of the literature on cultural diversity in top management teams and firm performance and presents the testable hypotheses. Section 3 discusses the data and methods of the empirical study performed. In Section 4 we discuss the results of the four above mentioned research questions. Section 5 concludes the paper.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

There is no agreed definition of what attributes or dimensions board diversity covers. One can distinguish between board diversity on observable or readily detectable attributes and less visible or underlying attributes. Gender, ethnicity, nationality, and age board diversity can be derived from these observable or readily detectable attributes. Other attributes of board diversity like education and functional background can be derived from less visible or underlying attributes.

Academic research has to a vast extent dealt with the board diversity firm performance relationship (for reviews see van Knippenberg & Schippers, 2007). Stimulated primarily by Pfeffer (1983), the organizational demography approach argued for the use of demographic variables, such as age, sex, educational level, length of service in residence, race, and so forth (p. 303) when operationalizing board diversity and investigating its impact on firm performance. Following Pfeffer (1983), a large empirical body of literature investigated that link, while spanning various types of diversity. However, results showed largely inconsistent findings, with some studies reporting a positive relationship (Eisenhardt & Schoonhoven, 1990), a negative relationship (Smith et al., 1994, p. 412), or no relationship at all (West & Schwenk, 1996). Subsequently, models considering the underlying board processes, for instance psychological dimensions (Smith et al., 1994), were suggested. The emerging research stream on deep-level diversity studied underlying attributes such as attitudes, values, and beliefs.

When it comes to cultural diversity, repeated calls for the consideration of cultural, psychologically underlying attributes, as for instance by Earley and Mosakowski (2000), have widely been ignored. Instead, the U.S.-based literature has mainly focused on racial diversity, while the few, if any, European-based studies concerned national or ethnic diversity as substitutes for truly cultural diversity. Importantly, however, all of these diversity dimensions fall into the domain of visible, demographic characteristics. Richard (2000) explored the relationship between cultural diversity and firm performance as measured by productivity and return on equity. Using a sample of U.S. firms, he found a significant positive influence of cultural diversity on firm performance. Carpenter (2002) tested the effect of cultural diversity in the sense of internationality — which can be regarded as a proxy for cultural variety — in a U.S.-based study of several diversity dimensions and likewise reported a positive relationship between diversity levels and firm performance. Oxelheim and Randøy (2003) investigated the influence of board internationality in Norway and Sweden by studying the effect on firm value as measured by *Tobin's q* and found a highly significant positive relationship. However, when Carter et al. (2010) more recently tested the same relation using a sample of large U.S.-based firms, they found no significant effects. Rose (2007) studied the effect that national diversity — measured as the percentage of foreigners on the board — exerts on firm performance as measured by *Tobin's q*. Using a sample of Danish firms, Rose

found no effect on performance. Nielsen B. B. and Nielsen, S. (2013) investigated the impact of top management's national diversity on firm performance using a large sample of Swiss firms and report a positive relationship. Summarizing, it is remarkable that most studies that conceptualized diversity in the form of internationality found a positive effect on firm performance.

While many studies have presumed linear relationships between diversity and performance, testing both linear and nonlinear predictions helps to prevent a hasty exclusion of possible explanations. In this study, we will differentiate between cultural variety and cultural distance. This is to follow Harrison and Klein (2007, pp. 1202–1207), who suggested a diversity typology that distinguishes between diversity as *variety* and *separation.* Cultural variety is minimized if all board members come from the same culture; it is maximized if every board member comes from a different culture each. Diversity as separation will be minimized if all board members score equally on that specific dimension. When all respective value dimensions are incorporated (5 for the Hofstede (1980) data and 9 for the GLOBE project data), separation in the present study is termed cultural distance.

2.1. A linear prediction: cultural variety and firm performance

If cultural variety is at its minimum, all board members belong to the same culture; it is at its maximum precisely when each and every board member belongs to a different culture. Supported by upper echelons theory (Díaz-Fernández et al., 2020), a culturally varied board will be better than a homogeneous one at comprehensively perceiving the firm's strategic situation because of culture's influence on perception and cognition. Cultural variety also fosters the emergence of diverse knowledge through the pooling of groups' resources, which has been found as a determinant of a firm's rate of success (Smith, Collins, & Clark, 2005, p. 355).

