

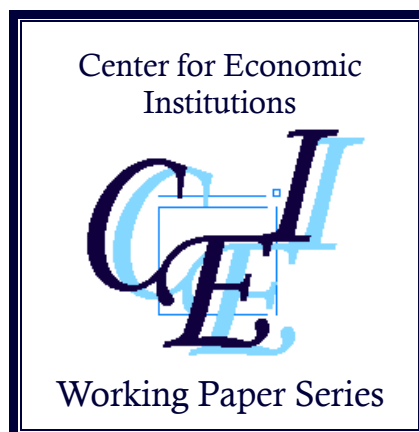
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Diversity of Corporate Officers and its Regional Disparities in Germany*

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Abstract: This paper explores the regional disparities in the diversity of corporate officers in Germany. Our empirical analysis, encompassing 65,745 German businesses, reveals a pronounced inclination among Berlin and former East German firms to appoint female officers, in contrast to their former West German counterparts. Furthermore, we found that companies in Berlin exhibit greater diversity in the national backgrounds of their officers as compared to those in the former West Germany, while firms in the former East German regions lag behind in this aspect. Moreover, our empirical results indicate a greater willingness among Berlin and East German firms to hire younger corporate officers as compared to firms in the former West Germany. These findings demonstrate statistical robustness against heterogeneity in industrial sectors and firm sizes and are particularly evident in companies established after the 1990 reunification.

JEL classification numbers: D22; G34; J44; L22; P34

Keywords: human resource diversity; corporate officers; regional disparities; East–West Reunification; Germany

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1 Introduction

The Berlin Wall, an emblematic symbol of the Cold War era, collapsed in November 1989. Less than a year later, on October 3, 1990, the German Democratic Republic (East Germany) was dissolved, leading to the accession of five newly created states from its territory into the Federal Republic of Germany (West Germany). In the pre-World War II period, this region was lauded as the most economically developed region in Central Europe (Henning, 1997). However, the post-war era brought severe economic challenges. In fact, the extensive expropriation and substantial economic reparations demanded by the Soviet Union, along with a significant outflow of firms and talent to the West during the socialization process, drastically undermined the region's economic growth potential (Steiner, 2014). Despite these difficulties, until the mid-1980s, the former East Germany was regarded as economically robust, boasting relatively high standards in terms of officially reported GDP per capita, productivity, and living standards, especially as compared with other Eastern socialist states. However, it lagged behind developed Western economies (Bentley, 1984).

The above positive assessments of the former East German economy changed dramatically following the 1990 reunification, which brought the East–West disparity into sharp focus. This integration exposed several weaknesses in the state-owned enterprises of East Germany, including outdated production facilities, low labor productivity, and serious environmental issues. The currency unification that preceded integration, involving the exchange of Ostmarks for Deutschmarks at a 1:1 ratio, consequently dealt a serious blow to the East German economy. Post-integration, the Federal Government embarked on efforts to mitigate the East–West disparity, implementing a comprehensive support package that included infrastructure development, humanitarian aid, and financial support. Despite these initiatives, the massive fiscal transfers and ensuing challenges sparked immediate debate after integration. More than three decades later, the East–West disparity remains pronounced, as evidenced by disparities in income levels, unemployment rates, and other economic indicators. For instance, GDP per capita rankings place the five eastern states at the bottom among all German states (Statistisches Ämter des Bundes und der Länder, 2022), and the average unemployment rate in the former East German regions consistently exceeds that of the West German regions.¹

The East–West divide in Germany is apparent not only in the economic aspects but

¹ Statistisches Bundesamt, GENESIS-Online. “Arbeitslose, Arbeitslosenquoten, Gemeldete Arbeitsstellen, Kurzarbeiter, Kurzarbeitende Betriebe: Deutschland/ Früheres Bundesgebiet/Neue Länder, Jahre,” available at: <https://www-genesis.destatis.de/genesis/online>

also in the labor market conditions. Similar to other socialist countries, East Germany boasted exceptionally high levels of female labor force participation. This trend appears to have been driven by two factors: the socialist ideology advocating gender equality, and the chronic labor shortages resulting from inefficiencies in the planned economic system (Iwasaki and Satogami, 2023). In contrast, the situation in pre-integration West Germany was markedly different. Civil law there imposed restrictions on the gainful employment of married women well into the 1960s, and the tax system favored full-time homemakers. Consequently, it was uncommon for married women to participate in the workforce. Those who did were primarily employed in part-time roles (Satogami, 2011).

Many anticipated that the post-integration German labor market would become more regionally homogeneous as the market economy established itself in the former East German regions, as former West German laws, institutions, and corporate culture penetrated into East Germany, and as labor migration and personnel exchanges were promoted between the former East and West Germany. However, even today, significant differences are observed in the patterns of labor force participation between the two regions. Actually, the former East German regions exhibit higher female labor force participation rates across all age groups and a greater proportion of female workers in full-time positions as compared to their West German counterparts.² In addition, a comparison of the average wages between male and female employees who are subject to social insurance contributions shows that the gender wage gaps are significantly narrower in the former East German regions as compared to those in the former West German regions.³

Another aspect of the East–West divide pertains to the employment of foreign workers, who have become an indispensable part of the German labor market today. Germany is now one of the most attractive destinations for foreign workers, ranking as the second-most popular country for immigrants among major industrialized nations, behind only the United States. To adapt to the growing influx of foreign workers, significant institutional changes have been enacted.⁴ Most notably, the priority check

² Eurostat, “Employment by sex, age, full-time/part-time, professional status and NUTS 2 regions” available at:

https://ec.europa.eu/eurostat/databrowser/view/lfst_r_lfe2eftpt/default/table?lang=en

³ Statistisches Bundesamt, GENESIS-Online, “Bruttostundenverdienste, Verdienstunterschied: Bundesländer, Stichmonat, Geschlecht, Wirtschaftsabschnitte” available at: <https://www-genesis.destatis.de/genesis/online>

⁴ It should be noted in this regard that immigration to Germany consists of lawful labor migration from within the EU and immigration by non-EU asylum seekers. While asylum seekers may seek

(labor market test), a mechanism previously used to restrict foreign employment and prioritize citizens for job opportunities, has been effectively abolished with some exceptions⁵. Although there are no regional institutional barriers for foreign workers seeking job opportunities in Germany, significant regional differences remain in the distribution of foreign residents. In 2022, the proportion of foreign residents was 13.9% across the country. This contrasted sharply with the capital, Berlin, where the proportion reached as high as 21.2%, while it was 7% or less in all of the former East German regions.⁶ Clearly, the regional convergence of the German labor markets is far from the level anticipated during the East–West integration. The *Jahresbericht der Bundesregierung zum Stand der Deutschen Einheit*, the federal government’s annual report on German reunification, has not been published since its 2020 edition, which marked the 30th anniversary of reunification. The discontinuation of the report implies a shift in the government’s perspective, reflecting an approach that treats East–West issues not as unique or exceptional challenges but rather as part of the broader spectrum of regional issues within the country. Nonetheless, it is undeniable that a substantial divide persists across Berlin, the former East Germany, and the former West Germany in terms of socioeconomic circumstances. These disparities, along with the consequent differences in labor market conditions in these regions, continue to represent a major economic challenge for the country.

In relation to the East–West disparity issues, the Federal Ministry of Economic Affairs and Climate Action has raised concerns about the limited number of major companies headquartered in the former East German regions and the generally low innovative performance of former East German firms.⁷ Furthermore, in terms of attracting exporting and foreign firms, these regions fall behind both Berlin, which

employment, German immigration laws concerning non-EU countries are still dominated by asylum law, rather than by regulations governing labor migration.

⁵ Bundesministerium für Arbeit und Soziales, “Beschäftigungsverordnung: Verordnung über die Beschäftigung von Ausländerinnen und Ausländern (BeschV)” available at: <https://www.bmas.de/DE/Service/Gesetze-und-Gesetzesvorhaben/beschaeftigungsverordnung.html>

⁶ Statistisches Bundesamt, GENESIS-Online, “Durchschnittliche Bevölkerung” available at: <https://www-genesis.destatis.de/genesis/online>

⁷ For additional information, please consult the Federal Ministry of Economic Affairs and Climate Action website: <https://www.bmwk.de/Redaktion/EN/Dossier/neue-laender.html>. Unless otherwise noted, firms located in the former East German regions, the former West German regions, and Berlin will be referred to as “former East German firms,” “former West German firms,” and “Berlin firms,” respectively, throughout this paper.

regained its status as the nation's capital after reunification, and the former West German regions. Regrettably, few studies on German firms have thoroughly addressed regional disparities in the presence of firms. Even when these studies do consider firms based in the former East German regions, most only address this as a peripheral issue within the broader context of exploring barriers to economic development in these regions, as exemplified by the study of Wulf and Hungenberg (2002).

The various labor market characteristics of the former East German regions, as evidenced by statistical data on female labor force participation rates, types of employment, unemployment rates among young workers and their migration, as well as the percentage of foreign residents, can significantly influence the human resource policies of firms in those areas. Regrettably, no previous studies, in either German or other languages, have been identified that adopt this perspective for examining human resource issues in former East German firms. While there has been a recent surge in studies on corporate board diversity (especially gender diversity) in advanced economies and emerging markets, our search in EconLit, an electronic database for economic literature, revealed only two studies focused on Germany in this context (Handschemacher and Ceschinski, 2020; Handschemacher-Knors, 2023). Notably, neither study addresses the East–West disparity issues.⁸

As noted above, the overwhelming majority of leading companies in Germany have established their headquarters in the former West German regions. This implies that studies of German listed firms predominantly focus on companies located in these regions. Given the significant disparities between the East and West German regions in various aspects that could influence the human resource composition of firms, it is unlikely that research on major companies, mainly situated in the former West German regions, can provide a comprehensive picture of the corporate landscape in this country from this aspect. This paper, therefore, aims to fill this gap in the understanding of German firms and labor markets. More concretely, we will attempt to empirically test our hypotheses about how the former West Germany, Berlin, and the former East Germany differ in terms of human resource diversity of corporate officers through statistical and quantitative analysis of data on both listed and unlisted firms across the German regions.

Our empirical analysis, encompassing 65,745 German businesses, reveals a pronounced inclination among Berlin and former East German firms to appoint female

⁸ EconLit search was conducted on December 1, 2023. On this date, 315 articles were identified in EconLit with titles containing the selected search terms (“board” and either “diversity” or “gender”).

officers, in contrast to their former West German counterparts. Furthermore, we found that firms in Berlin exhibit greater diversity in the national backgrounds of their officers as compared to those in the former West Germany, while firms in the former East German regions lag behind in this aspect. Moreover, our empirical results indicate a greater willingness among Berlin and East German firms to hire younger corporate officers as compared to firms in the former West Germany. These findings demonstrate statistical robustness against heterogeneity in industrial sectors and firm sizes and are particularly evident in companies established after the 1990 reunification.

The remainder of the paper is organized as follows: Section 2 outlines a series of hypotheses regarding the regional differences in corporate officer diversity in Germany. Section 3 describes the data and our methodology. Section 4 reports our estimation results, and Section 5 summarizes the main findings and concludes the paper.

2 Hypothesis Development

In discussing the human resource diversity of corporate officers in Germany, we first mention the Act on the Equal Participation of Women and Men in Leadership Positions in the Private and Public Sector (*Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst*), commonly referred to as the female quota law, which was enacted in 2015. Aligning with the EU Quota Directive adopted by the European Parliament in 2013, this act applies to 108 major publicly listed firms under full co-determination. These firms are mandated to ensure a minimum of 30% representation of each gender on their supervisory boards. Should this quota not be met, the corresponding positions are required to remain vacant. Prior to the enactment of this law, listed firms were obligated to set and publish targets for the proportion of leadership positions occupied by women, as well as report their progress annually, according to the “Comply or Explain” principle introduced in 2011. This requirement was initiated in response to the notably low representation of women in decision-making roles within German companies.

