National board heterogeneity versus firm risk in times of war: Evidence from Crimean crisis

by

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Abstract

The aim of this study is to analyse the link between the national diversity of the board and firm risk (volatility). Using the sample of companies listed on stock exchanges in Estonia, Latvia, Lithuania, and Poland we explore the effect of the annexation of Crimea by Russia in 2014 on the national board heterogeneity and the company's risk over the years 2011 through 2017. We assume that this geopolitical event had significant geopolitical implications for countries in Eastern Europe, bordering states engaged in military conflict, thereby exploring the impact of an increase in geopolitical risk on this relationship. In our results, we report that the national diversity of the board has an impact on firm risk. Specifically, higher national board heterogeneity is associated with lower firm risk. Surprisingly, despite initial expectations of increased geopolitical risk, we provide evidence that a company's risk decreases after the annexation of Crimea. Moreover, we find that this geopolitical event does not affect the relationship between the national diversity of the board and firm risk.

Keywords: board nationality diversity, geopolitical risk, firm risk

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1. Introduction

Conflict, acts of terrorism, and geopolitical disagreements undermine the harmonious progression of global diplomacy, leading to increased levels of geopolitical risk (Caldara and Iacoviello, 2022). In the last decades adverse geopolitical events occurred with a remarkable frequency. The terrorist attacks in September 2001, the London bombings in 2005, the Russian annexation of Crimea in 2014, and the latest Russian-Ukrainian military conflict that started in 2022 are only a few examples of geopolitical tensions that the world has had to face recently. Caldara and Iacoviello (2022), based on text searches counting the share of articles published in leading English-language newspapers, construct the index and measure geopolitical risk (GPR) from 1985 through 2020. They observe a breaking point in the mean of the GPR index after 2001. In the resent years the index increases several times during geopolitical events, including the 2014 Russian annexation of the Crimea peninsula. According to Fiorillo et al. (2024) geopolitical risk does not have an economic root and it is weakly correlated with other sources of macroeconomic and financial instability. In earlier study Feng (1997) confirms that the political instability affects economic growth.

Most of geopolitical events are unexpected and have a significant and direct influence on the economy at both the macro and micro levels. The implications of geopolitical risk are extensive, impacting international business and trade activities, commodity markets, banking sector's and exerting influence on financial markets as well as firms' decision-making. Academics began to explore more extensively the economic implications of geopolitical risk. In the case of financial markets Zhang et al. (2023) show that the appearing uncertainty increases stock market volatility. The other studies document that geopolitical events negatively affects stock returns (Agoraki et al., 2022; Saadaoui et. al., 2023) and stock liquidity (Fiorillo et al., 2023). At the firm level, geopolitical risk has an impact on different aspects of corporate activity such as corporate innovation (Lee et al., 2023; Dissanayake and Wu, 2021; Jia et al., 2022), corporate investment, cash holdings, and financing decisions (Le and Tran, 2021). The companies have to navigate increased economic uncertainty that is expected to result in broader fluctuations in future profitability and cash flows.

Using a large international sample of publicly listed firms Fiorillo et al. (2024) find that the high ESG-rated companies are more resilient to a negative impact of geopolitical risk on

stock price crash risk, specifically, firms scoring high in the Environmental and Social dimensions. As a consequence, an effective strategy for mitigating an arising firm risk might be to adopt Environmental, Social, and Governance (ESG) factors into decision-making processes. As the third dimension of ESG factors includes governance considerations, such as board diversity and executive remuneration, the way to minimize firm risk might be to provide the board with new insights and perspectives through its diversity.

Diverse boards benefit from increased access to information and networks, which helps them navigate uncertainty and reduce ambiguity in order to achieve organizational goals (Bryant and Davis, 2012). Ruigrok et al. (2007) suggest that a company can improve problem-solving and strategic planning by diversifying its board with individuals who have different educational backgrounds, genders, races, and occupations. Other studies claim that having a diverse board of directors results in a broader range of knowledge, increased creativity, and enhanced innovation. Consequently, this diversity confers a competitive advantage to the organization by increasing firm value (Carter et al., 2003), and firm financial performance (Erhardt et al., 2003). Thomsen and Conyon (2012) argue that boards that embrace diversity have a wide range of unique knowledge and greater depth of understanding regarding markets, customers, employees, and business opportunities. As a result, they are able to comprehend business conditions more effectively. From the perspective of agency theory, a more diverse board should be a more effective monitor of management (Carter et al., 2003). Boards with diverse members may also exhibit greater independence due to the variety of perspectives, potentially leading to lower agency costs within the company.

Nevertheless, as diverse board members may be marginalized a different perspective of may not necessarily result in more effective monitoring (Carter et al., 2003). Some studies indicate that diversity may have the potential to be a disadvantage in terms of group performance (Erhardt et al., 2003). Hambrick et al. (1996) suggest that heterogeneous groups are prone to disagreement, which in turn undermines the consensus within the team. Board heterogeneity may lead to issues, as divergent opinions among directors can escalate into conflicts (Knight et al., 1999; Treichler, 1995) and impede swift and effective decision-making especially during periods of environmental turbulence (Goodstein et al., 1994).

Existing literature (Kang et al., 2007; Anderson et al., 2011; Mahadeo et al., 2012) divides heterogeneity into two categories: occupational heterogeneity, also known as non-observable characteristics of directors such as education, tenure (experience), functional and occupational background. While social heterogeneity refers to observable differences such as age, gender, ethnic background and nationality. Recently, gender is the most debated diversity

issue in terms of board diversity (Singh and Dwesar, 2022). Some studies focus on other observable and non-observable characteristics of directors including age, tenure, educational and functional background, professional membership (Hassan et al., 2020; Talavera et al., 2018, Kim, 2014). There is less empirical researches that consider social characteristics of heterogeneity such as ethnic background (Carter et al., 2010; Østergaard et al., 2011), foreign board membership (Oxelheim and Randøy, 2003), and nationality (Odero and Egessa, 2023; Estélyi & Nisar, 2016).

Most studies on board diversity investigate its effect on corporate financial performance (Carter et al., 2010; Fidanoski et al, 2014; Rose, et al., 2013; Estélyi and Nisar, 2016; Hassan et al., 2020) and firm value (Oxelheim and Randøy, 2003; Carter et al., 2003). Some empirical investigations explore links between firm risk and board diversity, including board composition (e.g. independent boards, multiple directorships, and board members' qualifications) (Christy et al., 2013), gender diversity (Hutchinson et al., 2015; Padgett, 2014), board tenure diversity (Ji et al., 2021; Kim et al., 2014), ancestral diversity (Giannetti and Zhao, 2019), and the others (e.g. gender, age, and ethnicity, institution of college education, financial expertise, and other board experience) (Bernile et al., 2018). Most of them report that diversity in the board results in lower firm risk.

Based on empirical findings it is unclear whether board national diversity matters in the context of a company's risk. Moreover, an additional question arises whether the national diversity on boards will mitigate arising firm risk in the circumstances of geopolitical events. Hence, in our study we explore the effects of board national diversity on corporate risk in countries bordering in armed conflict. Using the sample of companies listed on stock exchanges in Estonia, Latvia, Lithuania, and Poland we explore the effect of the annexation of Crimea by Russia in 2014 on the national diversity on boards and the company's risk from 2011 to 2017. This geopolitical event had significant geopolitical implications for countries in Eastern Europe, bordering states engaged in military conflict. The annexation of Crimea heightened concerns about regional security and stability (Baar and Baarová, 2017). The situation also rekindled historical anxieties in countries about their sovereignty and independence, given their past experiences under Soviet rule. This military build-up and the associated security concerns may have economic implications for firm risk and corporate governance.

Our study adds to the literature on corporate finance, corporate governance and capital markets. The contributions of this study reside in several areas. Our results provide answers to the following questions: How prevalent are foreign directors (FDs) on the boards of public companies in the region? Do companies benefit from having foreign directors? What is the

overall effect of nationality diversity on boards on corporate risk? Does an increase in geopolitical risk affect the relationship between national diversity on boards and firm risk?

We organize our study into the following sections. Section 2 presents the theoretical background, literature review and our research hypotheses. In Section 3, we describe our sample and data. In Section 4, we explain how we measure key variables and provide initial results on our sample characteristics and initial empirical analysis. Next, in Section 5 we document our findings regarding the relationship between national board heterogeneity and firm risk. In Section 6, we further test the impact of the annexation of Crimea on the relationship between firm risk and national diversity of the board by estimating difference-in-difference models. We provide a set of additional explorations by introducing Hofstede's model and the three dimensions of culture in Section 7. We conclude with a brief summary of our results in Section 8.

2. Theoretical Background, Literature Review and Hypotheses Development

The theoretical foundation regarding the impact of board diversity on a company's outcomes and risk is rooted in the resource dependency theory proposed by Pfeffer and Salancik (1978). This theoretical framework suggests that organizations depend on resources (e.g. financial capital, raw materials, labor, and knowledge) from their environment for survival and success. Referring Pfeffer and Salancik (1978), companies operates as open systems that interact with their external environment. In essence, external constraints affect companies, forcing them to adapt to environmental changes to maintain their resource base and competitive advantage. This interrelationship between companies and their external environment may rise firm risk and impact a company's performance.

The company's solution for adapting to environmental changes and minimizing firm risk might be to provide the board members with diverse knowledge, insights and perspectives as adequate resources. In line with upper echelons theory (Hambrick and Mason 1984) management team characteristics is an important factor that may influence organisational outcomes, strategic choices and performance levels. In consequence, diversity of top management affects competitive strategy and financial effectiveness (Robinson and Dechant, 1997). From the perspective of agency theory diverse boards serve more effective monitoring of company (Carter et al., 2003) and reduce shareholders' exposure to economic and agency risks (Christy et al., 2013).

Empirical studies provide evidence that the more diverse the board is, the higher the firm value and operating performance (Carter et al., 2003; Padgett, 2014; Estélyi and Nisar,

2016). Some investigations indicate that board diversity matters in the case of firm risk. Christy et al. (2013) find that in the case of large firms, the volatility of stock returns, as a proxy for company risk, is lower when boards are diversified (e.g., more independent, have independent multiple directorships, and hire industry-experienced directors with MBA qualifications). In other studies, Ji et al. (2021) confirm that board tenure diversity reduces stock return volatility. They conclude that their findings provide evidence that board tenure diversity increases the board's effectiveness in risk oversight. A similar relationship between stock return volatility and board composition is reported by Bernile et al. (2018). They examine board diversity from a broader perspective, composing an index based on six director characteristics including gender, age, ethnicity, institution of college education, financial expertise, and other board experience to proxy for cognitive factors. There is also empirical evidence of a negative relationship between gender diversity and a company risk (Lenard et al., 2014; Perryman et al., 2016).