In a group discussion, a culturally varied board exhibits more critical thinking and thus avoids premature consensus (Tjosvold, 2008, p. 21). De Wit, Greer, and Jehn (2012, p. 373) found that the positive relationship between task conflict and performance is especially prevalent in top management teams, such as the board of directors. Board members on highly varied boards might indeed discern the value in variety, which further enhances performance (Richard, Barnett, Dwyer, & Chadwick, 2004, p. 256). At the same time, on a fully culturally varied board, the processes of social categorization as a result of diverging social identities are unlikely to occur. If subgroup members are evenly diffused over the culture-categories, which is the case at the highest level of cultural variety, in-group/out-group identities are likely to be reduced. The majority of studies, which operationalized cultural diversity as what is here termed cultural variety, reported a positive relationship between board diversity and firm performance. Based on these observations of both theory and previous empirical findings it is thus proposed:

H1: Cultural variety is positively related to firm performance.

2.2. A linear prediction: cultural distance and firm performance

The cultural distance was defined as the level of dissimilarity of cultures on a board of directors. When cultural distance is at its minimum, all board members equally hold the same values as indicated by cultural dimensions; it is at its maximum when board members are divided into two sub-units at opposing endpoints of the (multi-dimensional) diversity continuum. A maximum level of cultural distance, i.e., maximized dissimilarity of board members' values, therefore indicates the existence of two utterly opposing cultures. Obviously, this constellation is associated with a fairly low level of cultural variety. Although it may still imply the emergence of different insights, multiple perspectives, and miscellaneous knowledge, such an effect is arguably less prevalent than on boards with lower cultural distance (and higher cultural variety). Accordingly, also the positive effects of task conflict will be less distinct. In fact, at excessively high levels, the effects of task conflict were even found to be detrimental to performance outcomes. On a board with high cultural distance, however, increasing task conflict with multiple perspectives and critical thinking will likely lead to challenging each other's viewpoints due to board members' differing value orientations. A board with high cultural distance among its members is also likely to experience higher levels of relationship conflict, which have mainly been associated with cultural distance's negative effects on performance outcomes (de Wit et al., 2012, p. 362). Indications for the existence of relationship conflict and its negative effects due to a board's cultural distance are also given by self-verification theory (Blalock, 1967). The effect is stronger the more culturally distant the opposing sub-units are. It is hence predicted:

H2: Cultural distance is negatively related to firm performance.

2.3. A curvilinear prediction: cultural variety and firm performance

This hypothesis is based on a more fine-grained integration of both the positive and negative effects of conflict as explained by the information processing/decision-making perspective as well as by social identity and self-verification theory (Blalock, 1967). The integration of these theories and the according levels of conflict — not as contrasting, but rather complementary — signifies that there might not be a linear relationship between cultural variety and firm performance, but in fact, two ranges (low to moderate and moderate to high levels), which are associated with different group dynamics and thus with different performance outcomes (Amabile, 1988, pp. 148–163). More precisely, we assume that at low to moderate levels of cultural variety, the negative group dynamics as a result of relationship conflict are stronger than the positive dynamics as a result of task conflict. Accordingly, low to moderate levels of cultural variety on a board of directors will have a negative effect on firm performance. Further, we assume that at moderate

to high levels of cultural variety, the positive group dynamics as a result of task conflict will be stronger than the negative effects of relationship conflict. Accordingly, moderate to high levels of cultural variety on a board of directors will have a positive effect on firm performance.

It is hypothesized here that these negative consequences are stronger in terms of performance outcomes than the positive effects induced by human capital assets such as knowledge creation and task conflict. With growing levels of cultural variety, a higher number of cultures are present on the board, so that the cultural subgroups, in turn, become smaller. The smaller the subgroups, however, the smaller are common bases for psychological subgroup formation, so that in-group/out-group identities are likely to be reduced. Integrating these levels of diversity into one hypothesis, it is predicted:

H3: Cultural variety has an upright U-shaped relationship with firm performance.

2.4. A curvilinear prediction: cultural distance and firm performance

This hypothesis is based on a more fine-grained integration of both the positive and negative effects of conflict as explained by the information and decision-making perspective as well as by social identity and self-verification theory. Specifically, we assume that at low to moderate levels of cultural distance, the positive group dynamics as a result of knowledge creation and task conflict are stronger than the negative dynamics as a result of relationship conflict. Accordingly, low to moderate levels of cultural distance in a board of directors will have a positive effect on firm performance. Further, we assume that at moderate to high levels of cultural distance, the negative group dynamics, as a result of relationship conflict, will be stronger than the positive effects of knowledge creation and task conflict. Accordingly, moderate to high levels of cultural distance in a board of directors will have a negative effect on firm performance.