Since the 1990s, Germany has experienced a series of institutional changes aimed at enhancing the roles of women in both private and public corporations. While these changes have led to an increase in female representation in management positions, rising from 22% in 2001 to 30% in 2010, the majority of these roles were in middle management. The proportion of female officers directly involved in corporate management remained extremely low, with women constituting only about 3% of board members in the 200 firms listed on the DAX (DIW Berlin, 2012). Implemented in Germany subsequent to

these institutional changes, the female quota law aimed to enhance corporate officer diversity—especially in terms of gender balance—in a more enforceable manner, aligning with EU policy. This law has indeed been effective in increasing female board representation in the applicable firms. However, among the top 200 firms by sales that are not subject to this law, the average female representation in executive officer roles hovers around 8%. While there has been an increase in female officer positions within 30 listed companies and firms with state-owned shares, the representation of women in executive roles has actually decreased in other corporate groups, including insurance firms (DIW Berlin, 2018).

In summary, except for two firms (one in Berlin and the other in the former East German region), all companies subject to the female quota law, as well as the majority of the top 200 firms by sales that are not under the quota and exhibit low female board representation, are located in the former West German regions. Information about firms in the former East German regions and Berlin is less extensively documented. As noted in the Introduction, female employment rates are generally higher in the former East German regions, where female presence in the labor market differs significantly from that in the former West German regions. Although a higher proportion of female workers in the labor market typically indicates a higher likelihood of women being appointed to corporate officer positions, this potential is significantly diminished when considerable gender-based status disparities are present within the internal labor market. Such gender gaps are presumably less pronounced in the former East German regions, where a higher percentage of women hold full-time positions and the gender wage gap is notably narrower as compared to the West German regions. In fact, female representation in management positions, indicative of the gender promotion gap, is higher in the former East regions than in the former West regions (Satogami, 2023). It is worth pointing out that this difference may partially stem from the distinct family compositions of female workers in management positions between these regions. Actually, Antal and Krebsbach-Gnath (1993) found that family circumstances had a more significant influence on women's careers in West Germany during the 1980s as compared to the East, where career advancement was even more challenging for women than for men. Although the situation today might differ from that in the 1980s, it is very likely that disparities in female representation in management positions between the East and West persist. Therefore, we propose to test the following hypothesis:

Hypothesis 1: *Berlin and former East German firms exhibit a higher female representation among corporate officers as compared to their former West German*

counterparts.

The German economy is well known for its heavy reliance on trade, a fact underscored by the numerous export firms operating within the country. At the same time, however, significant regional disparities exist in the distribution of these firms. For instance, assuming that Germany's total exports are represented as 100, firms in the former West German regions account for 88.6% of this figure, while those in Berlin and the former East Germany contribute 1.4% and 10.1%, respectively. It is evident that the vast majority of export firms are located in the former West German regions.⁹

Regarding the location of multinational companies (MNCs) in Germany, it has been noted that only 10% of MNC-related companies established in Germany between 1997 and 2005 were founded in the former East German region, and half of these companies were located in Berlin. In addition, very few MNC-related companies were established in the former East German region excluding Berlin (Spies, 2010). Furthermore, it has been noted that the number of highly skilled foreign workers employed in Germany is concentrated in the southwest of the former West German region and is low in the former East German region (Burkert et al., 2007).

Another aspect that merits attention is the marked distinction between the capital, Berlin, and other regions of Germany in terms of the types of firms they attract. In recent years, Berlin's startup ecosystem has attracted significant attention from global investors, and it has Europe's largest venture capital investments, second only to London. Companies in Berlin have raised more funds than those in any other German city, rapidly transforming Berlin into a hub for an increasing number of unicorns, including foreign firms (Projekt Zukunft Senatsverwaltung für Wirtschaft, Energie und Betriebe, 2022). After unification, key factors driving Berlin's startup ecosystem include its relatively affordable living costs (such as rents) as compared to other major European cities and the availability of skilled young engineers from Eastern Europe. These attributes make Berlin an appealing location for investors and entrepreneurs.¹⁰ The federal government is also actively supporting entrepreneurs from both domestic and foreign countries by investing

⁹ Calculation by the authors using data from Statistisches Bundesamt GENESIS-Online (<https://www-genesis.destatis.de/genesis/online>). The contribution of the former East German regions to total exports is relatively small, even when accounting for the population and GDP of the three regions.

¹⁰ Reuters, "Germany bids to rebuild Berlin's buzz for startups" (<https://www.reuters.com/world/europe/germany-bids-rebuild-berlins-buzz-startups-2023-06-01/>)

public funds and developing various support packages, including tax breaks (Federal Ministry for Economic Affairs and Climate Action, 2022).

Export firms and foreign companies are more inclined than their non-export/non-foreign counterparts to appoint foreign nationals as corporate officers. This tendency is due to the former's need for insight into overseas markets and the latter's practice of staffing their managerial ranks with officers from their headquarters based in their home countries (Anderson et al., 2011). This observation—along with the facts that locations employing high-skilled foreign workers and locations of exporting and multinational companies are concentrated in the former West German regions and the unique role of the capital, Berlin, as a hub for startups, which are predominantly foreign enterprises—has led us to the following hypothesis:

Hypothesis 2: *Berlin firms are more inclined to appoint foreign nationals to corporate officer positions, whereas former East German firms are less willing to do so than their former West German and Berlin counterparts.*

As mentioned earlier, Berlin continues to be a magnet for startup firms, characterized by a significantly higher proportion of micro-enterprises, which have no more than 10 employees each, as compared to both the former West German and East German regions.¹¹ The former East German regions also host a substantial number of small-staffed businesses, albeit not to the same extent as Berlin. Given the fewer major firms subject to the female quota law, the average firm size in these regions is likely smaller than in the former West German regions. Additionally, since the East–West integration, Berlin and the former East German regions have consistently exhibited a higher density of startups as compared to the former West German regions, characterized by a substantial presence of young firms led by young entrepreneurs.¹² This trend also indicates that firms in Berlin and the former East German regions may be more open to appointing young, skilled talents to corporate officer positions. In contrast, their former West German counterparts are typically associated with slower career progression, as reflected in the higher average age of their corporate officers (Gerum, 2007). In light of these observations, we test the following hypothesis:

¹¹ Statistisches Bundesamt, GENESIS-Online, “Rechtliche Einheiten (Unternehmensregister-System): Bundesländer, Jahre, Wirtschaftszweige (Abschnitte), Beschäftigtengrößenklassen” available at: <https://www-genesis.destatis.de/genesis/online>

¹² For additional information, please consult the IAB-Forum website: <https://www.iab-forum.de/gerade-in-ostdeutschland-leisten-betriebsgruendungen-einen-wichtigen-beitrag-zum-aufbau-einer-mittelstaendischen-wirtschaft/>.

Hypothesis 3: *Compared to firms in the former West German regions, those in Berlin and the former East German regions are more inclined to appoint younger talents to corporate officer positions, thereby exhibiting greater generational diversity among their corporate officers.*

In the subsequent sections, we will empirically examine the above three hypotheses using firm-level data collected from across Germany.

3 Data and Methodology

To test the hypotheses presented in the previous section, we utilized Orbis, a comprehensive company database compiled by Bureau van Dijk, a company of Moody's Analytics. As of 2024, Orbis is recognized as the largest commercial database, encompassing over 400 million firms and organizations across various industries worldwide. It includes extensive information on German firms. In addition to the financial statements of each registered company, Orbis provides detailed data on the composition of corporate officers, rendering it an invaluable resource for our empirical study.¹³

Data on corporate officers of German firms, as disclosed by Orbis, provides not only the total number of officers but also detailed information on the gender, nationality, and age of each officer. This data enables us to determine, for each firm, the number of female and foreign national officers, as well as their respective proportions within the total group of corporate officers. Additionally, we can analyze the age composition of corporate officers, which may be further categorized by gender. Utilizing this database, we extracted data on 65,745 firms confirmed to be actively operating within Germany as of the first quarter of 2020 and for which comprehensive information on the gender, nationality, and age of all corporate officers was available.

Column (a) of **Table 1** shows the distribution of these 65,745 sample firms across all regions and states of Germany, categorized by industrial sector and by the number of employees. As indicated in this table, our sample firms are distributed across all regions and states of Germany, encompassing a wide range of sizes and industrial sectors. This extensive coverage ensures that our sample is sufficiently representative of German firms,

¹³ Corporate officers comprise board directors and members of the Supervisory Board, in addition to the corporate management team, which is led by a Chief Executive Officer (CEO). For further information on the Orbis database, refer to the following Moody's Analytics website: <https://www.moody.com/web/en/us/capabilities/company-reference-data/orbis.html>.

as corroborated by statistical data published by the EU and the German government.¹⁴

To test our hypotheses, we estimate the following regression equation where the dependent variable is the human resource diversity of corporate officers (*HR_diversity*) in the *i*-th firm during period *t*, incorporating two firm location variables (*Berlin* and *East*) with the former West Germany as a reference category, other firm-level control variables (*Control*) potentially influencing corporate officer diversity, and the fixed effects of the industry to which the *i*-th firm belongs as independent variables:

$$HR_diversity_{i,t} = \mu + \beta \cdot Berlin_i + \gamma \cdot East_i + \sum_{i=1}^n \delta_i \cdot Control_{i,t-1} + \theta_j + \varepsilon_i, (1)$$

where μ represents a constant term; β , γ , and δ are the parameters to be estimated; θ denotes the fixed effects of the *j*-th industry to which the *i*-th firm belongs¹⁵; and ε is a disturbance term.

To test Hypotheses 1 and 2, we introduce eight variables for the *i*-th sample firm during period *t* on the left-hand side of Eq. (1). These variables include the probabilities of appointing female and foreign national officers, the actual numbers of female and foreign national officers, their respective proportions within the corporate officer group of the firm, as well as the Blau index of gender diversity and nationality diversity. These indices are calculated according to the following equation:

$$BI_{i,t} = 1 - \sum_{k=1}^m P_{k,i,t}^2 = 1 - (female/foreign_share_{i,t}^2 + male/nonforeign_share_{i,t}^2), (2)$$

where P_k represents the proportion of category *k* within the total, *female/foreign_share* denotes the share of female or foreign national officers in corporate officer positions, and *male/nonforeign_share* indicates the share of male or German officers in these positions. As indicated in the rightmost part of Eq. (2), the Blau index ranges between a minimum of 0.0 and a maximum of 0.5, reflecting the binary nature of the categories analyzed in our study (i.e., male versus female directors or foreign national versus German directors).

In testing Hypothesis 3, we introduce into the left-hand side of Eq. (1) the average

¹⁴ As a result of extracting only those firms from Orbis that disclose data on corporate officers, our sample is limited to business entities with at least 50 employees. According to the Federal Statistical Office of Germany, there were a total of 90,621 business legal units with 50 or more employees in 2019. Therefore, our sample firms represent 72.5% of the actual number of firms in this category. **Appendix Table A1** provides a detailed breakdown by region and firm size.

¹⁵ In the regression estimation, we control for industry-level fixed effects θ by incorporating 13 industry dummy variables, with the manufacturing industry serving as the reference category.

ages of the overall officer group, male officers, and female officers for the i -th sample firm during period t , along with their respective coefficients of variation (CV) computed using the following equation:

$$CV_{i,t} = \frac{age_sd_{i,t}}{age_mean_{i,t}}, (3)$$

where age_mean and age_sd represent the mean and standard deviation of officer age, respectively. The coefficient of variation, also known as the relative standard deviation, is a useful metric for comparing samples with differing means.

Considering the characteristics of the independent variables mentioned above, different estimators are utilized to estimate Eq. (1), depending on the type of dependent variable. Specifically, we have employed a probit estimator for the probabilities of appointing female and foreign national officers, a Poisson estimator for the numbers of female and foreign national officers, a Tobit estimator with the lower threshold set at 0.0 and the upper threshold at 1.0 or 0.5 for the representation of female/foreign national officers among corporate officer ranks or the Blau indices of diversity, and an ordinary least squares (OLS) estimator for the average ages of corporate officers and their coefficients of variation.