Referring this existing evidence we may expect that the other form of diversity such as board members nationality should also be beneficial in managing firm risk. Nielsen (2010) regards the foreign nationality of top managers as another kind of human capital. Foreign directors access to international networks and possess valuable knowledge about economic and market factors and institutions as well as about culture, behaviour and norms of foreign countries, that may be invaluable in decision making processes. A top manager of foreign nationality brings knowledge about conducting business in an international environment. According to Padgett (2014) foreign directors may have very different educational and cultural backgrounds, giving them different attitudes to problem-solving as well as valuable knowledge of other markets. In line with this idea Nielsen (2010) observe a positive effect of diversity in both international experience and top manager nationalities on firm performance. Padgett (2014) provide evidence that overseas directors lead to higher companies' market valuation as well as a reduction in risk. In recent study Furman et al. (2024) report that demographic board diversity as the sum of nationality diversity, gender diversity, and age diversity, is significantly and negatively related to firm risk. Based on this findings we propose the following hypothesis:

Hypothesis 1a: Nationality diversity of the board reduces firm risk (volatility)

However, board diversity may be a double-edged sword. The literature emphasizes that heterogeneous teams may experience internal conflict and strains (Hambrick et al., 1996; Hambrick et al. 1998; Erhardt et al., 2003). Hambrick et al., (1996) argue that heterogeneous

teams are slower in their actions and responses than homogeneous teams. Knight et al. (1999) and Treichler (1995) point to the potential negative effects of diversity due to the difficulty of integrating these resources into an effective harmonised team. Goodstein et al., (1994) hypothesize the diverse boards may fail to initiate strategic changes during critical periods of environmental turbulence. Hambrick et al. (1998) consider costs and benefits of multinational diversity on group functioning and performance. They conclude that nationality shapes individuals' values, psychological attributes, and behaviour and the multinational teams tent to possess different values and have higher cost of diversity than homogeneous teams. In line with agency theory, Carter et al. (2003) argue that diverse insights and perspectives may not result in more effective monitoring, as minority board members may be ignored by the majority.

Consequently, the existing literature provides evidence that diversity in boards often leads to conflicts, adversely affecting firm performance. Giannetti and Zhao (2019), by studying how ancestral diversity affects economic outcomes, conclude that diverse boards lead to conflicts in the boardroom and inefficiencies in the decision-making process and increase firm-performance volatility. The findings showed by Kim et al., (2014) indicate that board heterogeneity in functional background and educational specialty is negatively related to firm performance in the context of higher firm risk. García-Meca et al. (2015) report that nationality diversity negatively affect bank performance. In other study Rafinda et al. (2018) provide evidence that the presence of foreign directors leads to a worse firm performance as well as a higher risk taking. Therefore, based on empirical findings as well as the nature of diversity we propose alternative hypothesis:

Hypothesis 1b: Nationality diversity of the board increases firm risk (volatility).

The literature provides evidence that geopolitical events are not neutral for the economy at both the macro and micro levels (Fiorillo et al., 2024). Unexpected events threat global economic stability resulting in an increase of the geopolitical risk. According to the Institute for Economics and Peace (IEP) and reported the Global Peace Index (GPI)[1] as the world's measure of global peacefulness, the Central and Eastern Europe has become less peaceful after the Russian annexation of Crimea in 2014. The largest regional deterioration occurred in the Russia, however, many other countries in the region also experienced falls in peacefulness.

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[1] The Global Peace Index (GPI) produced by the Institute for Economics and Peace (IEP) is available at https://www.visionofhumanity.org/maps/#/

The condition of environment substantially affects the company risk. In a comprehensive study involving numerous publicly listed firms globally, Fiorillo et al. (2024) find that higher geopolitical risk causes stock price crashes to occur more frequently. Moreover, they also report that the high ESG-rated companies are more resilient to a negative impact of geopolitical risk on stock price crash risk. Specifically, firms that excel in Environmental and Social dimensions exhibit this resilience. Consequently, an effective approach to mitigate emerging firm risk could involve integrating Environmental, Social, and Governance (ESG) factors into decision-making processes. Diversifying the board, with board diversity being a governance consideration within the third dimension of ESG factors, could potentially serve as a means to reduce firm risk by offering the board a range of insights and perspectives. Cox and Blake (1991) argue that managing diversity results in a broader and richer base of experience that has the potential to improve problem-solving and decision-making. According to Ruigrok et al. (2007) the increasing uncertainty of firm environments leads to a higher demand for directors who possess the necessary knowledge to deal with new market circumstances. However, as Goodstein et al. (1994) suggest, diverse boards might struggle to instigate strategic changes when facing significant environmental turbulence.

Based on these considerations we assume that an increase in geopolitical risk may have an impact on the relationship between the board national diversity and firm risk. Hence our next hypothesis is as follows:

Hypothesis 2: An increase in geopolitical risk (such as the annexation of Crimea) affects the relationship between the nationality diversity of the board and firm risk (volatility).

As board diversity may be a double-edged sword we expect that the Russian annexation of Crimea in 2014 may weaken or strengthen the impact of board national diversity on firm risk. Therefore, we propose the following sub-hypotheses:

Hypothesis 2a: If Hypothesis 1a holds, an increase in geopolitical risk (such as the annexation of Crimea) increases the positive impact of the nationality diversity of the board on firm risk (volatility).

Hypothesis 2b: If Hypothesis 1a holds, an increase in geopolitical risk (such as the annexation of Crimea) reduces the positive impact of the nationality diversity of the board on firm risk (volatility).

Hypothesis 2c: If Hypothesis 1b holds, an increase in geopolitical risk (such as the annexation of Crimea) increases the negative impact of the nationality diversity of the board on firm risk (volatility).

Hypothesis 2d: If Hypothesis 1b holds, an increase in geopolitical risk (such as the annexation of Crimea) reduces the negative impact of the nationality diversity of the board on firm risk (volatility).

3. Sample and Data

3.1. Sample

To investigate the effect of the annexation of Crimea by Russia in 2014 on the national diversity on boards and the company's risk we use the sample of companies listed on the Warsaw Stock Exchange (the WSE) (Poland), Nasdaq Tallinn (Estonia), Nasdaq Riga (Latvia), and Nasdaq Vilnius (Lithuania). Our initial sample consists non-financial firms, with a total of 2,007 observations. In our regression models, this main sample is limited to companies with at least one foreign board member throughout the entire period, totaling 1,233 observations.

Panel A of Table 1 presents the distribution of our sample at the firm level by year and country over the study period. The number of companies increases and ranges from 223 to 323 during the period spanning from 2011 to 2017. We notice that Polish companies make up the largest part of our sample. Panel B of Table 1 shows the number of companies with at least one foreign board member across years and countries. In Panel C of Table 1, we report that less than half of our observations consist of companies with at least one foreign board member across all years. The total share of these companies ranges from a low of 43.95% in 2011 to a high of 49.84% in 2015, the year following the annexation of Crimea by Russia. Our data suggest that there are differences in national heterogeneity across the countries. In the case of Polish companies, less than half of them appoint at least one foreign board member. We report a slightly lower share for Lithuanian companies. Each Latvian non-financial company employs at least one foreign board member across all years, except 2017. A similar pattern is observed for Estonian companies in the first two years of our sample period. Starting from 2013, less Estonian entities appoint at least one foreign director.

Panel D of Table 1 presents the distribution of companies (2,007 observations) by the number of foreign directors on the board over the study period. In Panel E of Table 1, we show the number of companies distributed by the number of nationalities represented on the board across all years.

INSERT TABLE 1

Table 2 reports the distribution of our sample at the board member level by year and country of origin over the study period. Our sample consists of 5,295 individuals serving as board members. The majority of them, totaling 86.91%, are domestic board members, comprising Estonian, Latvian, Lithuanian, and Polish nationals respectively. Polish directors constitute the largest collective among domestic members. Only 13.99% of individuals appointed as board members are foreigners. In Panel C of Table 2, we display all nationalities of board members classified as foreign, distributed by year.

INSERT TABLE 2

3.2. Data

To undertake our analysis we require corporate governance data concerning boards (statutory bodies) and board members. These data are hand-collected from published companies' annual reports and websites. We identify the country of origin of board members using Namsor.app. A similar approach is employed by Bursztyn et al. (2024). Namsor.app is an AI name checker that provides information on the most likely country of origin based on a wide range of alphabets. This software recognizes the linguistic or cultural origin of each name and assigns a gender (male or female) and/or an onomastic class (e.g., China, India). Since the estimation is probabilistic, the software also provides a probability for the inference ('probabilityCalibrated'), ranging from zero to one. Names can be classified according to the continent of origin (three continents: Asia, Africa, or Europe), the country of origin (e.g., China or India), and the ethnicity (e.g., Chinese or Indian) (Sebo, 2022).

Furthermore, to measure firm risk, we require market data. We obtain both market and financial data from the EquityRT database. To eliminate outliers we winsorise the financial data at 1/99 percentile levels. To control for the impact of economic factors on our results, we also utilize macroeconomic data from the World Bank database. For further exploration of the impact of national diversity on firm risk in terms of cultural dimensions in Hofstede's model, we also require the values of indexes for the following three dimensions: (1) Power Distance (PDI), (2) Individualism (IDV), and (3) Masculinity (MAS). We obtain them at the country level from available website services[2].

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[2] Data are obtained from the following website services: (1) https://geerthofstede.com/research-and-vsm/dimension-data-matrix/ (2) https://www.hofstede-insights.com/country-comparison-tool?countries=angola

We conduct our empirical analysis of these data using STATA, a comprehensive package for data analysis, modeling, and statistical calculations.

4. Measuring Primary Variables and Initial Results

To test our researches hypotheses we need to measure both national board heterogeneity and firm risk. To control our regression results we must introduce several control variables into our estimated models. In this section, we define the key variables and report their descriptive statistics.

4.1. Risk Measures

To determine the level of total firm risk, we rely on market data. Following Furman et al. (2024), we measure the total firm risk with the standard deviation of monthly stock returns over the 12 months, obtained from the EquityRT database. Additionally, we employ the standard deviation of both weekly and daily stock returns. However, as the results using the standard deviation of both weekly and daily stock returns do not provide additional insights, we only include the monthly results in our paper. Furthermore, to robust our findings, we also estimate the one-year and two-year betas as alternative measures of companies' systematic risk, using the weekly returns of the company and the EURO STOXX 50 Index returns.

4.2. Measuring of National Board Heterogeneity

To capture the national board heterogeneity we use the three primary variables. The first, the *Country Foreign Share* variable is the share of foreign directors in the company's board. We divide a number of foreign board members by a total number of statutory body members.

The second metric is the *Country Blau* variable calculated as the Blau index (Blau, 1977). We use the following formula:

$$B = [1 - \sum_{i=1}^{n} p_i^2],$$

where p_i is the percentage of board members in the i-th group (i.e., country origin), and n is the total number of board members.

The *Country Shannon* variable is the third employed metric of national board heterogeneity. We compute it as the Shannon diversity index (Shannon, 1948) using the following formula:

$$Sh = -\sum_{i=1}^{n} p_i ln p_i,$$

where p_i is the percentage of board members in each category (i.e., country origin), $ln p_i$ is the logarithm of this share, and n is the total number of board members.

The Blau diversity index and as well as the Shannon index are normalized measure. The sum of the p_i values equals 1 by definition. When there is only one type of a country origin (nationality) in the dataset, both the Blau index and the Shannon index exactly equal zero.