There is, in fact, a good reason to believe that this inverted U-shaped relationship — which has been proposed in similar contexts by Richard, Kochan, and McMillan-Capehart (2002, pp. 272–273) — holds true. At low to moderate levels of cultural distance between board members, the positive outcomes of task conflict including the emerging positive results of different insights, multiple perspectives, and miscellaneous knowledge provided are likely to take effect. Blau (1977a, p. 35) argues that the size of a minority group is negatively correlated with the amount of intergroup contact, so that on a board of directors the few members from one (or more) minority culture(s) will have frequent contact with members of the majority culture. Consequently, it is the positive effects of knowledge creation and task conflict which will benefit boards with low to moderate levels of cultural distance. With growing levels of cultural distance, opposing culturally defined subgroups will form. The negative effects of relationship conflict due to social categorization and self-verification attempts will then increasingly become apparent (Blalock, 1967, p. 148). In sum, it is therefore predicted:

H4: Cultural distance has an inverted U-shaped relationship with firm performance.

2.5. The moderating role of a firm's level of internationalization

The majority of research on the relationship between board diversity and firm performance to date has tended to decontextualize the board of directors (Carpenter, 2002, pp. 275–276). That is, oftentimes the strategy and other idiosyncratic features of the firm have not been considered when investigating the board's influence on firm performance, and it was argued that this practice is to some extent accountable for the inconsistency of findings (West & Schwenk, 1996, pp. 574–575).

International activities are characterized by heterogeneous competitive, institutional, and cultural environments, by the need to manage foreign employees, customers, and other stakeholders as well as by requirements to coordinate geographically dispersed resources. A culturally varied board of directors can provide firms with the capabilities needed to overcome the complex challenges posed by internationalization. In fact, it is hypothesized here that cultural variety on boards of directors is most beneficial to those firms which operate in international environments (Carpenter, 2002, p. 276), i.e., that a firm's level of internationalization is a moderator to the effects of the board's cultural diversity on firm performance (Nielsen B. B. & Nielsen, S., 2013, p. 380). Taking these considerations into account, it is predicted:

H5a: The relationship between cultural variety and firm performance will be stronger in firms with high levels of internationalization.

A board of directors with high levels of cultural distance, in turn, is characterized by two opposing, equally large, culturally defined subgroups (Harrison & Klein, 2007, pp. 1203–1204). The emergence of different insights, multiple perspectives, and miscellaneous knowledge is therefore relatively limited. Instead, social categorization coupled with negative self-verification attempts and their consequences of relationship conflict are likely to occur. For firms with high levels of internationalization, the negative effects of cultural distance may be even more detrimental than for those without. Hence, it is hypothesized:

H5b: The relationship between cultural distance and firm performance will be stronger in firms with high levels of internationalization.

2.6. Contextual setting: the role of a firm's industry membership

The contextual setting a firm operates in has long been recognized as an important influencing factor of a firm's development (e.g., Eisenhardt & Schoonhoven, 1990, p. 524). It seems legitimate to assume that the sheer level of cultural diversity on boards (both in terms of variety and distance) may differ according to certain contextual factors. Management research suggests that inter-industry variability in factors such as market competition, customer demands, and level of technological change is greater than variation within a specific industry (e.g., Porter, 1980, pp. 3–5). Moreover,

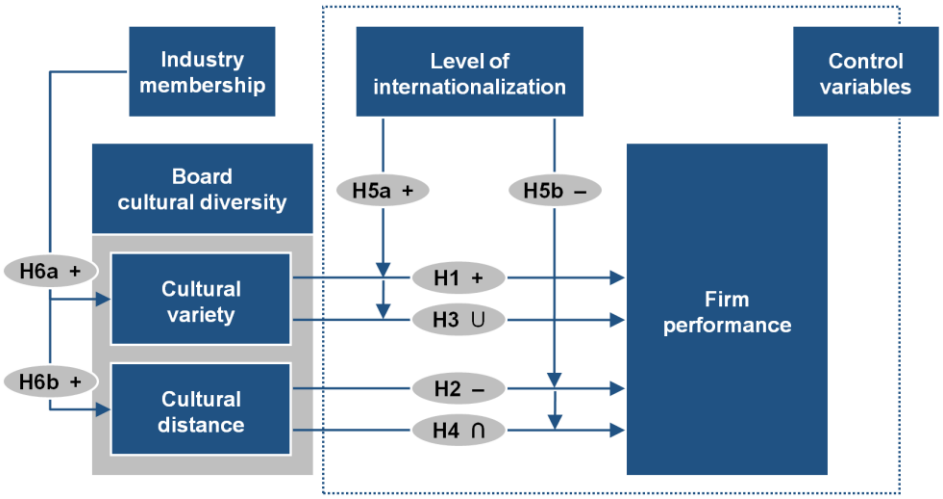
industries commonly differ in the extent to which their operations are oriented on an international scale. Certain industries typically exhibit greater levels of internationalization compared to other, more domestically oriented industries. It seems reasonable to assume that firms that engage in greater international operations reflect this characteristic also on their board of directors. These arguments lead to the following hypotheses:

H6a: A firm's industry membership has an influence on the level of cultural variety on the board of directors.

H6b: A firm's industry membership has an influence on the level of cultural distance in the board of directors.

Summarizing, Figure 1 presents hypotheses 1 to 6 including their proposed direction of effects.

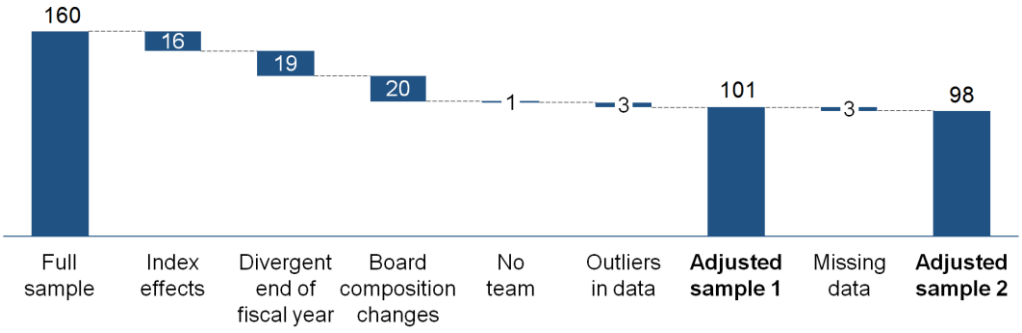
Figure 1. Proposed relationships between cultural diversity, firm performance, and contextual factors



3. DATA AND METHOD

The sample used in this study comprises firms listed in the German selective indices DAX, TecDAX, MDAX, and SDAX and their respective boards of directors. In total, the four indices include 160 firms. Data on which firms were listed in the respective indices was retrieved from Deutsche Börse AG (2010, 2011). DAX comprises the 30 largest and highest-grossing firms, while TecDAX contains the 30 largest and most liquid firms from the technology sectors below DAX. MDAX and SDAX include 50 firms from Mid Caps and Small Caps each (Deutsche Börse AG, 2012, pp. 8–9). As it is the indices' objective to represent the industry structures of Germany's economy, an objective which has been shown to be fairly well met (Deininger, 2005, pp. 7–8), investigating those firms listed on the respective indices serves as a good approximation of the total market. Furthermore, all included firms disclose accounting and other company information on a regular basis. After all adjustments (see Figure 2), the adjusted sample comprised 101 firms for the computations to execute with the Hofstede data set ('Adjusted sample 1'), and 98 firms for those to execute with the GLOBE study data set ('Adjusted sample 2').

Figure 2. Sample adjustments



Note: Adjusted sample 1 for the use with Hofstede data, Adjusted sample 2 for the use with GLOBE data

3.1. Independent variables: measuring cultural diversity

An important issue when measuring cultural diversity concerns the approach of how a specific culture is 'assigned' to board members. Every native German individual in the sample was regarded as belonging to the German culture. Every non-German individual serving on a German board of directors was allocated to that culture in which he or she spent at least "the majority of his or her formative years" (Hambrick, Davison, Snell, & Snow, 1998, p. 183). A basic feature of the present study was its explicit differentiation between cultural variety and cultural distance. Therefore, it was necessary to operationalize cultural diversity in two ways: first, a cultural variety index was built to measure the existence of various cultures. Second, a cultural distance index was composed to measure the extent to which the cultures present on a board differ from each other. Both variables were constructed at the team level. The cultural variety index (CULVAR) measures the extent to which different cultures are existent on a board of directors. It will be operationalized as variety (Harrison & Klein, 2007, pp. 1204–1205) where each culture is regarded as a distinct category to which board members may or may not belong. In order to gauge cultural variety, an adjusted version of Blau's (1977b, p. 78) index was used. Blau's index is the most commonly used measure for variety (Harrison & Klein, 2007, p. 1211). The adjustment was implemented to account for the fact that the index in its original version is systematically biased by group size (Biemann & Kearney, 2010, p. 585). This is important to bear in mind since the sample varies considerably in board size ($\bar{x}$ = 4.70; *S.D.* = 2.22), so that the use of the traditional Blau index would have led to erroneous conclusions. Consequently, the formula used here (cf. Biemann & Kearney, 2010, pp. 584–585) was:

$$CULVAR_i = 1 - \sum_{i=1}^{n} \frac{N_j(N_j - 1)}{N_i(N_i - 1)} \quad (1)$$

where

$CULVAR_i$ = Cultural variety of board *i.*

N_j = Absolute frequency of directors in the *j-th* category.

N_i = Total number of directors on board *i.*

This variable considers each culture's effect equally without differences between cultures concerning their value dimensions. In this sense, the measure can also be understood as a measure of internationality. CULVAR's minimum possible value is 0, which occurs if and only if all board members belong to the same category; its maximum possible value is 100, which occurs if and only if each board member belongs to a distinct category.

The two cultural distance indices (CULDIS_H; CULDIS_G) measure the cultural distance between all board members from each other as indicated by the five Hofstede cultural dimensions and the nine cultural dimensions of the GLOBE study, respectively. It will be operationalized as separation (Harrison & Klein, 2007, pp. 1210–1211): corresponding to his or her cultural affiliation, every board member may score differently on each value dimension. Based on Kogut and Singh's (1988, p. 422) formula of cultural distance, the relative cultural distance (mean Euclidean distance) CD from member k to member l ($k \neq l$) for every dimension j was computed as $CD_{k,l} = \sum_{j=1}^{d}(CD_{jk} - CD_{jl})^2$, where d is the number of dimensions (cf. Thomas, Ravlin, & Wallace, 1996, p. 13). This step was repeated for all $n-1$ members. The sum of all distances was divided by the number of dimensions d (5 for the Hofstede data, 9 for the GLOBE study data) and the number of distances (n^2). All steps can be integrated into the following formula (cf. Biemann & Kearney, 2010, p. 590):

$$CULDIS_i = \sqrt{\frac{\sum_{k,l=1}^{n}(\sum_{j=1}^{d}(CD_{j;k} - CD_{j;l})^2)}{d * n^2}} \quad (2)$$

To facilitate comparability between the cultural distance measures, both CULDIS_H and CULDIS_G were finally converted to have the same lower and upper limits. CULDIS's minimum possible value is 0, which occurs if and only if all board members have the same value on each of the dimensions; its maximum possible value is 100, which occurs if and only if one individual (or group) scores lowest possible on all cultural dimensions and another individual (or group) scores highest possible on the same dimensions.

3.2. Dependent and control variables

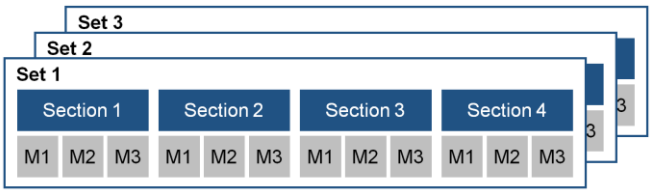
The dependent variables are the foci of the analyses investigating the relationship between cultural diversity and firm performance. Four variables were used to gauge firm performance. In concordance with the specific characteristics of performance measures, these variables included two measures of operating performance (return on investment, return on equity), one capital market-based measure (total shareholder return), and one hybrid performance measure (*Tobin's q*). Distinguishing between various performance measures allows for a more differentiated examination of the assumed effect of cultural diversity on firm performance. Concerning the board level, board size and board age diversity were used as control variables. As for the firm level characteristics, firm size, past organizational performance, R&D intensity, debt/equity ratio, volatility, ownership structure, and industry membership were used.