Furthermore, in cases where the proportions of female and foreign national officers within the corporate officer group, the Blau indices of diversity, or the average age of female officers and its coefficient of variation serve as dependent variables, we assess the statistical robustness of our estimation results by additionally applying a Heckman two-step model. The Heckman model is employed to address the sample selection issue that stems from a firm's decision to either appoint or not appoint women and foreign nationals as corporate officers. The statistical significance of regression coefficients is determined using heteroscedasticity-consistent robust standard errors.

The values of the dependent variables mentioned above are presented by region and state in the lower columns of **Table 1**.¹⁶ Based on our calculations, as of the first quarter of 2020, the 65,745 sample firms had a total of 488,962 corporate officers, averaging 7.4 officers per firm. As indicated in Column (b) of the table, 69.0% of these firms appoint female officers. The firms that appoint female officers have an average of 2.7 female

¹⁶ The numbers and proportions of female and foreign national officers, along with the frequency distribution of gender and nationality diversity indices among corporate officers, are presented in **Appendix Figures A1, A2, and A3**, respectively. **Appendix Figure A4** displays the kernel density estimation results for the average ages of corporate officers and their coefficients of variation.

officers per firm, constituting 32.6% of all their officers. Consequently, the average gender diversity of corporate officers across all sample firms, as measured by the Blau index of diversity, is 0.382. Similarly, as indicated in Column (c), 10.3% of the sample firms appoint foreign nationals as corporate officers. On average, these firms have 2.1 foreign national officers, constituting 24.2% of their officer group. The average Blau index of nationality diversity among corporate officers in this sample is 0.270. Additionally, as detailed in Column (d), the average age of corporate officers is 54.0 years, with a coefficient of variation of 0.146. The average age of male officers is slightly higher, at 54.2 years, while that of female officers is 52.3 years, two years younger than the overall officer average.

The composition of corporate officers in firms located in the former West German regions largely aligns with the national average as described above. In contrast, firms in the former East German regions consistently exhibit higher indices across all aspects of gender diversity among their corporate officers but lower indices across all aspects of nationality diversity, as compared to their former West German counterparts. Additionally, it is observed that corporate officers in former East German firms, regardless of gender, tend to be younger on average than those in the former West German regions. Berlin firms, meanwhile, perform somewhat better than former West German firms in terms of female representation and gender diversity indices among corporate officers. They also fare significantly better in all indices of nationality diversity, except for the average number of foreign national officers, and have younger corporate officers on average, irrespective of gender, as compared to former West German firms. However, neither the former East German nor the Berlin firms surpass the former West German firms in generational diversity, as measured by the coefficients of variation.

As seen above, the variations observed across Berlin, the former West German, and the former East German firms, as reflected in their respective dependent variables, largely support the hypotheses outlined in the preceding section, although they do not align perfectly. These discrepancies can be largely attributed to factors other than firm location that may influence the appointment of corporate officers in German corporations. Therefore, selecting firm-level control variables to be included on the right-hand side of Eq. (1), along with the firm location variables *Berlin* and *East*, is crucial for more rigorous hypothesis testing.

With this in mind, we have incorporated a wide range of variables that reflect the legal form of incorporation, ownership structure, firm organization, financial performance, and innovation activities, following a series of preceding studies on the

determinants of corporate officer heterogeneity, including Anderson et al. (2011), Saeed et al. (2016), Frye and Pham (2018), and Iwasaki et al. (2023, 2024a,b). We have selected a total of 14 variables, encompassing nearly all of the independent variables used in these prior works. More specifically, the *Control* variables consist of: (a) dummy variables assigned a value of 1 for firms identified as a public limited company, (b) private limited company, or (c) partnership company; (d) ownership concentration, proxied by the average ownership share per shareholder; (e) a dummy variable for state enterprises assigned a value of 1 when the state is the ultimate owner with at least 50% control; (f) a dummy variable for foreign companies assigned a value of 1 when a foreign investor is the ultimate owner with at least 50% control; (g) corporate board size, represented by the logarithm of the total number of corporate officers; (h) firm size, measured by the logarithm of total assets in Euros; (i) firm age, denoting the number of years since establishment; (j) profitability, calculated as the profit margin on total sales; (k) financial risk, expressed as the volatility of return on assets (ROA); (l) solvency, measured by the solvency ratio; (m) the degree of business diversification, measured by the number of operating industries based on the second digit of the NACE Rev. 2 sector classification; and (n) R&D intensity, proxied by the logarithm of the total number of patents granted.

As indicated in Eq. (1), all of the *Control* variables are predetermined relative to the dependent variables. Specifically, the variables influencing corporate officer diversity reflect the conditions as of the first quarter of 2020. Meanwhile, three variables—including profitability, financial risk, and solvency—are based on either the mean or the standard deviation calculated for the period from 2017 to 2019. The remaining firm-level variables are assigned values corresponding to the year 2019. In this way, we can avoid endogeneity arising from simultaneous causality between dependent and independent variables.

The names, definitions, and descriptive statistics of the 14 dependent variables and 16 independent variables mentioned above are provided in **Table 2**.¹⁷

4 Estimation Results

In this section, we present the estimation results of Eq. (1), utilizing the data and

¹⁷ A correlation matrix for the independent variables is presented in **Appendix Table A2**. As indicated in this table, the correlation coefficients for all combinations of these variables are well below the threshold of 0.70, which is commonly considered indicative of potential multicollinearity. Additionally, our preliminary estimation procedures confirmed that the variance inflation factors (VIFs) for the independent variables are all below the threshold of 5.0.

methodology outlined in the previous section. Subsections 4.1, 4.2, and 4.3 will explore the effects of firm location and other firm-level factors on the gender, nationality, and generational diversity of corporate officers, respectively. In Subsection 4.4, we will assess the robustness of the estimation results from multiple perspectives.

4.1 Gender diversity model

Table 3 presents the estimation results for regression models that take the appointment of female officers, the number of female officers, the proportion of female officers, and the Blau index of gender diversity as dependent variables. As shown in this table, in addition to Models [3] and [5], which yield Tobit estimation results, the models incorporating the proportion of female officers or gender diversity on the left-hand side of Eq. (1) also include Models [4] and [6], which provide estimates using the Heckman two-step estimator to address sample selection bias that arises from the appointment of female corporate officers.

In the probit regression Model [1] shown in **Table 3**, the *Berlin* variable is estimated to be positive but not statistically significant, while the *East* variable is positive and significant at the 1% level. This suggests that, when other conditions are held constant, former East German firms have, on average, a 34.3% higher probability of appointing female officers as compared to their former West German counterparts, while Berlin firms demonstrate no statistically significant difference as compared to their former West German counterparts. This outcome supports the validity of Hypothesis 1 for former East German firms. Conversely, both the *Berlin* and *East* variables are significant and positive in Models [2] through [6]. This implies that once Berlin firms decide to appoint female officers, they are more proactive in inviting women to join the corporate officer ranks, similar to former East German firms and more so than former West German firms. This tendency is particularly pronounced in the coefficients attributed to the firm location variables in the Tobit Models [3] and [5], and Heckman two-step regression Models [4] and [6], which show minimal variation. The fact that the coefficients are larger in Models [4] and [6], which account for sample selection bias, further reinforces this trend. Overall, the estimation results in **Table 3** provide strong support for Hypothesis 1.

Eight firm-level control variables, including ownership concentration, foreign company, corporate board size, firm size, firm age, profitability, solvency, and R&D intensity, are found to be significant and consistently signed in at least four of the six models. This indicates that German firms with concentrated ownership, substantial foreign investments, larger sizes, high solvency, and robust R&D intensity are less inclined to appoint women to their corporate officer ranks. Conversely, firms with larger

corporate boards, longer operational histories, and higher profitability demonstrate a greater willingness to enhance gender diversity among their corporate officers. This interpretation aligns well with empirical findings from previous studies that investigated the determinants of board gender diversity in advanced economies (Bianco et al., 2015; Sila et al., 2016; Thams et al., 2018; Tanaka, 2019).

4.2 Nationality diversity model

Table 4 displays the estimation results of the nationality diversity model. As shown in this table, all six models yield significant and positive estimates for the *Berlin* variable and significant and negative estimates for the *East* variable. In other words, regardless of the dependent variables or estimators used, all models consistently support Hypothesis 2. These results indicate that, as compared to firms in the former West German regions, Berlin firms, on average, have a 16.5% higher probability of appointing foreign national officers and an 11.1% higher representation of foreign nationals on boards with such officers. In contrast, former East German firms show a 24.2% lower probability of appointing foreign national officers and a 16.7% reduced foreign national representation on boards with foreign national officers, as compared to their West German counterparts. Clearly, there are significant disparities among firms in these three regions in terms of board nationality diversity, which appear to be influencing their actual business management practices.

Six firm-level control variables—namely, public limited company, private limited company, ownership concentration, foreign company, firm size, and R&D intensity—were consistently found to be positive and significant, while three other firm-level control variables—firm age, solvency, and business diversification—were consistently negative and significant in at least four models. To the best of our knowledge, no prior studies have empirically analyzed the determinants of nationality diversity on corporate boards, rendering a comparison of our findings with those from other countries practically impossible. Nevertheless, the results obtained from these firm-level control variables offer significant insights for understanding the characteristics of German firms that appoint foreign nationals to their boards.

4.3 Generational diversity model

Table 5 presents the estimation results for the generational diversity model. In this table, Models [1] through [4] consistently demonstrate significant and negative coefficients for the *Berlin* variable. However, for the *East* variable, Model [1] shows a significant and negative coefficient. This indicates that the average age of corporate officers of Berlin

firms, both in the aggregate and across gender categories, is lower than that of firms in the former West German regions. Similarly, the overall average age of corporate officers of former East German firms is lower in comparison to that of their counterparts in the former West German firms. These findings provide empirical support for Hypothesis 3, which posits that companies in Berlin and the former East German regions are more likely to appoint younger talents to corporate officer positions than their counterparts in the former West German regions.

The results from Models [5] through [8] suggest that the generational diversity among officers appointed by former East German firms is greater than that of their counterparts in former West German firms, except in the case of female officers, which aligns with Hypothesis 3. In contrast, Berlin firms lack generational diversity in their corporate officers as compared to those of former West German firms, which contradicts Hypothesis 3. This finding is unexpected, although the difference between Berlin and former West German firms is marginal, as indicated by the coefficients assigned to them.

The number of robust and statistically significant firm-level control variables, consistent in sign, is more limited in the generational diversity models as compared to the gender and nationality diversity models. Nonetheless, our analysis indicates that older firms with lower financial risks and higher solvency are more likely to recruit talents from a broader range of age groups for their boards. This finding aligns with the empirical results from previous studies on the determinants of board generational diversity, including works by Kang et al. (2007), Anderson et al. (2011), Frye and Pham (2018), and Iwasaki et al. (2024b).

4.4 Robustness check

Finally, we conducted supplementary estimations—applying various sample constraints to examine the effects of differences among sample firms in terms of industrial sector, firm size, and period of establishment—with the aim of assessing the statistical robustness of the estimation results reported in the previous three subsections.

To this end, we conducted estimations by dividing the sample firms into two groups: mining and manufacturing versus other sectors. We further categorized the firms as upper or lower halves based on median firm size and distinguished firms established before versus after the year of reunification. **Table 6** presents univariate comparisons of these groups across the three perspectives. As shown in this table, corporate officers in mining and manufacturing firms, larger firms, and firms established before reunification tend to be more diverse than those in their respective counterparts. Additionally, there are statistically significant differences in most of the other firm-level attributes between these

two groups.

As the first robustness check, **Table 7** outlines our estimation results for two industry categories: mining and manufacturing versus other industries. These findings were derived from models utilizing six different dependent variables, from firms with a female officer(s) to generational diversity of corporate officers. The pattern of estimation results for firm location variables in Models [1] through [6], which focus on mining and manufacturing firms, showed no remarkable differences as compared to Models [7] through [12], which analyze firms in other industries. It is noteworthy, however, that no statistical differences were found in the practice of appointing foreign nationals to their boards between former East German mining and manufacturing firms and their counterparts in the former West German regions; likewise, no statistical differences were observed in the generational diversity of corporate officers between non-mining-and-manufacturing firms in the former East German regions and those in the former West German regions. These novel findings merit further attention.