In the robustness tests we incorporate three additional explanatory variables: *the Region Foreign Share, Region Blau, and Region Shannon* variables. Using the nationalities identified by the website *Namsor.app*, we categorize board members into three groups based on their countries: (1) the Visegrád Group, comprising the Czech Republic, Hungary, Poland, and Slovakia; (2) the Baltic States, comprising Estonia, Latvia, and Lithuania; and (3) other countries. The *Region Foreign Share* represents the proportion of board members from outside the group of countries within the same region as the company. The Blau and Shannon diversity indexes are calculated using the same methodology as our main explanatory variables, but at the region level.

4.3. Control Variables

Previous research indicates that other factors might have an impact on firm risk. Consequently, we include a number of control variables in our regression models.

The large board of directors might monitor the firm's performance more effective that the small boards. Therefore, we might expect that the company with a large board of directors are less risky than this having a small board. Moreover, gender is the most debated diversity issue in terms of board diversity (Singh and Dwesar, 2022), recently. Previous studies provide evidence of a negative relationship between gender diversity and a company risk (Lenard et al., 2014; Perryman et al., 2016). At the same time, larger firms will tend to generate more press releases and newsworthy they have lower information asymmetry than small companies. Besides, they are also more likely to be held by institutional investors than smaller firms. As a result, we might expect the lower variability of share prices. Thus, based on previous findings we include both the logarithm of the company's board size and board gender diversity computed by the Blau index as control variables. To control for these possible size-effects, we include the natural logarithm of the company's equity market capitalization.

In addition, we include other control variables concerning financial condition in our model specification. A leverage ratio, a net debt to EBIDA ratio as well as an interest coverage ratio are related to the firm's financial risk from an internal perspective. The rate on equity ratio (ROE) describes a company's profitability from the shareholder's point of view. We also

employ the sale growth variable. Using a tangibility ratio and an intangibility ratio we control for the possible impact of asset structure on firm's risk. Finally, as our firm risk measures are computed using market data the lack of stock liquidity might affect our results. We include the illiquidity as a control variable, and measure it using Amihud's approach (2002) as the daily ratio of the absolute return of a stock to its absolute order flow (buy plus sell orders).

The set of control variable is constant across our all estimated models. Additional, we control a part of our estimation for year fixed effects. The appendix contains the definition of all variables.

5.1. Descriptive Statistics of Key Variables

In Table 3, we provide descriptive statistics for our key variables as well as control variables associated with our initial analysis. The boards of our sample firms are relatively large, with a mean (median) of 10.57 (10.0) members. The board size seems to slightly increase after the geopolitical event of the annexation of Crimea. We report that national diversity is rather low; the mean (median) Country Blau diversity index equals 0.1574 (0), and for the subsample of companies with at least one foreign director during the entire period, the mean Country Blau is slightly higher (0.2561). We observe only a small increase in the national diversity of boards after the annexation of Crimea. Furthermore, we notice that in the post-crisis period, firm risk substantially decreases year by year.

5. National Board Heterogeneity and Firm Risk

5.1. The Influence of National Board Heterogeneity on Firm Risk

We begin our analysis by testing the first research sub-hypotheses (H1a, H1b), whether the national board diversity has an impact on firm risk. Initially, we estimate Pooled-OLS regression models, using the standard deviation of monthly stock returns as proxy for firm risk (dependent variable). We perform our investigation in several steps.

In the initial stage of our exploration we use a sample of companies with and without foreign directors on the board in the first set of regression models. Table 4 shows the results of our twelve estimations. In models (1) through (3), we examine the impact of board national diversity on firm risk using our three primary measures. The coefficients for these three variables demonstrate a negative relationship between the national board diversity and firm risk. In the subsequent models (4), (5), and (6) we include a set of control variables referring to the company's corporate governance and financial condition. In models (7) through (9), we begin to incorporate year fixed effects as controls. Finally, in the last three models we

additionally introduce control for stock liquidity with the *Illiquidity* variable. Summing up the results at this stage, we find that the impact of national diversity of boards on firm risk is consistently negative and significant across all models. This empirical evidence implies that board national diversity reduces firm risk.

INSTERT TABLE 4

In the subsequent stage, to validate these findings, we re-estimate all twelve models using a limited sample of companies to that have at least one foreigner on the board over the sample period. Table 5 shows the results of our new re-estimations. Once again the coefficients for variables describing the national board heterogeneity are negative in all models. A negative relationship indicates that the more heterogenies a board of directors is in terms of nationally, the lower the firm risk. However, some of the results reported in re-estimated models are not statistically significant. We only observe that the coefficients for the Shannon index are stable and statistically significant across all models.

INSTERT TABLE 5

Next, we decide to re-estimate our models (10), (11), and (12) reported in Table 5 by dividing companies into two sub-samples. Table 6 displays the results of estimation for sub-samples by risk level separately for companies: (1) with the standard deviation higher than median, (2) with the standard deviation lower than median. The results concerning our explanatory variables indicate a negative relationship, but most of coefficients are statistically insignificant, except for the Shannon diversity index and the sub-sample of companies with a standard deviation lower than the median. Thus, we conclude that the level of firm risk does not affect the relationship between firm risk and national board heterogeneity.

INSTERT TABLE 6

Concluding this part of the study, our findings provide evidence supporting our first H1a research hypothesis. The national diversity of the board reduces firm risk. A diverse country origin of top directors brings different experiences, educational backgrounds, and cultural perspectives, resulting in a reduction in risk.

Additionally, as we incorporate other factors into our estimations, we notice that some control variables significantly influence firm risk. Some findings are surprising in light of theoretical concepts and previous empirical observations. Based on the reported results, we find evidence of a positive and significant relationship between firm risk and the *Illiquidity* variable.

This outcome suggests that the higher the illiquidity of the stocks, the greater the company's risk. Moreover, firm risk is higher when companies have a large board of directors and greater gender diversity on the board. The relationship between firm risk and the *Net debt-to-EBITDA* ratio, *Intangibility ratio*, and *Sales growth* is positive and significant. Conversely, we observe negative associations with firm risk for two other variables: *Market capitalization* and *Tangibility ratio*.

5.2. Robustness Tests

To conduct a robustness analysis of our results, we begin by re-estimating our regression models (10), (11), and (12) as reported in Table 5. The sample consists of companies that have at least one foreigner on the board. Drawing on previous studies that use beta as an alternative proxy for a company's risk (Perryman et al., 2016), we also employ beta as the dependent variable. We replace the standard deviation of monthly returns with the one-year and two-year beta. Table 7, in models (1) through (6) includes our results. Our original findings remain valid even after substituting the measure of firm risk. The coefficients for variables describing national board heterogeneity are negative and statistically significant. We confirm our results that national board heterogeneity decreases a company's risk.

INSTERT TABLE 7

In the subsequent robustness tests, we substitute the explanatory variables with new ones: *the Region Foreign Share, Region Blau, and Region Shannon* variables. Based on the nationalities identified by the website *Namsor.app*, we group board members into three country sets: (1) the Visegrád Group, including the Czech Republic, Hungary, Poland, and Slovakia; (2) the Baltic States, including Estonia, Latvia, and Lithuania; and (3) other countries. The percentage share, as well as both the Blau and Shannon diversity indices, are computed in the same manner as our main explanatory variables at the country level. This replacement of explanatory variables offers a broader perspective on national diversity, aiming to mitigate bias in the findings related to misidentifying the nationality of board members. We present our re-estimated models in Table 8. The relationship between firm risk and the national diversity of boards appears to remain negative. However, only the impact of the *Foreign Region Share* on the standard deviation is statistically significant.

INSTERT TABLE 8

6. Annexation of Crimea and the Relationship between National Heterogeneity of the Board and Firm Risk

To test our second research hypothesis and investigate the effect of the annexation of Crimea by Russia in 2014 on the relationship between national board heterogeneity and firm risk, we apply a difference-in-difference (D-in-D) regression analysis. The research sample is limited to companies for which we have a complete set of data for the years before and after the annexation of Crimea. We also exclude the event year 2014 from our analysis. We incorporate two metrics as proxies for a company's risk: the standard deviation of monthly returns (models 1 and 3) and the one-year beta (models 2 and 4). In models (1) and (2), we capture the national heterogeneity of the board with the *Country Blau* variable. In models (3) and (4), we replace the *Country Blau* with a dummy variable, *Treat*, that is equal to 1 when a company's board consists of at least one foreign director in each year preceding 2014 and no foreigners in the following years, and zero otherwise. To explore the impact of the geopolitical event on firm risk, we also include a second dummy variable, *Post Crisis*, which is equal to 1 for the years following the annexation of Crimea, and zero otherwise.

Table 9 and models (1) through (4) present our results. We find evidence indicating that the relationship between the post-crisis variable and a company's risk is statistically significant and negative. Surprisingly, regardless of the proxy for firm risk we use, these findings do not align with our initial expectations. In contrast to previous studies, we observe that a company's risk decreases after the annexation of Crimea. In other words, firm risk is lower in the years following the geopolitical event.

Additionally, we analyse whether the annexation of Crimea affects the relationship between the national diversity of the board and firm risk by introducing the interaction between variables. Despite using proxies for firm risk and national board heterogeneity, we find no evidence supporting our research sub-hypotheses. In summary, the annexation of Crimea has no significant impact on the relationship between the national diversity of the board and firm risk. It does not matter whether a company's board is homogeneous or heterogeneous.

INSTERT TABLE 9

7. Additional Exploration: National Diversity in Terms of Cultural Diversity

Referring to Cox (1993) and Ponomareva et al. (2022), the cultural diversity of top management teams represents individuals with distinctly different group affiliations of cultural significance based on racioethnicity and nationality. Cultural diversity is closely related to

national diversity, which causes cultural differences within organizations. Therefore, we decided to deepen our analysis of the relationship between the national diversity of boards and company risk by incorporating cultural attributes of board members.

We apply Hofstede's model (Hofstede, 1984) of national culture and three out of the six dimensions of culture: (1) Power Distance (PDI), (2) Individualism (IDV), and (3) Masculinity (MAS), as these, in our opinion, are most closely associated with the behavior and decision-making processes of managers[3]. For each cultural dimension we compute the gap (e.g. a PDI gap, an IDV gap, and a MAS gap). We start with the gap on board member level as the difference between the index of the cultural dimension associated with a company's country of origin and that of each board member. Next, we sum up obtained results at the company-year level.

In the case of the cultural dimension Power Distance, a PDI gap above zero indicates that board members are characterized by a smaller distance to power compared to the society of the country where the company's shares are listed on the stock exchange. Respectively, a negative value of a PDI gap suggest a greater distance to power. An IDV gap above zero for the cultural dimension Individualism suggests that board members exhibit greater collectivism in their actions than the society of the country from which the company originates. Conversely, an IDV gap below zero indicates greater individualism among board members. Moreover, a positive MAS gap, related to the cultural dimension of Masculinity, indicates that board members originate from societies characterized by relational and compromise-oriented traits compared to the society of the country from which the company originates. Conversely, a MAS gap below zero indicates a more conflictual and confrontational approach compared to the society of the company's domestic country.