3.3. Regression model equations

For each type of assumed relationship (linear, curvilinear) and for testing the moderating effect a separate model was set up (Figure 3). Throughout the study, model 1 represents the linear model including the respective dependent, independent, and control variables to be derived in the present chapter. Model 2 is equal to model 1 but adds a squared term of the respective cultural diversity variable in order to test the curvilinear predictions. Model 3 differs from models 1 and 2 in that it

further adds one or more interaction terms to test the moderating effect of a firm's level of international activity. Four sections were created (one for each dependent variable: 1 – ROI; 2 – ROE; 3 – Q; 4 – TSR), each of them containing models 1 to 3. Finally, a set of four sections was created for each variable of interest (1 – CULVAR, 2 – CULDIS_H, 3 – CULDIS_G). Although one model may differ between the sections concerning its specification, it can be stated that it does not differ between the three sets.

Figure 3. The models' structure



The following four equations represent the basic models testing for a linear relationship between cultural diversity and firm performance (model 1). In all equations, *i* indicates the individual number of the firm taken from the sample; ε_i represents the disturbance term.

$$ROI_i = \beta_0 + \beta_1 CULVAR_i + \beta_2 BSIZE_i + \beta_3 FSIZE_i + \beta_4 RD_i + \beta_5 LEV_i + \beta_6 FREEFLOAT_i + \beta_7 VOTE_i + \beta_8 MANAGEMENT_i + \beta_9 INDUSTRY1_i + \ ... \ + \beta_{15} INDUSTRY7_i + \varepsilon_i \quad (3)$$

$$ROE_i = \beta_0 + \beta_1 CULVAR_i + \beta_2 BSIZE_i + \beta_3 AGE_i + \beta_4 FSIZE_i + \beta_5 GROWTH_i + \beta_6 LEV_i + \beta_7 FREEFLOAT_i + \beta_8 VOTE_i + \beta_9 MANAGEMENT_i + \beta_{10} INDUSTRY1_i + \ ... \ + \beta_{16} INDUSTRY7_i + \ \varepsilon_i \quad (4)$$

$$Q_i = \beta_0 + \beta_1 CULVAR_i + \beta_2 ROI_i + \beta_3 ROE_i + \beta_4 FSIZE_i + \beta_5 RD_i + \beta_6 LEV_i + \beta_7 VOLATILITY_i + \beta_8 FREEFLOAT_i + \beta_9 VOTE_i + \beta_{10} MANAGEMENT_i + \varepsilon_i \quad (5)$$

$$TSR_i = \beta_0 + \beta_1 CULVAR_i + \beta_2 ROI_i + \beta_3 ROE_i + \beta_4 FSIZE_i + \beta_5 GROWTH_i + \beta_6 RD_i + \beta_7 LEV_i + \beta_8 VOLATILITY_i + \beta_9 FREEFLOAT_i + \beta_{10} VOTE_i + \beta_{11} MANAGEMENT_i + \beta_{12} INDUSTRY1_i + \ ... + \beta_{18} INDUSTRY7_i + \varepsilon_i \quad (6)$$

The models testing for a curvilinear relationship between cultural diversity and firm performance (models 2) included an additional quadratic (Equation 7). All other equations were set up analogously to models 1.

$$ROI_i = \beta_0 + \beta_1 CULVAR_i + \beta_2 CULVAR_i^2 + \beta_3 BSIZE_i + \beta_4 FSIZE_i + \beta_5 RD_i + \beta_6 LEV_i + \beta_7 FREEFLOAT_i + \beta_8 VOTE_i + \beta_9 MANAGEMENT_i + \beta_{10} INDUSTRY1_i + \ ... \ + \beta_{16} INDUSTRY7_i + \ \varepsilon_i \quad (7)$$

The models testing for the moderating effect of a firm's level of internationalization (models 3) included an interaction term (Equation 8). All other equations were set up analogously to model 1.

$$ROI_i = \beta_0 + \beta_1 CULVAR_i + \beta_2 (CULVAR_i \times FSTS_i) + \beta_3 BSIZE_i + \beta_4 FSIZE_i + \beta_5 RD_i + \beta_6 LEV_i + \beta_7 FREEFLOAT_i + \beta_8 VOTE_i + \beta_9 MANAGEMENT_i + \beta_{10} INDUSTRY1_i + \ ... \ + \beta_{16} INDUSTRY7_i + \ \varepsilon_i \quad (8)$$

In case (and only in case) a significant curvilinear relationship was found, the moderating effect of a firm's level of internationalization was also included into the quadratic equation, and this equation was estimated instead of the linear one, e.g.,