The second robustness check, from the viewpoint of firm size, is presented in **Table 8**. A comparison of the larger firm Models [1] through [6] with the smaller firm Models [7] through [12] indicates that, apart from the practice of appointing foreign nationals to boards in smaller Berlin firms, there are no significant differences in the outcomes of these supplementary estimations between the two firm size categories. Additionally, we divided the sample firms into four groups based on the 25th, 50th, and 75th percentiles of the firm size variable, and we confirmed that there were no notable differences in the estimates across these groups.

The third and final robustness check entailed supplementary estimations focusing on the period of establishment of the firms. The primary aim of this paper is to ascertain whether there are significant differences in corporate officer diversity between firms in the former West and East German regions, which historically operated under markedly different systems and labor markets. The need for this third robustness check emerged from the realization that, in addition to considering firm location, it may be beneficial to also examine the timeline of these firms to gain deeper insights into our research topic. Thus, we categorized our sample firms into those established before and after the reunification of East and West Germany and explored whether the impact of firm location on corporate officer diversity varies between these two groups. **Table 9** reports the results. Models [7] through [12], which focus on firms established post-reunification, are largely in alignment with the estimates for firm location variables reported in **Tables 3** through **5**. Conversely, Models [3] through [5], utilizing data from firms established prior to

reunification, show no significant differences between firms in the former West German regions and their counterparts in Berlin or the former East German regions regarding the appointment of foreign nationals and the average age of corporate officers. Overall, the results in **Table 9** challenge our initial hypothesis that firms with a history spanning the East–West divide would be more influenced by firm location due to historical path dependency. This discovery is indeed intriguing.

5 Conclusion

Since the East–West reunification in 1990, Germany has devoted more than three decades to fostering economic integration between the former East and West German regions, achieving outstanding results that have been acclaimed by other nations around the world. However, as highlighted in the Introduction and examined in detail in Section 2, the paths to socioeconomic development pursued by the three distinct regions—the State of Berlin, the capital of Unified Germany; the former West German regions, known for their long history of a capitalist market economy; and the former East German regions, characterized by their experience of a socialist planned economy—continue to be markedly distinct. Consequently, the country still seems to be grappling with the lingering legacy of the Cold War era. This dichotomy is also evident in the German labor markets.

In this paper, we have explored regional heterogeneity in the German labor markets and empirically tested our hypotheses focusing on corporate officer diversity. Our empirical analysis of 65,745 German firms revealed a pronounced tendency among Berlin and former East German firms to appoint female officers, in contrast to their former West German counterparts. Furthermore, we observed that firms in Berlin exhibit greater diversity in the national backgrounds of their officers as compared to those in the former West German regions, whereas firms in the former East German regions lag behind in this respect. Moreover, our empirical results indicate a greater willingness among Berlin and former East German firms to hire younger corporate officers as compared to firms in the former West German regions. It also became evident that, for Berlin firms, a strong propensity for appointing younger corporate officers does not necessarily translate into greater generational diversity among corporate officers when compared to former West German firms.

The above results are consistent with those of previous studies, which pointed out the characteristics of regional differences within Germany. The results obtained from the nationality diversity model indicate that former East German companies are characterized as domestic companies; in view of the results of previous studies showing the superiority

of multinational companies over domestic companies (Dunning, 1973; Bellak, 2004), the former East German companies may have lower performance than Berlin companies and former West German companies. This is consistent with the fact that, since reunification and up to the present time, the economic indicators of the former East German regions have been inferior to those of the former West German regions in general. On the other hand, the positive attitude of former East German companies toward the appointment of women and young executives can be assessed as a better representation of what is expected of modern companies. From this viewpoint, our results do not indicate that former East German companies are inferior to former West German and Berlin companies.

Supplementary regressions conducted to assess the robustness of our findings consistently revealed a strong correlation between corporate officer diversity and firm location within Germany, even when controlling for industrial sector and firm size. However, our predictions regarding nationality and generational diversity do not necessarily apply to pre-unification firms. The pre-unification firms in former East Germany were state-owned enterprises that were privatized by the Treuhandanstalt (Trust Agency) during the reunification process in 1990. These were mostly large conglomerates that were divided into smaller firms for sale. Many of these companies were liquidated due to a lack of buyers, while others survived through management or employee buyouts (i.e., insider privatization), with the remainder being sold to strategic investors. It is estimated that approximately 75% of these companies were acquired by West German investors or firms. In privatized firms that received West German capital, parent companies often dispatched numerous executives, including CEOs, to oversee management restructuring. Given this background, it is highly likely that most of the firms that survived from the socialist period have been heavily influenced by West German capital in their internal management structures during and after the reunification process (Dyke, 1997). As mentioned above, it is also possible that West German capital includes many multinational companies, and this could be a result of this.

As shown by the results of our third robustness check, there are no statistically significant differences in the appointment of foreign directors or the average age of company directors between companies in former West Germany and firms in Berlin and the former East Germany that were established before reunification. This contrasts with the empirical results for firms established after reunification, regardless of their age of establishment. It is presumed that this historical context is responsible for these observed differences. The asymmetry in the highly skilled labor market between pre- and post-unification German companies warrants further investigation.

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Table 1. Composition of sample firms, gender, nationality, and age structure of corporate officers of German companies by region and state

	All Germany	Berlin	West Germany										East Germany						
			All West Germany	Baden-Wuerttemberg	Bayern	Bremen	Hamburg	Hessen	Niedersachsen	Nordrhein-Westfalen	Rheinland-Pfalz	Saarland	Schleswig-Holstein	All East Germany	Brandenburg	Mecklenburg-Vorpommern	Sachsen	Sachsen-Anhal	Thuringen
(a) Composition of sample firms																			
Total number	65,745	2,489	55,480	9,864	11,698	760	2,067	5,028	6,032	14,590	2,714	692	2035	7,776	1,299	940	2774	1287	1476
Agriculture, forestry, and fisheries	373	1	200	30	37	1	1	7	56	41	9	1	17	172	32	23	53	24	40
Mining and manufacturing	21,106	327	17,681	3,915	3,651	137	281	1,365	1856	4754	931	222	569	3,098	408	279	1179	519	713
Construction	4266	168	3431	598	786	44	95	285	449	766	204	53	151	667	123	88	237	122	97
Services	40,000	1,993	34,168	5,321	7,224	578	1,690	3,371	3671	9029	1570	416	1298	3,839	736	550	1305	622	626
Companies with fewer than 100 employees	31,772	1,251	26,460	4,573	5,650	343	925	2,314	3018	6935	1330	314	1058	4,061	676	531	1468	648	738
Companies with 100 to 499 employees	26,891	987	22,646	4,098	4,695	328	845	2,070	2429	5983	1121	276	801	3,258	541	355	1139	560	663
Companies with 500 to 999 employees	3,528	121	3,126	616	658	44	135	297	296	803	144	32	101	281	40	32	105	55	49
Companies with 1000 or more employees	3,554	130	3,248	577	695	45	162	347	289	869	119	70	75	176	42	22	62	24	26
(b) Gender diversity of corporate officers^a																			
Proportion of firms with a female officer(s)	0.690	0.596	0.690	0.714	0.687	0.650	0.663	0.697	0.671	0.690	0.687	0.720	0.685	0.713	0.697	0.684	0.724	0.714	0.726
Average number of female officers ^b	2.703	2.489	2.701	2.739	2.683	2.635	2.666	3.119	2.551	2.636	2.664	2.660	2.582	2.777	2.649	2.632	2.831	2.823	2.827
Proportion of female officers ^b	32.638	34.561	32.104	31.629	32.701	31.687	32.214	31.758	32.293	31.611	32.718	31.364	34.483	35.842	37.053	37.472	34.961	36.531	34.965
Blau index of gender diversity	0.382	0.397	0.378	0.374	0.382	0.380	0.385	0.378	0.378	0.376	0.380	0.372	0.392	0.400	0.404	0.406	0.398	0.402	0.397
(c) Nationality diversity of corporate officers^a																			
Proportion of firms with a foreign officer(s)	0.103	0.143	0.106	0.110	0.117	0.071	0.151	0.166	0.060	0.101	0.071	0.104	0.067	0.064	0.055	0.043	0.068	0.070	0.072
Average number of foreign officers ^c	2.089	1.980	2.127	1.941	2.293	1.944	2.256	2.520	1.875	2.022	1.887	1.500	1.772	1.715	1.648	1.650	1.835	1.656	1.623
Proportion of foreign officers ^c	24.231	32.954	23.654	22.441	25.590	24.005	25.254	23.127	19.912	24.091	20.411	17.515	26.445	24.838	24.949	30.020	26.540	25.647	19.104
Blau index of nationality diversity	0.270	0.305	0.267	0.261	0.274	0.274	0.264	0.270	0.257	0.270	0.248	0.212	0.266	0.291	0.285	0.315	0.304	0.278	0.271
(b) Age structure of board directors^a																			
Average age of all officers	54.022	51.772	54.142	54.553	53.871	53.569	52.755	53.886	54.258	54.263	54.178	55.335	54.352	53.908	54.151	54.429	53.754	53.881	53.684
Coefficient of variation of age of all officers	0.146	0.131	0.147	0.150	0.151	0.146	0.137	0.142	0.150	0.142	0.152	0.145	0.149	0.148	0.142	0.154	0.147	0.146	0.153
Average age of male officers	54.239	52.034	54.358	54.750	54.074	53.686	53.098	54.049	54.467	54.512	54.543	55.300	54.472	54.124	54.413	54.639	53.874	54.011	54.125
Coefficient of variation of age of male officers	0.141	0.127	0.141	0.145	0.145	0.140	0.134	0.138	0.145	0.136	0.143	0.139	0.143	0.146	0.142	0.148	0.145	0.145	0.148
Average age of female officers	52.275	50.855	52.397	52.603	52.100	52.945	50.946	52.297	52.389	52.599	52.496	53.968	52.848	51.933	52.440	52.231	51.944	52.599	50.641
Coefficient of variation of age of female officers	0.137	0.122	0.139	0.145	0.143	0.143	0.135	0.132	0.145	0.133	0.149	0.129	0.135	0.128	0.120	0.136	0.131	0.116	0.135

Notes:

^a Sample firm average

^b Calculation subject to companies with female officers

^c Calculation subject to companies with foreign officers

Table 2. Names, definitions, and descriptive statistics of variables used in empirical analysis

Variable name	Definition	Descriptive statistics		
		Mean	Median	S.D.
Dependent variables^a				
Firms with a female officer(s)	Probability of having a female officer(s)	0.690	1	0.463
Number of female officers	Total number of female officers	1.838	1	2.634
Proportion of female officers	Share of female officers in total corporate officers (%)	22.188	20.000	20.715
Blau index of gender diversity	Blau index of gender diversity of corporate officers	0.259	0.320	0.198
Firms with a foreign officer(s)	Probability of having a foreign officer(s)	0.103	0	0.303
Number of foreign officers	Total number of foreign officers	0.214	0	1.207
Proportion of foreign officers	Share of foreign officers in total corporate officers (%)	2.485	0.000	10.180
Blau index of nationality diversity	Blau index of nationality diversity of corporate officers	0.028	0.000	0.094
Age of corporate officers	Average age of corporate officers	54.022	54	7.258
Age of male officers	Average age of male officers	54.239	55	7.532
Age of female officers	Average age of female officers	52.275	52	10.051
Generational diversity of corporate officers	Coefficient of variation of age of corporate officers	0.146	0.134	0.095
Generational diversity of male officers	Coefficient of variation of age of male officers	0.141	0.128	0.097
Generational diversity of female officers	Coefficient of variation of age of female officers	0.137	0.117	0.114
Independent variables^b				
Berlin	Dummy for firms operating in Berlin	0.038	0	0.191
East	Dummy for firms operating in East Germany	0.118	0	0.323
Public limited company	Dummy for public limited companies	0.041	0	0.197
Private limited company	Dummy for private limited companies	0.886	1	0.317
Partnership	Dummy for partnerships	0.040	0	0.196
Ownership concentration	Average ownership share per shareholder	0.648	0.500	0.322
State enterprise	Dummy for firms with the state as the ultimate owner at the 50% control threshold	0.007	0	0.081
Foreign company	Dummy for firms with a foreign investor as the ultimate owner at the 50% control threshold	0.003	0	0.052
Corporate board size	Logarithm of total number of corporate officers	1.629	1.792	0.879
Firm size	Logarithm of total assets in Euro	15.959	16	1.918
Firm age	Years in operation	3.170	3	0.938
Profitability	3-year average of profit margins	4.644	3.570	10.023
Financial risk	3-year standard deviation of ROA	4.632	2.460	50.175
Solvency	3-year average of solvency ratio	36.098	34.990	25.765
Business diversification	Number of operating industries according to the NACE Rev 2 secondary codes	1.427	1	1.370
R&D intensity	Logarithm of total number of patents granted	0.417	0.000	1.115

Notes: Appendix Table A1 shows a correlation matrix of independent variables.