Taking into account the cultural dimensions, we once again explore the relationship between the national diversity of the board and firm risk, seeking additional factors to explain our findings. We re-estimate our regression models (10), (11), and (12) as reported in Table 5. Based on the calculated gaps of three cultural dimensions, we divide our initial sample into six sub-samples based on the level of the gap. Table 10 displays the results of re-estimated models for sub-samples split by a PDI gap for companies: (1) with a PDI gap above zero, (2) with a PDI gap below zero. In Table 11, we report findings for sub-samples by an IDV gap for

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[3] Hofstede built the 6-D model of national culture with six basic issues that society needs to come to term with in order to organize itself. These are called dimensions of culture. Each of them has been expressed on a scale that runs roughly from 0 to 100. Hoftede's dimensions of culture are described on https://geerthofstede.com/culture-geert-hofstede-gert-jan-hofstede/6d-model-of-national-culture/

companies: (1) with an IDV gap above zero, (2) with an IDV gap below zero. Table 12 includes re-regressed models for sub-samples by a MAS gap for companies: (1) with a MAS gap above zero, (2) with a MAS gap below zero.

INSTERT TABLE 10
INSTERT TABLE 11
INSTERT TABLE 12

We find evidence that the level of the cultural dimension gaps moderates our findings concerning the impact of national board diversity on firm risk. Referring to all models presented in Table 10, we observe that when board members have a greater distance to power compared to the society of the company's domestic country and believe that power is distributed unequally, then the national diversity of the board more strongly affects a company's risk. Powerful, nationally diverse boards and centralized decision-making processes result in a greater reduction of firm risk. Moreover, referring to Table 11, we document similar corelation. When board members exhibit greater individualism in their actions compared to the society of the country from which the company originates then we should observe the lower firm risk. Finally, we document a similar pattern of the relationship between firm risk and national diversity for the last cultural dimension, Masculinity, and the MAS gap. When nationally diverse board members are more likely to use force and value material success and progress more than the society of the company's domestic country, the company's risk may be lower than in less masculine societies.

8. Conclusions

Our results show that the national diversity of the board has a negative and significant impact on firm risk. Higher national board heterogeneity is associated with lower firm risk. These findings are consistent with Nielsen's (2010) and Padgett's (2014) studies, which provide evidence that managers' international experience leads to reduced risk. Similar outcomes are reported by Furman et al. (2024), who show that demographic board diversity, including nationality, gender, and age diversity, is significantly and negatively related to firm risk. The relationship between firm risk and the national diversity of boards remains negative even after performing robustness tests.

Furthermore, contrary to our initial expectations, we find evidence that an increase in geopolitical risk, such as the annexation of Crimea, negatively affects a company's risk. Generally, firm risk decreases after the annexation of Crimea. Surprisingly, we find no evidence

that the annexation of Crimea has a significant impact on the relationship between the national diversity of the board and firm risk.

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Appendix: Definition of key variables

Variables	Definitions	Source
PANEL A: Total risk measures		
Monthly Std Dev	Standard deviation of firm monthly stock returns over the 12 months in the fiscal year.	EquityRT database
Weekly Std Dev	Standard deviation of firm weekly stock returns over the 12 months in the fiscal year.	EquityRT database
Daily Std Dev	Standard deviation of firm daily stock returns over the 12 months in the fiscal year.	EquityRT database
PANEL B: Systematic risk measures		
Beta 1y	Beta is computed by dividing the covariance of the firm`s weekly returns and the EURO STOXX 50 Index weekly returns by the variance of the EURO STOXX 50 Index weekly returns in the fiscal year. We only included companies for which returns were available for all 52 weeks.	Own calculation
Beta 2y	Beta is computed by dividing the covariance of the firm`s weekly returns and the EURO STOXX 50 Index weekly returns by the variance of the EURO STOXX 50 Index weekly returns over two years. We only included companies for which returns were available for all 104 weeks.	Own calculation
PANEL C: Nationality heterogeneity		
Country foreign share	Foreign board members as percentage of total statutory body members. A foreign board members is not a citizen or resident of the country where the company is based. We used the Namsor.app to identify the country of origin of board members.	Own calculation
Country Blau	Computed by the Blau index (Blau, 1977) using the formula $B = [1 - \sum_{i=1}^{n} p_i^2]$, where p_i is the percentage of members in the i-th group (i.e., country).	Own calculation by entropyetc STATA module
Country Shannon	Computed by the Shannon index (Shannon, 1948) using the formula $Sh = -\sum_{i=1}^{n} p_i ln p_i$, where p_i is the percentage of board members in each category (i.e., country), $ln p_i$ is the logarithm of this share, and n is the total number of board members.	Own calculation by entropyetc STATA module
Region foreign share	The proportion of members of statutory bodies from outside the group of countries in the same region as the company is considered. Using the nationalities identified by Namsor.app, we group the board members into three country groups: the Visegrád Group (Czech Republic, Hungary, Poland, and Slovakia), the Baltic States (Estonia, Latvia, and Lithuania), and other countries.	Own calculation
Region Blau	Computed by the Blau index (Blau, 1977) using the formula $B = [1 - \sum_{i=1}^{n} p_i^2]$, where p_i is the percentage of members in the i-th group (Visegrád Group, Baltic States and other countries).	Own calculation by entropyetc STATA module
Region Shannon	Computed by the Shannon index (Shannon, 1948) using the formula $Sh = -\sum_{i=1}^{n} p_i ln p_i$, where p_i is the percentage of board members in each category (Visegrád Group, Baltic States and other countries), $ln p_i$ is the logarithm of this share, and n is the total number of board members.	Own calculation by entropyetc STATA module
PANEL D: Control variables		
Board size	The natural logarithm of total number of directors on the board in the current year.	Own calculation

Variables	Definitions	Source
Board gender diversity	Computed by the Blau index (Blau, 1977) using the formula $B = [1 - \sum_{i=1}^{n} p_i^2]$, where p_i is the percentage of members in the i-th group (men and women).	Own calculation by entropyetc STATA module
Sale growth	The percentage change in annual sales.	EquityRT database
Market cap.	Natural logarithm of firm market value at the end of year.	EquityRT database
Tangibility ratio	Ratio of a company's tangible assets divided by its total assets.	EquityRT database
Intangibility ratio	Proportion of a company's goodwill and other intangible assets to its total assets.	EquityRT database
Leverage ratio	Calculated by dividing a company`s long-term debt by its book value of equity.	EquityRT database
Net debt-to-EBITDA	Calculated by dividing a company's net debt by its earnings before interest, taxes, depreciation, and amortization (EBITDA).	EquityRT database
Interest coverage ratio	The earnings before interest and tax divided by interest expense for firm i for year t.	EquityRT database
ROE	The net profit after tax before extraordinary items divided by shareholders' for firm i for year t.	EquityRT database
Illiquidity	We apply Amihud's (2002) measure of illiquidity, which is calculated as the daily ratio of the absolute return of a stock to its absolute order flow (the sum of buy and sell orders). To compute daily returns, we use close-to-open prices (Barardehi, et al., 2021).	Own calculation
Post-Crisis	The dummy variable equals 0 for the period before Crimea's annexation, from 2011 to 2013, and takes the value 1 for the period after Crimea's annexation, from 2015 to 2017.	Own calculation
Treat	The dummy variable equals 1 if the company had at least one foreigner in each year between 2011 and 2013, but no foreigner in the period from 2015 to 2017	Own calculation

Table 1: Year and country of origin distribution of sample at the firm level

This table presents the distribution of companies by year and country of origin. It also shows the share of companies with at least one foreign board member, the number of foreign directors, and the number of nationalities represented on the board at the firm level across years.

	2011	2012	2013	2014	2015	2016	2017	Total Obs
Panel A: Year and country distribution of companies								
Estonia	7	10	11	8	11	12	10	69
Latvia	1	1	1	1	2	2	3	11
Lithuania	14	15	15	18	19	17	18	116
Poland	201	230	247	270	285	286	292	1,811
Total sample	223	256	274	297	317	317	323	2,007
Panel B: Number of companies with at least one foreign board member								
Estonia	7	10	9	6	9	10	7	58
Latvia	1	1	1	1	2	2	2	10
Lithuania	5	6	6	6	7	7	8	45
Poland	85	102	114	134	140	133	130	838
Total	98	119	130	147	158	152	147	951
Panel C: Share of companies with at least one foreign board member								
Estonia	100.00%	100.00%	81.82%	75.00%	81.82%	83.33%	70.00%	84.06%
Latvia	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	66.67%	90.91%
Lithuania	35.71%	40.00%	40.00%	33.33%	36.84%	41.18%	44.44%	38.79%
Poland	42.29%	44.35%	46.15%	49.63%	49.12%	46.50%	44.52%	46.27%
Total	43.95%	46.48%	47.45%	49.49%	49.84%	47.95%	45.51%	47.38%
Panel D: Distribution of companies by number of foreign directors								
No of foreigners								
0 (only domestic)	125	137	144	150	159	165	176	1,056
1	57	68	69	78	81	72	70	495
2	10	15	20	23	25	26	26	145
3	9	10	12	9	14	14	12	80
4	3	4	7	12	9	8	10	53
5	3	6	4	8	8	12	11	52
6	2	2	4	4	9	4	7	32
7	4	5	4	5	3	6	2	29
8	6	3	2	0	2	2	3	18
9	0	1	2	3	1	3	3	13
10	0	2	1	2	2	1	0	8
11	2	1	2	1	2	1	1	10
12 and more	2	2	3	2	2	3	2	16
Panel E: Distribution of companies by the number of nationalities represented on the board								
No of nationalities								
1 (only domestic)	125	137	144	150	159	165	176	1,056
2	63	75	76	88	91	84	80	557
3	17	20	27	29	29	29	32	183
4	5	10	9	11	19	20	19	93
5	4	6	8	11	12	10	8	59
6	5	2	2	5	1	2	5	22
7	1	3	6	1	4	4	1	20
8	3	2	1	0	1	0	2	9
9	0	1	1	2	1	2	0	7
10	0	0	0	0	0	1	0	1

Table 2: Year and country of origin distribution of sample at the board member level

This table presents the distribution of board members by year and country of origin. It also shows the number of both domestic and foreign board members, and the number of foreign directors by country of origin across years.