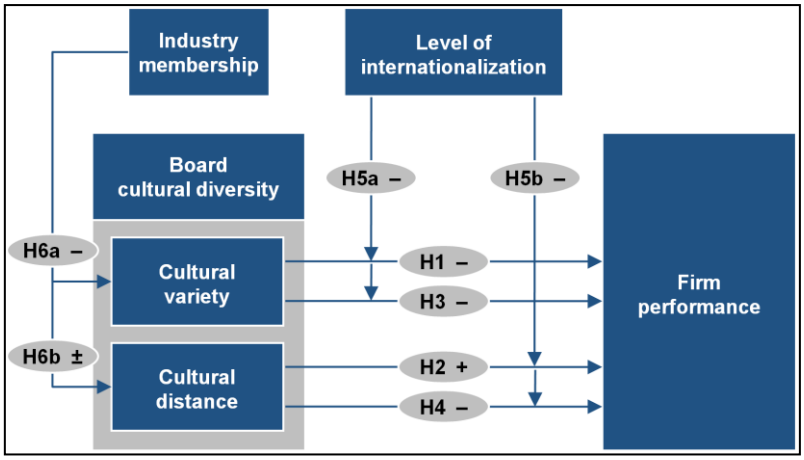
$$ROI_i = \beta_0 + \beta_1 CULVAR_i^2 + \beta_2 (CULVAR_i^2 \times FSTS_i) + \beta_3 BSIZE_i + \beta_4 FSIZE_i + \beta_5 RD_i + \beta_6 LEV_i + \beta_7 FREEFLOAT_i + \beta_8 VOTE_i + \beta_9 MANAGEMENT_i + \beta_{10} INDUSTRY1_i + \ ... \ + \beta_{16} INDUSTRY7_i + \ \varepsilon_i \quad (9)$$

All equations (models 1 through 3) were equally specified with the independent variables CULDIS_H and CULDIS_H², and CULDIS_G and CULDIS_G², respectively, instead of CULVAR and CULVAR².

4. RESULTS AND DISCUSSION

The results of the hypothesis tests of hypotheses 1-6 are summarized in Figure 4.

Figure 4. Results of the hypothesis tests of hypotheses 1-6



Notes: "+": hypothesis accepted; "–": hypothesis rejected

Results of the hypotheses tested suggest a negative, linear influence of both cultural variety and cultural distance on operating performance measures, while neither an influence of cultural variety nor of cultural distance on capital market-oriented performance measures and hybrid performance measures was found. To be specific, addressing cultural variety and firm performance, the results of this study indicate that cultural variety in boards of directors has a linear, negative influence on operational firm performance (as measured by ROI and ROE). The results therefore explicitly contradict findings of previous research and predominant stereotype, which predominantly suggested a positive relationship between top executives' nationality (operationalized as equivalent with the definition of cultural variety used in the present study) and firm performance (e.g., Carpenter, 2002, p. 284; Nielsen B. B. & Nielsen, S., 2013, pp. 377–380).

An interesting finding concerns the results for the capital market-oriented performance measures total shareholder return. While it was assumed that cultural diversity's effect (including cultural variety and cultural distance) on firm performance would be detectable for all performance measures, this was not the case. Precisely, evidence from the present study does not support the assertion that the level of cultural variety has an influence on total shareholder return. The findings, however, suggest that investors, in general, do not assign value to a firm's level of cultural variety on the board of directors. There are several possible explanations: first, the topic of cultural diversity and its implications largely suffer from a backlog in public perception. Both its relevance and its potential effects are argued to be not properly understood. For example, public attention in Germany has mainly been paid to gender (including self-evaluations and adjustment processes) and age diversity, so that other diversity attributes such as culture have passed unheeded. In contrast to the linear relationship for measures of operational performance, an inverted curvilinear relationship was found for the hybrid performance measure *Tobin's q*. These results are in part explicable in so far as *Tobin's q* in its calculation combines both book values and market values of a firm. Assuming that as cultural variety increases, a firm's book values of equity and liabilities tend to decrease, and considering that market valuation does not seem to depend on the level of variety at all, the q-ratio will display an increase in value as variety increases. However, this logic is unable to explain the parabola's inflection point and its subsequent decrease. Note, however, that in the model testing the relationship for *Tobin's q*, *F* for ΔR^2 (which indicates a curvilinear relationship instead of a linear one) is only significant at the level of 0.05. The result should, therefore, be regarded cautiously.