^a Takes a value in the first quarter of 2020

^b Observation period of the variables of profitability, financial risk, and solvency is 2017–2019, while that of other variables is 2019.

Table 3. Determinants of the appointment of female officers

Dependent variable	Firm with a female officer(s)	Number of female officers	Proportion of female officers		Blau index of gender diversity	
Estimator	Probit	Poisson	Tobit	Heckman	Tobit	Heckman
Model	[1]	[2]	[3]	[4]	[5]	[6]
Region						
Berlin	0.08146 (0.0790)	0.19622 *** (0.0354)	3.51887 *** (0.9014)	4.24184 *** (1.1889)	0.02851 *** (0.0082)	0.02990 *** (0.0079)
East	0.34346 *** (0.0530)	0.29980 *** (0.0202)	6.79757 *** (0.5497)	7.65712 *** (0.7439)	0.05711 *** (0.0048)	0.05057 *** (0.0050)
Firm-level control variables						
Public limited company	-0.30095 (0.2032)	0.11982 (0.0918)	-6.76971 *** (2.5235)	-4.10424 (3.6718)	-0.05529 ** (0.0265)	-0.02597 (0.0245)
Private limited company	0.00537 (0.1957)	0.27679 *** (0.0924)	-1.90421 (2.5037)	0.24361 (3.6472)	-0.00212 (0.0263)	0.00951 (0.0243)
Partnership	-0.18531 (0.2206)	0.17071 * (0.1010)	-4.66416 * (2.5955)	-1.58838 (3.7768)	-0.04248 (0.0270)	-0.01726 (0.0252)
Ownership concentration	-0.34997 *** (0.0479)	-0.11598 *** (0.0204)	-4.78360 *** (0.4668)	-5.28882 *** (0.6774)	-0.03909 *** (0.0046)	-0.03256 *** (0.0045)
State enterprise	0.24549 (0.2341)	0.45198 *** (0.1111)	4.30984 (3.0134)	4.95108 (4.4580)	0.06480 ** (0.0314)	0.04837 (0.0297)
Foreign company	-0.96620 ** (0.4215)	-0.55248 * (0.2996)	-13.60109 *** (3.2463)	-18.19451 * (9.7101)	-0.12885 *** (0.0405)	-0.11697 * (0.0647)
Corporate board size	1.05918 *** (0.0233)	1.04166 *** (0.0121)	3.62572 *** (0.2261)	0.01525 (0.8479)	0.06964 *** (0.0022)	-0.00022 (0.0057)
Firm size	-0.03784 *** (0.0115)	-0.00767 * (0.0047)	-0.99042 *** (0.1161)	-0.61755 *** (0.1733)	-0.00968 *** (0.0011)	-0.00318 *** (0.0012)
Firm age	0.10949 *** (0.0215)	0.01083 (0.0099)	1.00370 *** (0.2191)	1.23384 *** (0.3204)	0.01166 *** (0.0022)	0.00863 *** (0.0021)
Profitability	0.00181 (0.0017)	0.00264 *** (0.0007)	0.06000 *** (0.0155)	0.05458 ** (0.0229)	0.00052 *** (0.0002)	0.00034 ** (0.0002)
Financial risk	0.00012 (0.0002)	-0.00018 *** (0.0001)	-0.00306 *** (0.0009)	-0.00314 (0.0055)	-0.00003 *** (0.0000)	-0.00004 (0.0000)
Solvency	-0.00037 (0.0006)	-0.00138 *** (0.0003)	-0.01565 ** (0.0068)	-0.02150 ** (0.0092)	-0.00018 *** (0.0001)	-0.00023 *** (0.0001)
Business diversification	-0.00491 (0.0106)	0.00567 (0.0042)	0.01203 (0.1007)	0.03478 (0.1458)	0.00094 (0.0010)	0.00128 (0.0010)
R&D intensity	-0.00053 (0.0131)	-0.01544 *** (0.0047)	-0.60348 *** (0.0982)	-0.51040 *** (0.1536)	-0.00543 *** (0.0010)	-0.00407 *** (0.0010)
Const.	-0.63628 ** (0.3250)	-1.70767 *** (0.1395)	33.45023 *** (3.5778)	31.81909 *** (5.3560)	0.29934 *** (0.0365)	0.35950 *** (0.0357)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	12764	12764	12764	12764	12764	12764
Pseudo R ²	0.3027	0.3395	0.0095	-	0.2309	-
Wald/F test	3173.61 ***	13245.63 ***	38.57 ***	420.58 ***	67.98 ***	423.01 ***

Note: Table 2 provides detailed definitions and descriptive statistics of the variables used in estimation. Standard errors are computed using the Huber–White sandwich estimator and reported in parentheses beneath the corresponding coefficients. The Wald/F test examines the null hypothesis that all regression coefficients are zero. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4. Determinants of the appointment of foreign officers

Dependent variable	Firm with a foreign officer(s)	Number of foreign officers	Proportion of foreign officers		Blau index of nationality diversity	
Estimator	Probit	Poisson	Tobit	Heckman	Tobit	Heckman
Model	[1]	[2]	[3]	[4]	[5]	[6]
Region						
Berlin	0.16527 ** (0.0695)	0.23793 ** (0.1055)	2.28389 *** (0.8098)	11.09262 * (5.9053)	0.01944 *** (0.0073)	0.05403 * (0.0287)
East	-0.24212 *** (0.0474)	-0.19294 ** (0.0932)	-1.08963 *** (0.3248)	-16.65536 *** (6.2201)	-0.01360 *** (0.0035)	-0.06676 ** (0.0302)
Firm-level control variables						
Public limited company	0.70844 *** (0.1949)	1.38052 *** (0.2103)	7.28494 *** (1.3999)	39.93929 ** (17.8647)	0.06582 *** (0.0154)	0.20070 ** (0.0869)
Private limited company	0.49919 *** (0.1928)	1.06503 *** (0.2250)	5.56648 *** (1.3792)	24.08300 (16.7048)	0.04578 *** (0.0152)	0.12434 (0.0812)
Partnership	-0.59411 *** (0.2170)	-0.54416 * (0.3139)	2.12032 (1.3528)	-31.93379 (21.6064)	-0.01013 (0.0151)	-0.18701 * (0.1051)
Ownership concentration	0.34607 *** (0.0393)	0.06420 (0.0733)	2.87999 *** (0.3513)	15.64098 *** (5.9060)	0.02959 *** (0.0034)	0.07415 *** (0.0287)
State enterprise	-1.68007 *** (0.4158)	-0.81857 (0.8224)	-1.54907 (1.2618)	-74.66648 (52.4187)	-0.02822 * (0.0149)	-0.33682 (0.2549)
Foreign company	1.06257 *** (0.4026)	2.37758 *** (0.4191)	18.15983 ** (7.9713)	71.27431 ** (31.3850)	0.11604 ** (0.0580)	0.30673 ** (0.1526)
Corporate board size	0.38047 *** (0.0201)	0.89663 *** (0.0567)	-1.04034 *** (0.2020)	2.56123 (5.6413)	0.00996 *** (0.0015)	0.00864 (0.0274)
Firm size	0.14457 *** (0.0111)	0.18180 *** (0.0221)	0.98421 *** (0.0912)	7.05000 *** (1.6840)	0.01072 *** (0.0009)	0.03319 *** (0.0082)
Firm age	-0.20457 *** (0.0187)	-0.21545 *** (0.0356)	-1.44211 *** (0.1680)	-11.53404 *** (3.3745)	-0.01710 *** (0.0016)	-0.05972 *** (0.0164)
Profitability	0.00240 * (0.0014)	-0.00211 (0.0026)	0.00411 (0.0137)	0.06319 (0.0996)	0.00014 (0.0001)	0.00036 (0.0005)
Financial risk	0.00012 (0.0003)	0.00024 (0.0003)	0.00115 (0.0026)	0.03532 (0.1115)	0.00002 (0.0000)	0.00077 (0.0005)
Solvency	-0.00253 *** (0.0006)	-0.00144 (0.0010)	-0.01480 *** (0.0054)	-0.13977 ** (0.0572)	-0.00016 *** (0.0001)	-0.00061 ** (0.0003)
Business diversification	-0.02816 *** (0.0092)	-0.06143 *** (0.0213)	-0.19243 *** (0.0715)	-2.56394 *** (0.9303)	-0.00237 *** (0.0008)	-0.01268 *** (0.0045)
R&D intensity	0.04486 *** (0.0094)	0.02155 (0.0161)	0.15584 * (0.0802)	4.23493 *** (1.3399)	0.00201 ** (0.0009)	0.01723 *** (0.0065)
Const.	-3.89013 *** (0.3074)	-6.21853 *** (0.4951)	-11.43464 *** (2.4122)	-195.86370 *** (66.8316)	-0.13533 *** (0.0249)	-0.75713 ** (0.3250)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	12764	12764	12764	12764	12764	12764
Pseudo R ²	0.1374	0.3256	0.0067	-	0.0613	-
Wald/F test	1642.86 ***	3451.96 ***	35.93 ***	118.01 ***	50.00 ***	140.94 ***

Note: Table 2 provides detailed definitions and descriptive statistics of the variables used in estimation. Standard errors are computed using the Huber–White sandwich estimator and reported in parentheses beneath the corresponding coefficients. The Wald/F test examines the null hypothesis that all regression coefficients are zero. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5. Determinants of the age structure of corporate officers