	2011	2012	2013	2014	2015	2016	2017	Total No of individuals	Total (%)
Total number of board members	2,141	2,433	2,565	2,786	3,006	3,134	3,060	5,294	100%
Panel A: Number of domestic board members by countries (stock markets)									
Estonia	39	62	67	53	65	63	58	93	1.76%
Latvia	8	5	5	7	18	9	19	24	0.45%
Lithuania	92	91	91	110	119	107	103	192	3.63%
Poland	1,743	1,974	2,063	2,246	2,412	2,537	2,494	4,292	81.07%
Total domestic board members	1,882	2,132	2,226	2,416	2,614	2,716	2,674	4,601	86.91%
% of domestic board members	87.90%	87.63%	86.78%	86.72%	86.96%	86.66%	87.39%	86.91%	
Panel B: Number of foreign board members by countries (stock markets)									
Estonia	19	27	23	18	25	30	23	48	0.91%
Latvia	7	6	7	6	8	22	17	31	0.59%
Lithuania	18	17	19	21	20	17	19	44	0.83%
Poland	215	251	291	325	339	349	327	570	10.77%
Total foreign board members	259	301	340	370	392	418	386	693	13.09%
% of foreign board members	12.10%	12.37%	13.26%	13.28%	13.04%	13.34%	12.61%	13.09%	
Panel C: Number of foreign board members by origin of country									
Afghanistan	1	1	1	0	0	0	0	1	0.02%
Algeria	0	0	1	1	1	1	0	1	0.02%
Armenia	0	0	0	0	0	0	1	1	0.02%
Austria	7	8	8	11	10	12	9	19	0.36%
Bangladesh	1	1	1	1	0	0	0	1	0.02%
Belarus	1	3	2	1	2	2	1	4	0.08%
Belgium	7	10	9	11	8	7	6	15	0.28%
Bulgaria	0	1	2	2	3	3	2	4	0.08%
Cambodia	0	0	1	1	0	1	1	1	0.02%
Cameroon	0	1	1	1	1	1	1	1	0.02%
China	0	0	0	0	2	4	5	6	0.11%
Croatia	3	2	2	1	1	1	0	3	0.06%
Czechia	4	6	9	10	10	10	13	18	0.34%
Denmark	1	3	4	5	5	5	5	7	0.13%
Egypt	0	1	1	1	2	3	3	3	0.06%
Estonia	0	0	0	0	1	0	1	2	0.04%
Ethiopia	1	1	1	1	1	0	0	1	0.02%
Finland	8	8	6	4	6	8	3	16	0.30%
France	32	32	40	34	31	35	31	60	1.13%
Germany	29	40	46	58	60	61	52	93	1.76%
Ghana	0	0	0	2	2	2	3	3	0.06%
Greece	1	1	2	2	1	1	1	2	0.04%
Hong Kong SAR China	0	0	0	0	1	1	1	1	0.02%
Hungary	2	2	6	5	4	3	3	8	0.15%
India	2	2	6	6	5	6	5	10	0.19%
Indonesia	1	1	1	1	1	1	1	1	0.02%
Iraq	0	0	0	0	0	0	1	1	0.02%
Ireland	3	4	5	3	3	5	3	9	0.17%
Israel	9	12	10	11	14	17	22	37	0.70%

	2011	2012	2013	2014	2015	2016	2017	Total No of individuals	Total (%)
Italy	6	12	12	14	17	18	13	28	0.53%
Japan	0	0	0	0	1	1	1	1	0.02%
Kenya	1	1	1	1	1	1	1	1	0.02%
Kosovo	0	1	1	1	0	0	0	1	0.02%
Latvia	0	0	0	1	1	1	1	1	0.02%
Lebanon	0	1	1	1	1	1	1	1	0.02%
Liberia	0	0	1	1	1	1	1	1	0.02%
Lithuania	0	3	3	2	2	2	3	6	0.11%
Moldova	2	2	2	1	2	3	3	4	0.08%
Mongolia	0	0	0	0	0	1	1	1	0.02%
Netherlands	8	9	9	11	13	11	9	15	0.28%
North Macedonia	0	1	1	1	1	1	0	1	0.02%
Norway	2	1	1	2	2	3	5	5	0.09%
Pakistan	1	1	1	1	1	2	1	2	0.04%
Poland	1	1	1	1	1	1	1	1	0.02%
Portugal	8	8	10	9	9	8	7	10	0.19%
Romania	4	4	4	4	5	5	5	8	0.15%
Russia	6	9	10	12	12	16	16	26	0.49%
Saudi Arabia	0	0	0	0	1	1	1	1	0.02%
Serbia	3	3	3	2	2	2	2	3	0.06%
Slovakia	24	21	27	31	33	28	25	52	0.98%
Slovenia	1	1	2	2	2	1	0	2	0.04%
South Africa	0	0	0	0	0	1	1	1	0.02%
Spain	19	22	22	32	29	31	29	44	0.83%
Sweden	15	8	9	11	11	14	13	30	0.57%
Switzerland	5	6	9	9	6	9	9	14	0.26%
Syria	0	0	0	0	0	0	1	1	0.02%
Taiwan	0	0	0	0	0	2	2	3	0.06%
Tunisia	0	0	0	1	1	0	0	1	0.02%
Turkey	1	1	1	3	5	5	3	6	0.11%
Uganda	0	0	0	0	0	0	1	1	0.02%
Ukraine	12	12	11	10	14	15	16	21	0.40%
United Kingdom	26	33	33	33	42	42	39	68	1.29%
Uzbekistan	0	0	0	0	1	1	1	1	0.02%

Table 3: The number of unique nationalities of individuals in statutory bodies

This table provides descriptive statistics for our key as well as control variables. Panel A presents the distribution by board member characteristics. Panel B contains descriptive statistics of risk metrics. Panel C consists of variables describing firm characteristics. Panels D and E display the yearly distribution of the mean values of our key variables. Variable definitions are contained in the Appendix.

	Min	Max	Median	Mean	Mean for subsamples		Diff
					with foreign members	without foreign members	
Panel A: Descriptive Statistics: Board characteristics (N=2,007)							
Board size	3.0000	36.0000	10.0000	10.5655	11.1322	9.6627	1.4694***
# of foreign board members	0.0000	21.0000	0.0000	1.2915	2.1021	0	2.1021***
Country foreign share	0.0000	1.0000	0.0000	0.1111	0.18091	0	0.1809***
Country Blau	0.0000	0.8347	0.0000	0.1574	0.2561	0	0.2561***
Country Shannon	0.0000	2.0238	0.0000	0.2912	0.4739	0	0.4739***
Gender (% of male)	0.1250	1.0000	0.8889	0.8705	0.8776	0.8592	0.0184***
Board gender diversity	0.0000	0.5000	0.1975	0.1936	0.1841	0.2088	-0.0247***
Panel B: Descriptive Statistics: Risk measures (N=2,007)							
Monthly Std Dev	2.4768	35.3713	8.7114	9.9304	9.7385	10.2360	-0.4975**
Weekly Std Dev	1.5711	17.6339	4.7789	5.3510	5.2670	5.4848	-0.2178*
Daily Std Dev	0.9401	7.3893	2.3403	2.5763	2.5408	2.6326	-0.0918*
Beta 1y	-0.7275	1.4809	0.3535	0.3644	0.3663	0.3612	0.0050
Beta 2y	-0.3820	1.2118	0.3751	0.3927	0.3902	0.3965	-0.0063
Panel C: Descriptive statistics: Company's characteristics (N=2,007)							
Market cap.	6.2804	16.2015	10.4870	10.6709	10.8143	10.4423	0.3720***
Sale growth	-0.6220	2.2999	0.0615	0.1227	0.1230	0.1223	0.0006
Tangibility ratio	0.0000	0.9917	0.5090	0.5060	0.5221	0.4801	0.0420
Intangibility ratio	0.0000	0.7122	0.0134	0.0555	0.0634	0.0428	0.0205***
Leverage ratio	0.0000	3.9902	0.2408	0.4291	0.4699	0.3641	0.1057***
Net debt-to-EBITDA	-0.1012	0.4921	0.0096	0.0230	0.0254	0.0189	0.0065**
Interest coverage ratio	-0.1163	21.3053	0.0471	0.5529	0.6110	0.4602	0.1507
ROE	-0.6099	0.8035	0.0863	0.0986	0.0973	0.1005	-0.0032
Illiquidity	0.0000	1.9379	0.0206	0.1087	0.0958	0.1292	-0.0333***

	2011	2012	2013	2014	2015	2016	2017
Panel D: Board characteristics: Mean by year for firms with at least one foreign board member (n=1,233)							
Board size	11.0145	10.9935	10.8294	11.0053	11.2857	11.6823	11.0155
# of foreign board members	1.9565	2.0194	2.0882	2.0529	2.1480	2.2969	2.0933
Country foreign share	0.1654	0.1755	0.1751	0.1768	0.1850	0.1930	0.1894
Country Blau	0.2316	0.2515	0.2523	0.2521	0.2659	0.2703	0.2610
Country Shannon	0.4296	0.4654	0.4701	0.4635	0.4925	0.5013	0.4800
Gender (% of male)	0.8848	0.8794	0.8822	0.8774	0.8767	0.8742	0.8718
Board gender diversity	0.1677	0.1796	0.1809	0.1890	0.1865	0.1897	0.1895
Panel E: Risk measures: Mean by year for firms with at least one foreign board member (n=1,233)							
Monthly Std Dev	11.2370	11.4135	10.5642	9.4203	9.7539	8.9247	7.7003
Weekly Std Dev	5.9334	5.8827	5.6999	5.4115	5.1181	4.8336	4.3556
Daily Std Dev	2.8279	2.7678	2.7073	2.6332	2.4896	2.3230	2.1851
Beta 1y	0.5416	0.5325	0.3609	0.3642	0.3201	0.2866	0.2409
Beta 2y	0.5868	0.5811	0.4350	0.3772	0.3330	0.2641	0.2777

Table 4: The impact of board national heterogeneity on firm risk (sample of companies with and without foreign directors in the board)