As for cultural distance and firm performance, the results of this study indicate that cultural distance in boards of directors has a negative influence on operational firm performance (as measured by ROI and ROE). The results further suggest that a linear relationship between cultural distance and operational firm performance exists; they are unambiguous regardless of the data set used (Hofstede survey vs. GLOBE study). This evidence supports the assertion that increasing cultural distance among board members results in negative intragroup conflict and thus leads to negative firm performance. While the negative effect of cultural distance on firm performance could be confirmed for operational performance measures, no effects could be demonstrated for both total shareholder return and *Tobin's q*. The non-existence of results for total shareholder return was already discussed above for the case of cultural variety. These interpretations are equally applicable to cultural distance. In addition, although the concept of cultural distance is well-known among researchers and scholars of cross-cultural management, it may be to a lesser extent to practitioners such as financial investors. These assumptions may also explain the non-findings for

Tobin's q, which in its calculation includes a firm's market valuation.

A competing prediction concerning cultural distance's effect on firm performance had hypothesized that an inverted curvilinear relationship exists between the two. Both the human capital assets on the team (such as multiple insights and perspectives) and the arising positive task conflict were assumed to increase with rising levels of cultural distance. At the same time, cultural minorities were assumed to receive social support, so that negative relationship conflict was expected to be prevented. Because only high cultural distance was assumed to bring about culturally-based social categorization that reduces performance, moderate levels of distance were presumed to show higher performance outcomes than low and high levels. However, this research suggests that this is not the case. In contrast, the results of this study indicate that at moderate levels of distance, the potentially positive effects do not noticeably prevail over the negative ones, and that performance outcomes hence decline relative to low levels. Based on the results, the assumption seems justified that the value added by increased human capital assets is unable to exceed the negative outcomes of conflict at any level of cultural distance on the board.

Finally, a comparison can be drawn between the results for cultural variety and those for cultural distance. The evidence of this research did not support the prediction that cultural variety and cultural distance exhibit contrary effects on performance (cf. the directions of hypotheses 1 and 2): While theory actually pointed towards a positive effect of cultural variety in contrast to negative effects of cultural distance, findings suggest differently. At least for the sample used in the present study, a distinctly high (and significant) positive correlation between variety and distance was prevalent. Having said that, additional research should be conducted, possibly using a different sample, before any ultimate conclusions are drawn. Another aspect of the firms' context concerned the industry membership and level of cultural diversity. For the case of cultural variety, results indicate that this is not the case. Although the level of cultural variety ostensibly differs between industries, these results were not statistically significant and should thus not be generalized. The statistical results are persuasive in so far as cultural variety's influence on firm performance was found to be negative. Hence, contrary to what was predicted, cultural variety does not seem to provide boards of directors with specific qualities whose value differs relative to a firm's industry membership. Consequently, it is reasonable to find that industries do not significantly differ in the extent to which firms exhibit levels of cultural variety.

Concerning the level of cultural distance in the board with regard to a firm's industry membership, results vary depending on the data set used. At first, the Hofstede data lead to the assumption that cultural distance does, in fact, vary between the industries, but statistical analyses revealed that these differences are not statistically significant. Based on the GLOBE study results, however, firms indeed seem to statistically differ in their extent to which they represent cultural distance on the board. Because of the advantages and disadvantages of both the Hofstede survey and the GLOBE study, it is difficult to determine which of the two results is correct. The existence of differences between the Hofstede and the GLOBE data is notable. At the same time, these equivocal results prevent from drawing conclusions too hastily, which might have been the case if only one data set had been used.

5. CONCLUSION

This study's main objective was to investigate the relationship between cultural diversity in boards of directors of German publicly-owned corporations and these firms' financial performance. For this purpose, the study differentiated between cultural variety and cultural distance and included two competing predictions, namely one of a linear and one of a curvilinear relationship. In addition, the moderating influence of a firm's level of international activities was examined. This is unique, as most of the studies on diversity simply concentrate on one single attribute.

The existence of a significant relationship between cultural diversity and firm performance found in this study reinforces the fundamental assertion that executives' cultural values shape their mindsets and orientations, and thus influence their decision-making. The results of this study indicate that cultural diversity is an important dimension that further on should be given careful consideration in research (Naciti, 2019; Richard et al., 2004; Stiglbauer & Velte, 2013). The assumed moderating influence of a firm's level of international activities on cultural diversity was not at all empirically confirmed. The additional analyses concerning the influence of a firm's industry membership on the level of cultural diversity further suggest differences in cultural distance between industries, but not in a cultural variety.

Based on these findings we argue against a blindfold implementation of regulations without having a deeper understanding of the processes and dynamics within top-management teams.

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