Dependent variable	Age of corporate officers	Age of male officers	Age of female officers		Generational diversity of corporate officers	Generational diversity of male officers	Generational diversity of female officers	
Estimator	OLS	OLS	OLS	Heckman	OLS	OLS	OLS	Heckman
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Region								
Berlin	-0.91404 *** (0.2873)	-1.04163 *** (0.3121)	-0.87396 * (0.5016)	-0.94645 * (0.5646)	-0.00778 ** (0.0035)	-0.00472 (0.0040)	-0.01358 * (0.0072)	-0.01526 * (0.0089)
East	-0.32771 ** (0.1669)	-0.16997 (0.1833)	-0.26714 (0.3477)	-0.16990 (0.3957)	0.00544 ** (0.0023)	0.00727 *** (0.0025)	-0.00491 (0.0061)	-0.00668 (0.0064)
Firm-level control variables								
Public limited company	0.49196 (0.6830)	0.70133 (0.6969)	-0.51624 (1.5008)	-0.34366 (2.2923)	0.03422 *** (0.0089)	0.02711 *** (0.0089)	-0.00122 (0.0167)	-0.00231 (0.0303)
Private limited company	-0.76824 (0.6729)	-0.68966 (0.6863)	-1.04625 (1.5048)	-0.80881 (2.3057)	0.02224 ** (0.0089)	0.01483 * (0.0089)	-0.00139 (0.0170)	-0.00352 (0.0305)
Partnership	0.63157 (0.6877)	0.83444 (0.7077)	0.28267 (1.5384)	0.48275 (2.3402)	0.01788 ** (0.0091)	0.01254 (0.0091)	-0.00700 (0.0179)	-0.00831 (0.0311)
Ownership concentration	-0.59515 *** (0.1564)	-0.52426 *** (0.1647)	-0.67701 * (0.3519)	-0.66973 * (0.3495)	-0.00221 (0.0021)	-0.00347 (0.0022)	0.00983 * (0.0057)	0.00966 * (0.0057)
State enterprise	1.49896 (1.0697)	1.96436 * (1.0957)	2.55821 (2.7327)	2.72456 (3.1956)	-0.00054 (0.0183)	-0.00994 (0.0198)	-0.02318 (0.0230)	-0.02426 (0.0605)
Foreign company	-2.83503 (2.2218)	-3.13229 (2.2224)	3.10438 (3.2596)	3.15823 (4.6881)	0.02675 * (0.0141)	0.02389 (0.0146)	-0.04015 (0.0318)	-0.04118 (0.0712)
Corporate board size	-0.62709 *** (0.0932)	-0.56855 *** (0.0960)	-0.35873 * (0.1865)	-0.07041 (0.4472)	0.00899 *** (0.0012)	0.00866 *** (0.0013)	0.00654 * (0.0034)	0.00067 (0.0065)
Firm size	0.10053 *** (0.0357)	0.10819 *** (0.0381)	-0.00017 (0.0743)	-0.01847 (0.0847)	-0.00239 *** (0.0005)	-0.00216 *** (0.0005)	-0.00149 (0.0012)	-0.00123 (0.0013)
Firm age	0.96676 *** (0.0736)	0.90876 *** (0.0763)	1.01075 *** (0.1634)	1.03280 *** (0.1655)	0.00312 *** (0.0009)	0.00340 *** (0.0010)	0.00425 * (0.0026)	0.00399 (0.0026)
Profitability	-0.00333 (0.0048)	-0.00187 (0.0051)	-0.01355 (0.0097)	-0.01291 (0.0110)	-0.00017 *** (0.0001)	-0.00015 ** (0.0001)	-0.00036 ** (0.0002)	-0.00037 ** (0.0002)
Financial risk	-0.00248 * (0.0013)	-0.00253 * (0.0013)	-0.07510 *** (0.0214)	-0.07514 *** (0.0189)	-0.00002 ** (0.0000)	-0.00002 ** (0.0000)	0.00010 (0.0003)	0.00010 (0.0003)
Solvency	0.03008 *** (0.0022)	0.02971 *** (0.0023)	0.02752 *** (0.0050)	0.02727 *** (0.0049)	0.00016 *** (0.0000)	0.00017 *** (0.0000)	0.00016 ** (0.0001)	0.00016 * (0.0001)
Business diversification	-0.04204 (0.0327)	-0.05867 * (0.0346)	0.09701 (0.0728)	0.09724 (0.0757)	0.00096 ** (0.0004)	0.00099 ** (0.0005)	0.00117 (0.0011)	0.00115 (0.0012)
R&D intensity	0.00355 (0.0328)	0.00736 (0.0338)	-0.04972 (0.0744)	-0.06092 (0.0816)	-0.00249 *** (0.0004)	-0.00242 *** (0.0004)	-0.00050 (0.0011)	-0.00023 (0.0012)
Const.	50.86472 *** (1.0464)	50.92255 *** (1.0889)	50.11236 *** (2.2500)	49.22939 *** (3.1791)	0.12304 *** (0.0137)	0.02102 * (0.0126)	0.11647 *** (0.0308)	0.13404 *** (0.0448)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	12039	11860	5508	8186	11202	10717	2542	5220
R ²	0.0675	0.0640	0.0318	-	0.0256	0.0231	0.0148	-
Wald/F test	30.10 ***	27.67 ***	6.18 ***	180.30 ***	12.87 ***	10.84 ***	1.62 **	36.00

Note: Table 2 provides detailed definitions and descriptive statistics of the variables used in estimation. Standard errors are computed using the Huber–White sandwich estimator and reported in parentheses beneath the corresponding coefficients. The Wald/F test examines the null hypothesis that all regression coefficients are zero. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6. Univariate comparison by industry, firm size, and year of establishment

	Comparison of mining and manufacturing industries and other industries		Comparison of large and small companies		Comparison of companies established before reunification with those after reunification	
	Mining and manufacturing companies	Agriculture, forestry, fisheries; Construction; and Services	Larger companies	Smaller companies	Companies established before reunification	Companies established after reunification
Diversity of corporate officers						
Firms with a female officer(s)	0.789	0.643 ***	0.713	0.678 ***	0.812	0.623 ***
Number of female officers	2.224	1.651 ***	2.343	1.583 ***	2.462	1.493 ***
Proportion of female officers	23.853	21.380 ***	20.692	22.943 ***	24.834	20.723 ***
Blau index of gender diversity	0.290	0.245 ***	0.256	0.261 ***	0.299	0.238 ***
Firms with a foreign officer(s)	0.124	0.093 ***	0.167	0.070 ***	0.098	0.105 ***
Number of foreign officers	0.259	0.193 ***	0.415	0.113 ***	0.224	0.209 ***
Proportion of foreign officers	2.289	2.577 ***	3.285	2.084 ***	1.683	2.919 ***
Blau index of nationality diversity	0.031	0.026 ***	0.041	0.021 ***	0.023	0.030 ***
Age of corporate officers	54.980	53.559 ***	54.240	53.914 ***	55.838	53.030 ***
Age of male officers	55.182	53.775 ***	54.453	54.131 ***	55.929	53.312 ***
Age of female officers	52.869	52.011 ***	52.396	52.203 ***	53.910	51.309 ***
Generational diversity of corporate officers	0.149	0.145 ***	0.141	0.149 ***	0.155	0.141 ***
Generational diversity of male officers	0.144	0.140 ***	0.136	0.144 ***	0.150	0.136 ***
Generational diversity of female officers	0.142	0.135 ***	0.136	0.138 ***	0.146	0.130 ***
Other firm-level attributes						
Berlin	0.015	0.048 ***	0.035	0.039 ***	0.017	0.049 ***
East	0.147	0.105 ***	0.099	0.128 ***	0.019	0.172 ***
Public limited company	0.036	0.043 ***	0.069	0.026 ***	0.043	0.039 **
Private limited company	0.932	0.865 ***	0.727	0.966 ***	0.857	0.902 ***
Partnership	0.018	0.051 ***	0.107	0.007 ***	0.062	0.028 ***
Ownership concentration	0.623	0.660 ***	0.654	0.645 ***	0.599	0.674 ***
State enterprise	0.004	0.008 ***	0.019	0.0002 ***	0.010	0.005 ***
Foreign company	0.001	0.003 ***	0.008	0.0003 ***	0.002	0.003 **
Corporate board size	1.929	1.426 ***	1.811	1.538 ***	1.990	1.434 ***
Firm size	16.376	15.762 ***	19.246	15.386 ***	16.414	15.720 ***
Firm age	3.396	3.062 ***	3.227	3.142 ***	4.077	2.667 ***
Profitability	4.765	4.576 ***	6.072	3.191 ***	5.169	4.282 ***
Financial risk	4.670	4.606 ***	3.687	4.998 *	3.925	5.177 *
Solvency	40.932	33.719 ***	37.719	35.815 ***	38.092	34.976 ***
Business diversification	1.463	1.410 ***	1.435	1.423 ***	1.558	1.356 ***
R&D intensity	0.968	0.157 ***	0.665	0.293 ***	0.710	0.259 ***

Note: Table 2 provides detailed definitions and descriptive statistics of the variables used in univariate comparisons. ***, **, and * denote that the difference in means between the two company groups being compared is statistically significant, either by a t-test or a difference in proportions test, at the 1%, 5%, and 10% levels, respectively.

Table 7. Comparison between mining and manufacturing industries and other industries