This table provides the baseline Pooled-OLS regression results for the relationship between board national heterogeneity and firm risk in companies with and without foreign directors in the board. In all regressions the dependent variable is the standard deviation of monthly stock returns. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	Board national heterogeneity (No control variables)			Control variables included (e.g. corporate governance, size, and financial condition of company)			Year fixed effects included			Control variable Illiquidity included		
	(1) Monthly SD	(2) Monthly SD	(3) Monthly SD	(4) Monthly SD	(5) Monthly SD	(6) Monthly SD	(7) Monthly SD	(8) Monthly SD	(9) Monthly SD	(10) Monthly SD	(11) Monthly SD	(12) Monthly SD
Country foreign share	-3.2072*** (0.8848)			-1.8960** (0.8118)			-1.8636** (0.8120)			-1.9646** (0.8106)		
Country Blau		-2.5773*** (0.7686)			-1.5988** (0.7122)			-1.5909** (0.7099)			-1.6272** (0.7079)	
Country Shannon			-1.4175*** (0.3882)			-0.8752** (0.3642)			-0.8812** (0.3629)			-0.9027** (0.3623)
Board size				1.5635*** (0.5514)	1.6033*** (0.5531)	1.6594*** (0.5568)	1.5343*** (0.5465)	1.5750*** (0.5476)	1.6328*** (0.5509)	1.5628*** (0.5480)	1.6021*** (0.5497)	1.6615*** (0.5533)
Board gender diversity				1.9940** (0.9190)	1.9832** (0.9248)	1.9859** (0.9250)	2.2316** (0.9154)	2.2191** (0.9208)	2.2203** (0.9215)	2.0648** (0.9015)	2.0594** (0.9080)	2.0599** (0.9086)
Sale growth				0.7725* (0.4134)	0.7731* (0.4141)	0.7681* (0.4140)	0.8661** (0.4177)	0.8671** (0.4186)	0.8614** (0.4185)	0.8367** (0.4035)	0.8401** (0.4046)	0.8341** (0.4045)
Market cap.				-0.8765*** (0.1026)	-0.8814*** (0.1022)	-0.8803*** (0.1021)	-0.8397*** (0.1035)	-0.8443*** (0.1031)	-0.8429*** (0.1030)	-0.7551*** (0.1018)	-0.7621*** (0.1014)	-0.7604*** (0.1012)
Tangibility ratio				-1.5516** (0.7275)	-1.5546** (0.7222)	-1.5392** (0.7219)	-1.5654** (0.7441)	-1.5672** (0.7383)	-1.5501** (0.7380)	-1.6431** (0.7268)	-1.6477** (0.7207)	-1.6302** (0.7204)
Intangibility ratio				3.4065* (2.0447)	3.4087* (2.0455)	3.4145* (2.0441)	3.7334* (2.0870)	3.7372* (2.0878)	3.7447* (2.0863)	3.9772* (2.0876)	3.9731* (2.0906)	3.9817* (2.0889)
Leverage ratio				0.3227 (0.3206)	0.3175 (0.3198)	0.3142 (0.3198)	0.3940 (0.3381)	0.3897 (0.3379)	0.3871 (0.3381)	0.4058 (0.3316)	0.3994 (0.3318)	0.3969 (0.3321)
Net debt-to-EBITDA				9.6577*** (2.9796)	9.6878*** (2.9797)	9.6903*** (2.9821)	9.5377*** (2.9659)	9.5662*** (2.9652)	9.5695*** (2.9671)	9.1323*** (2.9659)	9.1673*** (2.9654)	9.1697*** (2.9674)
Interest coverage ratio				0.0544 (0.0510)	0.0528 (0.0507)	0.0533 (0.0507)	0.0643 (0.0504)	0.0627 (0.0502)	0.0632 (0.0502)	0.0658 (0.0501)	0.0640 (0.0499)	0.0645 (0.0499)
ROE				-0.4666 (0.9637)	-0.4134 (0.9655)	-0.4016 (0.9613)	-0.7324 (0.9671)	-0.6794 (0.9686)	-0.6671 (0.9637)	-0.6376 (0.9794)	-0.5848 (0.9826)	-0.5720 (0.9774)
Illiquidity										1.6421*** (0.6238)	1.6122** (0.6256)	1.6166** (0.6255)
Constant	10.2868*** (0.2147)	10.3360*** (0.2275)	10.3431*** (0.2240)	15.6716*** (1.2404)	15.6746*** (1.2400)	15.5281*** (1.2445)	15.2670*** (1.2137)	15.2661*** (1.2126)	15.1148*** (1.2158)	14.1872*** (1.2735)	14.2143*** (1.2728)	14.0559*** (1.2772)
Year fixed effects	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No	No	No	No	No	No	No
Firm clustered	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,007	2,007	2,007	2,007	2,007	2,007	2,007	2,007	2,007	2,007	2,007	2,007
F	13.1384	11.2440	13.3322	11.5991	11.6476	11.7532	11.2981	11.3614	11.4687	10.8618	10.8925	10.9868
R^2	0.0106	0.0100	0.0112	0.1178	0.1180	0.1183	0.1554	0.1556	0.1560	0.1611	0.1611	0.1615
Adj. R^2	0.0101	0.0095	0.0107	0.1130	0.1131	0.1134	0.1482	0.1484	0.1488	0.1535	0.1535	0.1539

Table 5: The impact of board national heterogeneity on firm risk (sample of companies that have at least one foreign director)

This table provides the baseline Pooled-OLS regression results for the relationship between board national heterogeneity and firm risk in companies that have at least one foreigner in the board. In all regressions the dependent variable is the standard deviation of monthly stock returns. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	Board national heterogeneity (No control variables)			Control variables included (e.g. corporate governance, size, and financial condition of company)			Year fixed effects included			Control variable *Illiquidity* included		
	(1) Monthly SD	(2) Monthly SD	(3) Monthly SD	(4) Monthly SD	(5) Monthly SD	(6) Monthly SD	(7) Monthly SD	(8) Monthly SD	(9) Monthly SD	(10) Monthly SD	(11) Monthly SD	(12) Monthly SD
Country foreign share	-3.3657*** (1.0077)			-1.4219 (0.8968)			-1.2895 (0.8966)			-1.4991* (0.9058)		
Country Blau		-2.9225*** (0.9288)			-1.3793 (0.8513)			-1.2641 (0.8483)			-1.3779 (0.8505)	
Country Shannon			-1.5958*** (0.4596)			-0.8203* (0.4290)			-0.7780* (0.4269)			-0.8387* (0.4279)
Board size				2.2229*** (0.6070)	2.2511*** (0.6087)	2.3290*** (0.6148)	2.1356*** (0.5894)	2.1614*** (0.5905)	2.2356*** (0.5959)	2.1717*** (0.5829)	2.2007*** (0.5844)	2.2810*** (0.5899)
Board gender diversity				2.5703** (1.2230)	2.5589** (1.2314)	2.5467** (1.2329)	2.8993** (1.2021)	2.8866** (1.2091)	2.8709** (1.2111)	2.7736** (1.1840)	2.7698** (1.1941)	2.7535** (1.1963)
Sale growth				1.1128** (0.5504)	1.1035** (0.5510)	1.0899** (0.5508)	1.1864** (0.5517)	1.1791** (0.5525)	1.1638** (0.5526)	1.1235** (0.5237)	1.1213** (0.5251)	1.1052** (0.5248)
Market cap.				-0.8188*** (0.1171)	-0.8217*** (0.1166)	-0.8186*** (0.1165)	-0.7551*** (0.1178)	-0.7577*** (0.1175)	-0.7539*** (0.1174)	-0.6579*** (0.1201)	-0.6643*** (0.1193)	-0.6598*** (0.1191)
Tangibility ratio				-2.3979** (0.9637)	-2.3853** (0.9580)	-2.3541** (0.9576)	-2.5637*** (0.9812)	-2.5510*** (0.9745)	-2.5166** (0.9743)	-2.6440*** (0.9635)	-2.6372*** (0.9559)	-2.6026*** (0.9558)
Intangibility ratio				3.7214* (2.1081)	3.6907* (2.1038)	3.6952* (2.0891)	4.2353* (2.1851)	4.2059* (2.1816)	4.2078* (2.1650)	4.5726** (2.1743)	4.5368** (2.1744)	4.5425** (2.1574)
Leverage ratio				-0.2634 (0.2517)	-0.2675 (0.2538)	-0.2674 (0.2543)	-0.1925 (0.2710)	-0.1957 (0.2740)	-0.1942 (0.2753)	-0.1734 (0.2690)	-0.1800 (0.2721)	-0.1787 (0.2735)
Net debt-to-EBITDA				10.9927*** (4.0856)	11.0073*** (4.0814)	11.0137*** (4.0800)	11.4097*** (4.0349)	11.4229*** (4.0285)	11.4316*** (4.0254)	11.4495*** (4.0316)	11.4596*** (4.0261)	11.4684*** (4.0231)
Interest coverage ratio				-0.0002 (0.0539)	-0.0020 (0.0540)	-0.0011 (0.0542)	0.0096 (0.0515)	0.0079 (0.0516)	0.0088 (0.0519)	0.0154 (0.0517)	0.0132 (0.0517)	0.0142 (0.0519)
ROE				0.7682 (1.1823)	0.8347 (1.1774)	0.8578 (1.1672)	0.2454 (1.1856)	0.3065 (1.1808)	0.3304 (1.1697)	0.3136 (1.1754)	0.3783 (1.1743)	0.4039 (1.1620)
Illiquidity										1.9907** (0.9718)	1.9511** (0.9728)	1.9672** (0.9710)
Constant	10.3474*** (0.3016)	10.4872*** (0.3411)	10.4948*** (0.3292)	13.8146*** (1.4099)	13.8718*** (1.4080)	13.6742*** (1.4055)	13.2931*** (1.3715)	13.3458*** (1.3706)	13.1584*** (1.3664)	12.0355*** (1.4652)	12.1206*** (1.4646)	11.9083*** (1.4653)
Year fixed effects	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No	No	No	No	No	No	No
Firm clustered	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233
F	11.1549	9.9014	12.0582	9.3882	9.3619	9.4681	8.8832	8.8556	8.9588	8.7057	8.6614	8.7586
R^2	0.0151	0.0145	0.0166	0.1258	0.1263	0.1273	0.1749	0.1754	0.1764	0.1814	0.1817	0.1829
Adj. R^2	0.0143	0.0137	0.0158	0.1179	0.1185	0.1195	0.1633	0.1638	0.1649	0.1693	0.1696	0.1708

Table 6: The impact of board national heterogeneity on firm risk (sub-samples by level of risk of companies that have at least one foreign director)

This table provides the baseline Pooled-OLS regression results for the relationship between board national heterogeneity and firm risk. The dependent variable is the standard deviation of monthly stock returns. The models are estimated by level of risk separately for companies: (1) with the standard deviation higher than median; (2) with the standard deviation lower than median. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	All observations	Std. dev. higher than median	Std. dev. lower than median	All observations	Std. dev. higher than median	Std. dev. lower than median	All observations	Std. dev. higher than median	Std. dev. lower than median
	(1) Monthly SD	(2) Monthly SD	(3) Monthly SD	(4) Monthly SD	(5) Monthly SD	(6) Monthly SD	(7) Monthly SD	(8) Monthly SD	(9) Monthly SD
Country foreign share	-1.4991*	-0.0138	-0.6733						
	(0.9058)	(1.1393)	(0.4508)						
Country Blau				-1.3779	-0.2750	-0.6531			
				(0.8505)	(1.0314)	(0.4054)			
Country Shannon							-0.8387*	-0.2212	-0.4203**
							(0.4279)	(0.5446)	(0.2044)
Board size	2.1717***	1.5895**	0.9211***	2.2007***	1.5816**	0.9349***	2.2810***	1.5966**	0.9847***
	(0.5829)	(0.7743)	(0.3329)	(0.5844)	(0.7738)	(0.3323)	(0.5899)	(0.7808)	(0.3292)
Board gender diversity	2.7736**	1.6634	0.4269	2.7698**	1.6623	0.4181	2.7535**	1.6586	0.3996
	(1.1840)	(1.1858)	(0.5363)	(1.1941)	(1.1879)	(0.5340)	(1.1963)	(1.1894)	(0.5279)
Sale growth	1.1235**	1.0996*	0.2933	1.1213**	1.0872*	0.2905	1.1052**	1.0805*	0.2760
	(0.5237)	(0.5950)	(0.2331)	(0.5251)	(0.5974)	(0.2347)	(0.5248)	(0.5978)	(0.2355)
Market cap.	-0.6579***	-0.5871***	-0.0611	-0.6643***	-0.5829***	-0.0627	-0.6598***	-0.5803***	-0.0604
	(0.1201)	(0.1538)	(0.0589)	(0.1193)	(0.1516)	(0.0585)	(0.1191)	(0.1518)	(0.0579)
Tangibility ratio	-2.6440***	-0.9194	-1.1241**	-2.6372***	-0.9118	-1.1107**	-2.6026***	-0.9036	-1.0834**
	(0.9635)	(1.1243)	(0.4349)	(0.9559)	(1.1224)	(0.4314)	(0.9558)	(1.1225)	(0.4316)
Intangibility ratio	4.5726**	4.4396**	0.5366	4.5368**	4.4082**	0.5167	4.5425**	4.3939**	0.5386
	(2.1743)	(2.0782)	(0.8770)	(2.1744)	(2.0916)	(0.8525)	(2.1574)	(2.0946)	(0.8307)
Leverage ratio	-0.1734	-0.2621	0.0559	-0.1800	-0.2554	0.0530	-0.1787	-0.2525	0.0525
	(0.2690)	(0.3276)	(0.1165)	(0.2721)	(0.3291)	(0.1155)	(0.2735)	(0.3298)	(0.1137)
Net debt-to-EBITDA	11.4495***	14.2604***	0.2105	11.4596***	14.2545***	0.2367	11.4684***	14.2467***	0.2878
	(4.0316)	(4.1922)	(1.4975)	(4.0261)	(4.1851)	(1.4760)	(4.0231)	(4.1830)	(1.4830)
Interest coverage ratio	0.0154	0.0479	-0.0007	0.0132	0.0486	-0.0018	0.0142	0.0491	-0.0011
	(0.0517)	(0.1136)	(0.0271)	(0.0517)	(0.1136)	(0.0272)	(0.0519)	(0.1137)	(0.0275)
ROE	0.3136	1.3187	-0.1063	0.3783	1.3146	-0.0769	0.4039	1.3144	-0.0435
	(1.1754)	(1.1536)	(0.9264)	(1.1743)	(1.1471)	(0.9158)	(1.1620)	(1.1455)	(0.8810)
Illiquidity	1.9907**	1.8614	0.3723	1.9511**	1.8613	0.3815	1.9672**	1.8635	0.4030
	(0.9718)	(1.2057)	(0.3370)	(0.9728)	(1.2003)	(0.3402)	(0.9710)	(1.2014)	(0.3398)
Constant	12.0355***	14.7673***	5.3634***	12.1206***	14.8006***	5.3877***	11.9083***	14.7652***	5.2628***
	(1.4652)	(1.8414)	(0.7105)	(1.4646)	(1.8358)	(0.7130)	(1.4653)	(1.8497)	(0.7003)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No	No	No	No
Firm clustered	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,233	605	628	1,233	605	628	1,233	605	628
F	8.7057	4.4036	2.2815	8.6614	4.3905	2.2613	8.7586	4.4018	2.4468
R^2	0.1814	0.2186	0.2009	0.1817	0.2187	0.2020	0.1829	0.2189	0.2059
Adj. R^2	0.1693	0.1946	0.1773	0.1696	0.1947	0.1784	0.1708	0.1949	0.1824

Table 7: Robustness test: Firm risk as the one-year and two-year beta (sample of companies that have at least one foreign director)

This table provides the baseline Pooled-OLS regression results for the relationship between board national heterogeneity and firm risk in companies that have at least one foreigner in the board. The dependent variable are the one-year and two-year betas, respectively. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	(1) Beta 1y	(2) Beta 1y	(3) Beta 1y	(4) Beta 2y	(5) Beta 2y	(6) Beta 2y
Country Foreign share	-0.1673** (0.0686)			-0.2072*** (0.0629)		
Country Blau		-0.1523** (0.0596)			-0.1716*** (0.0578)	
Country Shannon			-0.0892*** (0.0292)			-0.0997*** (0.0283)
Board size	0.0993** (0.0469)	0.1025** (0.0469)	0.1110** (0.0466)	0.0942** (0.0426)	0.0981** (0.0428)	0.1078** (0.0424)
Board gender diversity	0.0674 (0.0792)	0.0671 (0.0795)	0.0659 (0.0792)	0.0791 (0.0742)	0.0802 (0.0749)	0.0790 (0.0746)
Sale growth	-0.0174 (0.0312)	-0.0175 (0.0312)	-0.0189 (0.0311)	-0.0229 (0.0232)	-0.0221 (0.0231)	-0.0237 (0.0230)
Market cap.	0.0285*** (0.0098)	0.0277*** (0.0097)	0.0281*** (0.0097)	0.0243*** (0.0087)	0.0230*** (0.0087)	0.0234*** (0.0087)
Tangibility ratio	-0.1048* (0.0600)	-0.1042* (0.0595)	-0.1011* (0.0595)	-0.1232** (0.0588)	-0.1238** (0.0581)	-0.1204** (0.0580)
Intangibility ratio	0.1166 (0.0947)	0.1127 (0.0937)	0.1136 (0.0930)	0.1309 (0.0898)	0.1262 (0.0896)	0.1275 (0.0882)
Leverage ratio	0.0157 (0.0159)	0.0149 (0.0159)	0.0149 (0.0158)	0.0160 (0.0186)	0.0146 (0.0186)	0.0145 (0.0185)
Net debt-to-EBITDA	-0.1291 (0.1782)	-0.1281 (0.1788)	-0.1274 (0.1788)	-0.1513 (0.1479)	-0.1518 (0.1478)	-0.1516 (0.1481)
Interest coverage ratio	-0.0003 (0.0037)	-0.0005 (0.0037)	-0.0004 (0.0036)	-0.0020 (0.0048)	-0.0024 (0.0049)	-0.0023 (0.0048)
ROE	-0.0149 (0.0643)	-0.0077 (0.0638)	-0.0053 (0.0626)	0.0044 (0.0637)	0.0126 (0.0638)	0.0156 (0.0626)
Illiquidity	-0.0339 (0.0739)	-0.0384 (0.0736)	-0.0370 (0.0735)	-0.1373*** (0.0420)	-0.1441*** (0.0425)	-0.1426*** (0.0425)
Constant	-0.1065 (0.1031)	-0.0969 (0.1027)	-0.1194 (0.1027)	-0.0007 (0.0942)	0.0115 (0.0946)	-0.0140 (0.0943)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No
Firm clustered	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,233	1,233	1,233	1,172	1,172	1,172
F	3.8944	3.8293	4.0653	8.2447	7.2977	7.6549
R^2	0.1234	0.1239	0.1260	0.2475	0.2456	0.2495
Adj. R^2	0.1104	0.1109	0.1131	0.2358	0.2338	0.2377

Table 8: Robustness test: Region Foreign Share, Region Blau, and Region Shannon variables (companies that have at least one foreign director)

This table provides the baseline Pooled-OLS regression results for the relationship between board national heterogeneity and firm risk in companies that have at least one foreigner in the board. We employ the new explanatory variables the Region Foreign Share, Region Blau, and Region Shannon. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	(1) Monthly SD	(2) Monthly SD	(3) Monthly SD
Foreign Region Share	-1.5189*		
	(0.8638)		
Region Blau		-1.0644	
		(1.0117)	
Region Shannon			-0.5014
			(0.7006)
Board size	2.1659***	2.1888***	2.1914***
	(0.5819)	(0.5810)	(0.5798)
Board gender diversity	2.7413**	2.7739**	2.8270**
	(1.1825)	(1.2037)	(1.1990)
Sale growth	1.1246**	1.1587**	1.1734**
	(0.5242)	(0.5276)	(0.5288)
Market cap.	-0.6515***	-0.6719***	-0.6789***
	(0.1203)	(0.1190)	(0.1184)
Tangibility ratio	-2.6679***	-2.7223***	-2.7450***
	(0.9631)	(0.9537)	(0.9521)
Intangibility ratio	4.6177**	4.5787**	4.5805**
	(2.1662)	(2.2016)	(2.2236)
Leverage ratio	-0.1657	-0.1903	-0.2013
	(0.2671)	(0.2688)	(0.2681)
Net debt-to-EBITDA	11.4556***	11.4241***	11.4229***
	(4.0408)	(4.0469)	(4.0537)
Interest coverage ratio	0.0175	0.0118	0.0116
	(0.0520)	(0.0507)	(0.0504)
ROE	0.2857	0.3432	0.3345
	(1.1805)	(1.1982)	(1.2040)
Illiquidity	2.0147**	1.9197*	1.9059*
	(0.9747)	(0.9786)	(0.9779)
Constant	11.9572***	12.1293***	12.1534***
	(1.4685)	(1.4698)	(1.4715)
Year fixed effects	Yes	Yes	Yes
Country fixed effects	No	No	No
Firm clustered	Yes	Yes	Yes
Obs.	1,233	1,233	1,233
F	8.8088	8.6376	8.5789
R^2	0.1816	0.1800	0.1793
Adj. R^2	0.1694	0.1678	0.1671

Table 9: Annexation of Crimea and the Relationship between National Heterogeneity of the Board and Firm Risk

This table provides the results of the difference-in-differences regression analysis of the impact of the annexation of Crimea on the relationship between board national heterogeneity and firm risk. The sample is limited to companies for which we have a complete set of data for the years before and after the annexation of Crimea. We exclude the event year 2014 from our analysis. The dependent variable are a standard deviation of monthly stock returns and the one-year beta, respectively. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	(1) Monthly SD	(2) Beta 1y	(3) Monthly SD	(4) Beta 1y
Country Blau	-1.2640	-0.2061**		
	(1.0648)	(0.0805)		
Treat			-0.8511	0.0131
			(0.9350)	(0.0710)
Post Crisis	-1.7049***	-0.2072***	-2.6171***	-0.2473***
	(0.3232)	(0.0275)	(0.4596)	(0.0350)
Country Blau x Post Crisis	-0.9029	-0.0389	1.3393	0.0209
	(1.2471)	(0.0837)	(1.1865)	(0.0938)
Treat x Post Crisis			1.3393	0.0209
			(1.1865)	(0.0938)
Board size	2.5030***	0.1214**	2.5400**	0.1283
	(0.6529)	(0.0564)	(0.9667)	(0.0846)
Board gender diversity	2.9463**	0.0400	5.2742**	0.0846
	(1.2829)	(0.0926)	(2.2625)	(0.1626)
Sale growth	0.9682*	0.0604	0.7619	0.1073**
	(0.4961)	(0.0384)	(0.6349)	(0.0409)
Market cap.	-0.5255***	0.0315***	-0.4533**	0.0378**
	(0.1229)	(0.0102)	(0.1907)	(0.0179)
Tangibility ratio	-3.6828***	-0.1208**	-3.3203***	-0.2655**
	(0.8918)	(0.0610)	(1.2455)	(0.1085)
Intangibility ratio	4.7884	0.1150	-0.7796	0.0540
	(3.8023)	(0.1251)	(3.2091)	(0.1965)
Leverage ratio	-0.1789	0.0062	-0.5321	-0.0007
	(0.3469)	(0.0198)	(0.3445)	(0.0324)
Net debt-to-EBITDA	13.1459*	0.1565	12.4279	0.0859
	(7.0258)	(0.2929)	(8.6687)	(0.6422)
Interest coverage ratio	0.0481	-0.0015	-0.0073	-0.0104
	(0.0382)	(0.0054)	(0.0604)	(0.0098)
ROE	-1.7868	0.0073	-1.0220	-0.1572
	(1.6580)	(0.0802)	(2.3754)	(0.1229)
Illiquidity	1.9522*	0.0348	2.7433	0.0331
	(1.0830)	(0.0771)	(2.3094)	(0.0987)
Constant	11.1546***	-0.0645	9.9170***	-0.1011
	(1.5516)	(0.1153)	(2.0724)	(0.1788)
Year fixed effects	No	No	No	No
Country fixed effects	No	No	No	No
Firm clustered	Yes	Yes	Yes	Yes
Obs.	942	942	396	396
F	9.7490	12.3285	4.9615	9.7864
R²	0.1886	0.1421	0.2059	0.1704
Adj. R²	0.1763	0.1292	0.1767	0.1399

Table 10: Board national heterogeneity, firm risk, and cultural dimension Power Distance (sub-samples by level of a PDI gap)