Target industries	Mining and manufacturing companies						Agriculture, forestry, fisheries; Construction; and Services					
Dependent variable	Firm with a female officer(s)	Proportion of female officers	Firm with a foreign officer(s)	Proportion of foreign officers	Age of corporate officers	Generational diversity of corporate officers	Firm with a female officer(s)	Proportion of female officers	Firm with a foreign officer(s)	Proportion of foreign officers	Age of corporate officers	Generational diversity of corporate officers
Estimator	Probit	Tobit	Probit	Tobit	OLS	OLS	Probit	Tobit	Probit	Tobit	OLS	OLS
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
Region												
Berlin	0.06222 (0.1751)	3.88062 ** (1.9088)	0.33512 ** (0.1574)	3.32248 * (1.9552)	-1.67326 ** (0.6770)	0.00559 (0.0072)	0.09921 (0.0886)	3.40543 *** (1.0246)	0.10731 (0.0781)	1.92558 ** (0.8886)	-0.62114 ** (0.3152)	-0.01094 *** (0.0040)
East	0.42622 *** (0.0815)	7.60602 *** (0.7238)	-0.05738 (0.0637)	-0.13422 (0.4594)	-0.53516 ** (0.2242)	0.00748 ** (0.0030)	0.28746 *** (0.0713)	5.98797 *** (0.8298)	-0.49084 *** (0.0776)	-2.21236 *** (0.4574)	-0.15696 (0.2480)	0.00334 (0.0034)
Firm-level control variables												
Public limited company	-5.07297 *** (0.2682)	-10.70898 (6.9545)	-0.17404 (0.4057)	3.71271 *** (0.7422)	5.45745 (5.2158)	0.01074 ** (0.0042)	-0.26948 (0.2151)	-7.45965 *** (2.6649)	0.66829 *** (0.2062)	7.22877 *** (1.5352)	0.93677 (0.6902)	0.03848 *** (0.0095)
Private limited company	-4.70113 *** (0.2399)	-6.58491 (6.9443)	-0.54919 (0.4028)	0.60666 (0.6199)	4.35444 (5.2138)	0.00437 (0.0051)	0.00464 (0.2051)	-2.45512 (2.6255)	0.54930 *** (0.2029)	6.33590 *** (1.4992)	-0.44679 (0.6694)	0.02311 ** (0.0093)
Partnership	-4.98426 *** (0.3846)	-9.78233 (7.1692)	-1.32761 *** (0.4916)	-2.21683 ** (0.9485)	6.23111 (5.2307)	-0.00399 (0.0099)	-0.17291 (0.2316)	-5.42500 ** (2.7114)	-0.60500 *** (0.2295)	2.76860 * (1.4453)	0.68389 (0.6856)	0.01910 ** (0.0094)
Ownership concentration	-0.26141 *** (0.0884)	-4.45191 *** (0.6906)	0.30872 *** (0.0654)	1.47955 *** (0.4401)	-0.64952 *** (0.2316)	-0.00066 (0.0031)	-0.39089 *** (0.0568)	-5.18081 *** (0.6186)	0.37986 *** (0.0498)	3.71142 *** (0.4909)	-0.51523 ** (0.2057)	-0.00309 (0.0028)
State enterprise	-4.37983 *** (0.3364)	-2.14675 (7.8622)	-0.00646 ** (0.0029)	-1.60713 * (0.8773)	7.97395 (6.0611)	0.01318 (0.0362)	0.23761 (0.2592)	3.97609 (3.2628)	-1.62454 *** (0.4230)	-2.76847 ** (1.2809)	1.25078 (0.9156)	-0.00469 (0.0198)
Foreign company	-0.45704 *** (0.0778)	-24.67900 *** (7.2560)	0.03346 (0.8641)	9.46204 (14.5348)	3.17760 (6.8228)	-0.00369 (0.0132)	-0.86224 * (0.4519)	-13.13054 *** (3.5840)	1.09408 ** (0.4468)	19.48042 ** (9.1665)	-2.62241 (2.5143)	0.03107 ** (0.0159)
Corporate board size	1.06696 *** (0.0478)	1.57105 *** (0.4761)	0.45442 *** (0.0421)	-0.58119 * (0.3495)	0.28904 * (0.1756)	0.01145 *** (0.0022)	1.06390 *** (0.0271)	4.26795 *** (0.2597)	0.35805 *** (0.0227)	-1.19811 *** (0.2433)	-0.87605 *** (0.1093)	0.00819 *** (0.0015)
Firm size	-0.07215 *** (0.0241)	-1.00432 *** (0.1978)	0.15270 *** (0.0191)	0.88844 *** (0.1438)	-0.16644 *** (0.0643)	-0.00309 *** (0.0008)	-0.03180 ** (0.0133)	-0.97651 *** (0.1436)	0.14882 *** (0.0131)	1.09008 *** (0.1163)	0.11248 *** (0.0439)	-0.00248 *** (0.0006)
Firm age	0.08865 ** (0.0394)	0.89799 *** (0.3106)	-0.23361 *** (0.0295)	-1.42461 *** (0.2293)	0.46704 *** (0.1006)	0.00167 (0.0013)	0.11939 *** (0.0257)	1.13157 *** (0.3012)	-0.18027 *** (0.0245)	-1.43779 *** (0.2331)	1.21431 *** (0.1022)	0.00408 *** (0.0013)
Profitability	0.00419 (0.0032)	0.06650 ** (0.0268)	-0.00144 (0.0027)	-0.02510 (0.0187)	0.01361 (0.0084)	-0.00008 (0.0001)	0.00143 (0.0020)	0.05634 *** (0.0189)	0.00403 ** (0.0017)	0.01587 (0.0177)	-0.00730 (0.0059)	-0.00019 *** (0.0001)
Financial risk	0.00020 (0.0002)	-0.00318 *** (0.0006)	-0.00014 (0.0002)	-0.00044 (0.0010)	-0.00124 *** (0.0002)	-0.00001 *** (0.0000)	-0.00105 (0.0027)	-0.00296 (0.0319)	0.01275 *** (0.0032)	0.08570 *** (0.0270)	-0.06414 *** (0.0120)	-0.00026 ** (0.0001)
Solvency	-0.00265 ** (0.0012)	-0.03036 *** (0.0103)	-0.00288 *** (0.0010)	-0.01060 (0.0074)	0.02024 *** (0.0034)	0.00009 ** (0.0000)	0.00043 (0.0007)	-0.00710 (0.0090)	-0.00206 *** (0.0007)	-0.01607 ** (0.0074)	0.03295 *** (0.0029)	0.00019 *** (0.0000)
Business diversification	0.01786 (0.0185)	0.29207 ** (0.1403)	-0.01599 (0.0144)	-0.07960 (0.0939)	0.02722 (0.0458)	0.00096 (0.0006)	-0.01320 (0.0131)	-0.14451 (0.1385)	-0.03360 *** (0.0120)	-0.24088 ** (0.1009)	-0.08211 * (0.0450)	0.00102 * (0.0006)
R&D intensity	0.01354 (0.0180)	-0.43598 *** (0.1260)	0.02701 ** (0.0124)	-0.03264 (0.0970)	0.03492 (0.0428)	-0.00189 *** (0.0006)	-0.00410 (0.0196)	-0.53066 *** (0.1658)	0.06265 *** (0.0157)	0.34191 ** (0.1464)	-0.01617 (0.0547)	-0.00302 *** (0.0007)
Const.	4.69792 *** (0.4885)	43.10140 *** (7.8547)	-3.03863 *** (0.5406)	-5.23497 * (2.8320)	50.33953 *** (5.3397)	0.15302 *** (0.0175)	-0.59076 (0.3636)	34.81216 *** (4.2067)	-4.43927 *** (0.3522)	-16.72630 *** (2.9407)	49.99674 *** (1.4236)	0.14891 *** (0.0197)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	4662	4650	4640	4640	4476	4293	8099	7999	8099	8099	7563	6909
R ² /Pseudo R ²	0.2324	0.0080	0.1417	0.0091	0.0468	0.0181	0.3050	0.0107	0.1363	0.0066	0.0886	0.0315
Wald/F test	959.69 ***	24.24 ***	648.45 ***	28.81 ***	18.01 ***	8.10 ***	2216.05 ***	34.38 ***	975.75 ***	23.90 ***	28.42 ***	11.99 ***

Note: Table 2 provides detailed definitions and descriptive statistics of the variables used in estimation. Standard errors are computed using the Huber–White sandwich estimator and reported in parentheses beneath the corresponding coefficients. The Wald/F test examines the null hypothesis that all regression coefficients are zero. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8. Comparison of large and small companies

Target companies	Larger companies						Smaller companies					
Dependent variable	Firm with a female officer(s)	Proportion of female officers	Firm with a foreign officer(s)	Proportion of foreign officers	Age of corporate officers	Generational diversity of corporate officers	Firm with a female officer(s)	Proportion of female officers	Firm with a foreign officer(s)	Proportion of foreign officers	Age of corporate officers	Generational diversity of corporate officers
Estimator	Probit	Tobit	Probit	Tobit	OLS	OLS	Probit	Tobit	Probit	Tobit	OLS	OLS
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
Region												
Berlin	-0.04421 (0.1253)	2.47074 ** (1.2169)	0.22482 ** (0.1107)	3.12014 ** (1.2586)	-1.05145 *** (0.3923)	-0.00758 * (0.0045)	0.12979 (0.1022)	3.82722 *** (1.2751)	0.08226 (0.0917)	1.48132 (1.0548)	-0.75716 * (0.4022)	-0.00655 (0.0050)
East	0.28597 *** (0.0870)	6.70610 *** (0.8090)	-0.15951 ** (0.0733)	-0.05160 (0.5428)	-0.60668 ** (0.2393)	0.00302 (0.0030)	0.38207 *** (0.0678)	6.70697 *** (0.7478)	-0.29916 *** (0.0627)	-1.77020 *** (0.4054)	-0.17783 (0.2295)	0.00785 ** (0.0032)
Firm-level control variables												
Public limited company	-0.20564 (0.2245)	-4.49110 * (2.5794)	0.73648 *** (0.2129)	8.36194 *** (1.5378)	0.05631 (0.6784)	0.02524 *** (0.0091)	-5.35198 *** (0.2831)	-27.20797 *** (1.6666)	3.07803 *** (0.2949)	5.39525 *** (0.9277)	13.63882 *** (0.5504)	0.00808 (0.0076)
Private limited company	0.01334 (0.2144)	-0.78172 (2.5643)	0.59553 *** (0.2103)	6.91382 *** (1.5121)	-1.08534 (0.6636)	0.01287 (0.0091)	-4.89036 *** (0.2734)	-20.09518 *** (1.3543)	2.85111 *** (0.2839)	4.11124 *** (0.6794)	11.68746 *** (0.4581)	-0.00474 (0.0069)
Partnership	0.21651 (0.2695)	0.33157 (2.6811)	-0.53820 ** (0.2361)	2.91367 ** (1.4502)	0.75296 (0.6842)	0.00638 (0.0091)	-5.40594 *** (0.3179)	-29.27571 *** (2.0239)	1.54653 *** (0.4138)	0.85814 (0.8288)	12.42759 *** (0.6253)	0.00467 (0.0084)
Ownership concentration	-0.37352 *** (0.0694)	-4.76847 *** (0.5955)	0.14359 *** (0.0548)	1.53823 *** (0.5075)	-0.28769 (0.2077)	-0.00192 (0.0026)	-0.32721 *** (0.0671)	-4.82733 *** (0.7241)	0.55363 *** (0.0578)	3.96577 *** (0.4856)	-0.80664 *** (0.2357)	-0.00080 (0.0033)
State enterprise	0.26853 (0.2483)	6.24767 ** (3.0785)	-1.77893 *** (0.4179)	-1.32146 (1.3054)	1.11704 (1.0484)	0.00017 (0.0183)	-5.07434 *** (0.5019)	-26.32478 *** (3.9428)	-0.36737 *** (0.0911)	-0.66439 (1.0031)	17.91945 *** (0.7001)	0.00008 (0.0032)
Foreign company	-0.85533 * (0.4668)	-11.23764 *** (3.6873)	1.37539 *** (0.4802)	19.36266 *** (7.5284)	-3.32663 * (1.8261)	0.01284 (0.0150)	-0.16562 * (0.0902)	-33.28193 *** (1.9644)	2.83549 *** (0.7672)	17.23841 (21.1795)	10.10430 (6.3683)	0.02856 *** (0.0080)
Corporate board size	1.03872 *** (0.0326)	2.72225 *** (0.2818)	0.45769 *** (0.0268)	-0.72652 *** (0.2672)	-0.81708 *** (0.1233)	0.00968 *** (0.0015)	1.07930 *** (0.0340)	4.54523 *** (0.3780)	0.24808 *** (0.0304)	-1.60203 *** (0.3124)	-0.30788 ** (0.1454)	0.00951 *** (0.0021)
Firm size	-0.01128 (0.0229)	-0.23008 (0.1775)	0.16633 *** (0.0171)	1.11803 *** (0.1562)	0.13570 ** (0.0601)	-0.00418 *** (0.0007)	-0.03713 (0.0263)	-1.13119 *** (0.3278)	0.08374 *** (0.0270)	0.71928 *** (0.1929)	0.07775 (0.0886)	0.00070 (0.0013)
Firm age	0.10082 *** (0.0293)	0.61315 ** (0.2771)	-0.16761 *** (0.0248)	-1.05785 *** (0.2278)	0.78724 *** (0.0927)	0.00224 * (0.0012)	0.12036 *** (0.0321)	1.40182 *** (0.3553)	-0.23339 *** (0.0293)	-1.83262 *** (0.2480)	1.11917 *** (0.1200)	0.00408 ** (0.0016)
Profitability	0.00267 (0.0022)	0.05957 *** (0.0190)	0.00261 (0.0018)	-0.00074 (0.0176)	-0.00821 (0.0057)	-0.00007 (0.0001)	0.00035 (0.0025)	0.04929 * (0.0267)	0.00123 (0.0024)	0.00583 (0.0229)	0.00271 (0.0086)	-0.00030 *** (0.0001)
Financial risk	0.00008 (0.0002)	-0.00263 *** (0.0007)	-0.00017 (0.0002)	-0.00039 (0.0012)	-0.00160 *** (0.0005)	-0.00001 *** (0.0000)	0.00140 (0.0028)	-0.01331 (0.0323)	0.01471 *** (0.0030)	0.08000 *** (0.0254)	-0.05018 *** (0.0110)	-0.00022 * (0.0001)
Solvency	0.00040 (0.0010)	-0.00527 (0.0097)	-0.00406 *** (0.0008)	-0.03379 *** (0.0086)	0.03562 *** (0.0033)	0.00027 *** (0.0000)	-0.00051 (0.0009)	-0.01631 * (0.0099)	0.00000 (0.0008)	0.00750 (0.0073)	0.02272 *** (0.0031)	0.00004 (0.0000)
Business diversification	-0.00808 (0.0158)	0.15522 (0.1257)	-0.03073 ** (0.0126)	-0.16255 (0.0999)	-0.04230 (0.0405)	0.00036 (0.0005)	-0.00230 (0.0145)	-0.15082 (0.1595)	-0.02454 * (0.0136)	-0.21858 ** (0.1022)	-0.05995 (0.0520)	0.00170 ** (0.0007)
R&D intensity	-0.00942 (0.0164)	-0.58953 *** (0.1143)	0.04110 *** (0.0115)	0.10667 (0.0986)	0.02187 (0.0381)	-0.00225 *** (0.0005)	0.02899 (0.0220)	-0.44318 ** (0.1944)	0.02803 (0.0175)	0.13626 (0.1439)	0.04243 (0.0666)	-0.00319 *** (0.0009)
Const.	-1.14010 ** (0.5424)	19.83106 *** (4.6805)	-4.52451 *** (0.4332)	-15.96848 *** (3.6663)	51.22339 *** (1.4727)	0.16482 *** (0.0184)	4.17978 *** (0.5264)	51.80093 *** (5.7228)	-5.11215 *** (0.5360)	-4.63266 (3.3570)	38.17880 *** (1.5930)	0.09581 *** (0.0237)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	6379	6331	6379	6379	6003	5998	6381	6318	6377	6377	6036	5571
R ² /Pseudo R ²	0.3557	0.0101	0.1809	0.0076	0.0863	0.0410	0.2566	0.0088	0.0800	0.0072	0.0609	0.0223
Wald/F test	1793.25 ***	20.85 ***	1094.90 ***	23.54 ***	17.88 ***	10.50 ***	1755.17 ***	109.44 ***	762.97 ***	37.86 ***	18.69 ***	12.35 ***