This table provides the baseline Pooled-OLS regression results for the relationship between board national heterogeneity and firm risk. The dependent variable is the standard deviation of monthly stock returns. The models are estimated by level of a PDI gap: (1) with a PDI gap above zero, (2) with a PDI gap below zero. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	PDI gap above zero	PDI gap below zero	PDI gap above zero	PDI gap below zero	PDI gap above zero	PDI gap below zero
	(1)	(2)	(3)	(4)	(5)	(6)
	Monthly SD	Monthly SD	Monthly SD	Monthly SD	Monthly SD	Monthly SD
Country foreign share	-2.3949*	-4.3939**				
	(1.3178)	(1.8215)				
Country Blau			-3.2795***	-4.9793***		
			(1.2099)	(1.5316)		
Country Shannon					-1.7602***	-2.3864***
					(0.5571)	(0.7328)
Board size	1.9840**	0.1518	1.9480**	0.1271	2.1863***	0.4457
	(0.7857)	(1.2543)	(0.7865)	(1.2497)	(0.7768)	(1.2442)
Board gender diversity	1.7907	1.7596	1.7606	1.2711	1.8197	1.2836
	(1.5522)	(2.2115)	(1.5570)	(2.2346)	(1.5604)	(2.2320)
Sale growth	1.3957	0.6131	1.3498	0.5780	1.3411	0.5588
	(0.8843)	(0.9623)	(0.8808)	(0.9866)	(0.8818)	(0.9903)
Market cap.	-0.7938***	-0.1603	-0.7645***	-0.1576	-0.7659***	-0.1608
	(0.1746)	(0.1842)	(0.1710)	(0.1835)	(0.1684)	(0.1832)
Tangibility ratio	-2.8943**	-4.8608***	-2.8657**	-4.7464***	-2.8095**	-4.7432***
	(1.2079)	(1.5086)	(1.1618)	(1.5304)	(1.1558)	(1.5259)
Intangibility ratio	4.2102	4.9935	4.3306	5.4198	4.3676	5.4762
	(2.7596)	(4.7974)	(2.7397)	(4.5588)	(2.7850)	(4.5406)
Leverage ratio	0.0154	0.0581	0.0184	0.0667	0.0114	0.0473
	(0.3194)	(0.5412)	(0.3274)	(0.5576)	(0.3302)	(0.5477)
Net debt-to-EBITDA	9.2839*	17.3651*	9.4426*	16.2839*	9.5036*	16.1189*
	(5.0958)	(9.1800)	(5.0149)	(9.4408)	(5.0171)	(9.5243)
Interest coverage ratio	0.0901	0.0378	0.0876	0.0276	0.0885	0.0381
	(0.0673)	(0.0475)	(0.0675)	(0.0457)	(0.0679)	(0.0479)
ROE	0.6803	-0.0194	0.6740	0.2295	0.7597	0.2972
	(1.5831)	(2.2552)	(1.5387)	(2.2512)	(1.5162)	(2.2491)
Illiquidity	1.5931	1.8428	1.6313	1.5709	1.6534	1.5579
	(1.8370)	(1.5433)	(1.8256)	(1.5064)	(1.8200)	(1.5058)
Constant	14.6712***	12.8575***	14.9766***	13.5125***	14.3512***	12.6622***
	(2.1904)	(2.9724)	(2.1797)	(2.9915)	(2.1558)	(2.9530)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No
Firm clustered	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	568	350	568	350	568	350
F	8.4341	2.6845	8.4596	3.1378	8.7226	3.1087
R^2	0.2365	0.1742	0.2422	0.1795	0.2441	0.1795
Adj. R^2	0.2114	0.1293	0.2174	0.1348	0.2193	0.1349

Table 11: Board national heterogeneity, firm risk, and cultural dimension Individualism (sub-samples by level of an IDV gap)

This table provides the baseline Pooled-OLS regression results for the relationship between board national heterogeneity and firm risk. The dependent variable is the standard deviation of monthly stock returns. The models are estimated by level of an IDV gap: (1) with an IDV gap above zero, (2) with an IDV gap below zero. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	IDV gap above zero	IDV gap below zero	IDV gap above zero	IDV gap below zero	IDV gap above zero	IDV gap below zero
	(1)	(2)	(3)	(4)	(5)	(6)
	Monthly SD	Monthly SD	Monthly SD	Monthly SD	Monthly SD	Monthly SD
Country foreign share	-0.9434	-3.8987***				
	(1.3400)	(1.3417)				
Country Blau			-1.7070	-4.3243***		
			(1.5420)	(1.2565)		
Country Shannon					-1.0905	-2.1923***
					(0.6728)	(0.6058)
Board size	1.3706	1.6830**	1.2811	1.7442**	1.3283	2.0813**
	(1.1486)	(0.7983)	(1.1436)	(0.8062)	(1.1200)	(0.8047)
Board gender diversity	-0.0468	2.7222	-0.1929	2.6538	-0.2566	2.8439
	(1.7520)	(1.9572)	(1.7631)	(1.9578)	(1.7621)	(1.9442)
Sale growth	0.3318	2.6941**	0.3194	2.6194*	0.2966	2.6116*
	(0.7849)	(1.3459)	(0.7849)	(1.3412)	(0.7855)	(1.3557)
Market cap.	-0.3829**	-0.6934***	-0.3610**	-0.6962***	-0.3488*	-0.6991***
	(0.1836)	(0.2110)	(0.1808)	(0.2102)	(0.1781)	(0.2088)
Tangibility ratio	-3.8726***	-2.8322**	-3.8720***	-2.8344**	-3.8582***	-2.7890**
	(1.3077)	(1.2724)	(1.3100)	(1.2601)	(1.3123)	(1.2735)
Intangibility ratio	5.6484*	2.8655	5.7784*	2.7619	5.9383**	2.7179
	(2.9958)	(3.3857)	(2.9361)	(3.2369)	(2.9070)	(3.2089)
Leverage ratio	0.2688	0.0230	0.2664	0.0223	0.2613	0.0120
	(0.5826)	(0.2665)	(0.5843)	(0.2788)	(0.5827)	(0.2834)
Net debt-to-EBITDA	18.7516**	6.5610	18.7119**	6.5362	18.7314**	6.4866
	(7.6461)	(4.8155)	(7.6138)	(4.7146)	(7.6107)	(4.7133)
Interest coverage ratio	0.0640	0.1181**	0.0613	0.1136**	0.0641	0.1107**
	(0.0998)	(0.0456)	(0.0994)	(0.0438)	(0.0989)	(0.0452)
ROE	2.4054	-1.4547	2.3835	-1.3694	2.3395	-1.2463
	(1.5978)	(1.7059)	(1.5987)	(1.6880)	(1.6036)	(1.6769)
Illiquidity	1.6423	1.4140	1.6499	1.3487	1.6740	1.3425
	(1.2013)	(2.6346)	(1.1847)	(2.6365)	(1.1818)	(2.6258)
Constant	11.6487***	14.4432***	11.9502***	14.9520***	11.7950***	14.0224***
	(2.2975)	(2.7198)	(2.3190)	(2.7338)	(2.2862)	(2.6428)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No
Firm clustered	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	514	407	514	407	514	407
F	3.1523	6.6370	3.2335	6.7922	3.4420	7.1956
R^2	0.1877	0.2579	0.1894	0.2652	0.1910	0.2666
Adj. R^2	0.1582	0.2235	0.1599	0.2311	0.1616	0.2326

Table 12: Board national heterogeneity, firm risk, and cultural dimension Masculinity (sub-samples by level of a MAS gap)

This table provides the baseline Pooled-OLS regression results for the relationship between board national heterogeneity and firm risk. The dependent variable is the standard deviation of monthly stock returns. The models are estimated by level of a MAS gap: (1) with a MAS gap above zero, (2) with a MAS gap below zero. Year fixed effects are included in all models. Firm clustered robust standard errors are reported in parentheses. The superscripts *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are contained in the Appendix.

	MAS gap above zero	MAS gap below zero	MAS gap above zero	MAS gap below zero	MAS gap above zero	MAS gap below zero
	(1)	(2)	(3)	(4)	(5)	(6)
	Monthly SD	Monthly SD	Monthly SD	Monthly SD	Monthly SD	Monthly SD
Country foreign share	-2.3834	-3.8471***				
	(1.5527)	(1.3835)				
Country Blau			-3.5779**	-4.1631***		
			(1.4743)	(1.3532)		
Country Shannon					-1.9071***	-2.1218***
					(0.6741)	(0.6400)
Board size	1.0514	0.6630	1.0435	0.5741	1.2969	0.8338
	(1.0092)	(1.0368)	(1.0095)	(1.0351)	(1.0182)	(0.9895)
Board gender diversity	0.2268	3.2197*	0.0788	3.0450*	0.0796	3.1466*
	(2.1174)	(1.6783)	(2.1242)	(1.7032)	(2.1289)	(1.7072)
Sale growth	0.6907	1.4230	0.6470	1.4022	0.6174	1.4157
	(0.8398)	(1.0598)	(0.8316)	(1.0532)	(0.8296)	(1.0567)
Market cap.	-0.4030*	-0.5899***	-0.3524*	-0.5939***	-0.3585*	-0.5912***
	(0.2126)	(0.1869)	(0.2079)	(0.1863)	(0.2034)	(0.1854)
Tangibility ratio	-4.5323***	-2.8971**	-4.4852***	-2.8425**	-4.3889***	-2.8559**
	(1.3235)	(1.4006)	(1.2875)	(1.4123)	(1.2942)	(1.4061)
Intangibility ratio	0.8741	8.2177**	1.2466	7.9801**	1.4874	7.7690**
	(2.9351)	(3.4371)	(2.7361)	(3.4860)	(2.6918)	(3.5956)
Leverage ratio	0.0562	-0.0344	0.0968	-0.0664	0.0737	-0.0626
	(0.3614)	(0.4158)	(0.3697)	(0.4197)	(0.3649)	(0.4246)
Net debt-to-EBITDA	14.7347*	11.7720**	15.0245*	11.8205**	15.1735*	11.7606**
	(8.0332)	(5.1661)	(7.8574)	(5.1516)	(7.8663)	(5.1672)
Interest coverage ratio	-0.0259	0.1440**	-0.0304	0.1405**	-0.0292	0.1428**
	(0.0650)	(0.0617)	(0.0684)	(0.0608)	(0.0681)	(0.0620)
ROE	-0.2343	1.3861	-0.1963	1.5482	-0.0761	1.5753
	(1.5116)	(2.4417)	(1.4216)	(2.4529)	(1.3729)	(2.4557)
Illiquidity	1.5463	1.5133	1.6641	1.2252	1.6917	1.2236
	(1.4559)	(1.7396)	(1.4498)	(1.7660)	(1.4437)	(1.7625)
Constant	13.9468***	14.8560***	14.0155***	15.6034***	13.3978***	14.8677***
	(2.2664)	(2.7675)	(2.1875)	(2.9154)	(2.2007)	(2.7663)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No
Firm clustered	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	456	466	456	466	456	466
F	4.6714	5.5625	5.0417	5.8957	5.3188	5.9653
R^2	0.2285	0.2069	0.2380	0.2084	0.2409	0.2089
Adj. R^2	0.1967	0.1750	0.2066	0.1765	0.2096	0.1770