Note: Table 2 provides detailed definitions and descriptive statistics of the variables used in estimation. Standard errors are computed using the Huber–White sandwich estimator and reported in parentheses beneath the corresponding coefficients. The Wald/F test examines the null hypothesis that all regression coefficients are zero. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

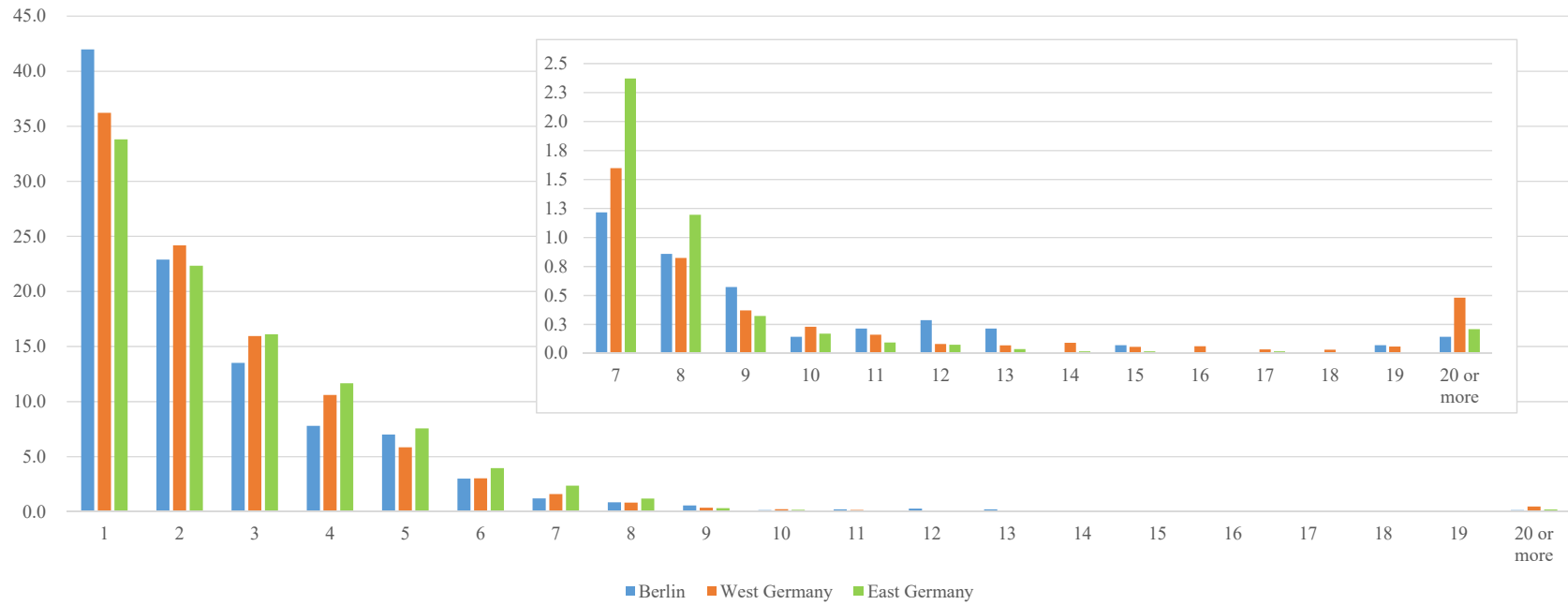
Table 9. Comparison of companies established before reunification with those after reunification

Sample firms	Companies established before reunification						Companies established after reunification					
	Firm with a female officer(s)	Proportion of female officers	Firm with a foreign officer(s)	Proportion of foreign officers	Age of corporate officers	Generational diversity of corporate officers	Firm with a female officer(s)	Proportion of female officers	Firm with a foreign officer(s)	Proportion of foreign officers	Age of corporate officers	Generational diversity of corporate officers
Estimator	Probit	Tobit	Probit	Tobit	OLS	OLS	Probit	Tobit	Probit	Tobit	OLS	OLS
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
Region												
Berlin	0.25220 (0.1953)	4.37102 *** (1.5543)	0.04457 (0.1476)	0.15800 (0.9319)	-0.68335 (0.4733)	-0.01402 ** (0.0067)	0.04434 (0.0884)	3.32551 *** (1.0811)	0.19150 ** (0.0798)	2.94062 *** (1.0434)	-0.93042 *** (0.3428)	-0.00447 * (0.0031)
East	0.32022 * (0.1795)	3.84599 ** (1.7321)	0.05039 (0.1558)	0.32070 (0.9423)	0.07071 (0.5140)	-0.00501 (0.0069)	0.28854 *** (0.0576)	5.82717 *** (0.6111)	-0.31950 *** (0.0517)	-1.16891 *** (0.3834)	-0.55872 *** (0.1842)	0.00731 *** (0.0025)
Firm-level control variables												
Public limited company	-0.59270 ** (0.2735)	-5.39191 * (3.2023)	1.05662 *** (0.2486)	8.90129 *** (1.6363)	-0.67010 (0.8085)	0.03642 *** (0.0101)	0.05489 (0.3625)	-4.33372 (3.9670)	0.52350 (0.3527)	5.54651 * (2.9408)	1.34887 (1.3256)	0.03824 ** (0.0184)
Private limited company	-0.26702 (0.2588)	-2.12688 (3.1886)	0.79897 *** (0.2457)	6.87241 *** (1.6034)	-1.82459 ** (0.7849)	0.02420 ** (0.0100)	0.34603 (0.3559)	1.32132 (3.9235)	0.36492 (0.3496)	4.25420 (2.9147)	-0.07862 (1.3140)	0.02465 (0.0183)
Partnership	-0.52549 * (0.2727)	-5.06202 (3.2035)	-0.46137 * (0.2631)	3.08890 ** (1.5465)	-0.15427 (0.7900)	0.01500 (0.0097)	0.54675 (0.4385)	4.98979 (4.4097)	-0.46982 (0.4114)	1.48141 (3.0785)	1.47067 (1.3972)	0.03692 * (0.0196)
Ownership concentration	-0.40313 *** (0.0819)	-5.16062 *** (0.6621)	0.38522 *** (0.0623)	2.34968 *** (0.4342)	-1.13758 *** (0.2337)	0.00020 (0.0031)	-0.31573 *** (0.0596)	-4.39604 *** (0.6417)	0.31599 *** (0.0515)	3.22700 *** (0.5107)	-0.20513 (0.2104)	-0.00348 (0.0029)
State enterprise	0.11818 (0.3146)	3.51809 (3.8168)	-0.58332 (1.3215)	0.65283 (1.0849)	0.00963 (0.0251)	0.53028 (0.3976)	7.71138 (4.7049)	-1.41241 *** (0.5266)	-2.88063 (2.8602)	2.57008 (2.1011)	-0.01719 (0.0253)	
Foreign company	-1.63687 ** (0.7008)	-15.99645 ** (7.0210)	55.62698 *** (4.4562)	-4.98926 (3.5341)	0.04385 *** (0.0153)	-0.52372 (0.5537)	-10.00738 ** (4.4819)	0.52929 (0.5224)	7.45655 (8.2744)	-1.86016 (2.8296)	0.02510 (0.0224)	
Corporate board size	1.10172 *** (0.0426)	1.76192 *** (0.3893)	0.36809 *** (0.0373)	-1.05542 *** (0.2973)	-0.57803 *** (0.1652)	0.00599 *** (0.0020)	1.05039 *** (0.0288)	4.49359 *** (0.2845)	0.37182 *** (0.0244)	-1.05894 *** (0.2743)	-0.71060 *** (0.1157)	0.01045 *** (0.0016)
Firm size	-0.05187 ** (0.0220)	-0.99171 *** (0.1724)	0.17928 *** (0.0240)	1.16741 *** (0.1444)	0.03491 (0.0587)	-0.00264 *** (0.0008)	-0.03561 *** (0.0139)	-0.92428 *** (0.1554)	0.13329 *** (0.0127)	0.91574 *** (0.1223)	0.12097 *** (0.0471)	-0.00238 *** (0.0006)
Firm age	0.12005 ** (0.0600)	0.61187 (0.4788)	-0.20736 *** (0.0460)	-1.04867 *** (0.3187)	0.62182 *** (0.1632)	-0.00065 (0.0021)	0.17011 *** (0.0392)	2.43803 *** (0.4744)	-0.11572 *** (0.0373)	-1.38356 *** (0.4342)	1.49717 *** (0.1537)	0.00066 (0.0021)
Profitability	0.00001 (0.0033)	0.04997 ** (0.0255)	0.00515 ** (0.0026)	0.01337 (0.0161)	0.00568 (0.0083)	-0.00016 (0.0001)	0.00192 (0.0020)	0.05259 *** (0.0196)	0.00057 (0.0017)	-0.00078 (0.0190)	-0.00972 (0.0059)	-0.00019 ** (0.0001)
Financial risk	0.00711 (0.0060)	-0.00304 *** (0.0004)	-0.00013 (0.0002)	-0.00038 (0.0008)	-0.00157 *** (0.0005)	-0.00001 *** (0.0000)	-0.00336 (0.0026)	-0.01465 (0.0317)	0.01315 *** (0.0032)	0.09050 *** (0.0271)	-0.04931 *** (0.0109)	-0.00019 * (0.0001)
Solvency	-0.00330 *** (0.0011)	-0.05900 *** (0.0102)	-0.00365 *** (0.0010)	-0.00175 (0.0066)	0.03390 *** (0.0037)	0.00017 *** (0.0000)	0.00090 (0.0008)	0.00622 (0.0091)	-0.00148 ** (0.0007)	-0.01739 ** (0.0028)	0.02524 *** (0.0028)	0.00014 *** (0.0000)
Business diversification	0.00619 (0.0174)	0.23265 * (0.1369)	-0.01235 (0.0138)	-0.04711 (0.0921)	-0.05327 (0.0459)	0.00004 (0.0006)	-0.01056 (0.0137)	-0.19175 (0.1458)	-0.04719 *** (0.0125)	-0.35904 *** (0.1060)	-0.02389 (0.0463)	0.00170 *** (0.0006)
R&D intensity	0.01459 (0.0186)	-0.49424 *** (0.1279)	0.04999 *** (0.0131)	0.17805 * (0.0998)	-0.01231 (0.0443)	-0.00247 *** (0.0006)	-0.01203 (0.0191)	-0.62925 *** (0.1575)	0.04023 *** (0.0143)	0.09886 (0.1336)	0.07044 (0.0497)	-0.00204 *** (0.0006)
Const.	-0.20149 (0.5790)	40.74842 *** (5.1471)	-4.88213 *** (0.5314)	-18.71492 *** (3.2701)	54.44651 *** (1.5444)	0.14852 *** (0.0198)	-1.15422 ** (0.4827)	23.22546 *** (5.3468)	-3.74908 *** (0.4599)	-8.79870 ** (4.0920)	48.69488 *** (1.7457)	0.12481 *** (0.0236)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5304	5274	5304	5262	5034	4749	7460	7375	7460	7460	7005	6453
R ² /Pseudo R ²	0.2778	0.0070	0.1511	0.0102	0.0528	0.0212	0.2979	0.0126	0.1352	0.0057	0.0703	0.0309
Wald/F test	956.85 ***	13.49 ***	662.90 ***	20.60 ***	10.08 ***	5.71 ***	2051.17 ***	33.14 ***	1024.43 ***	24.79 ***	17.12 ***	8.37 ***

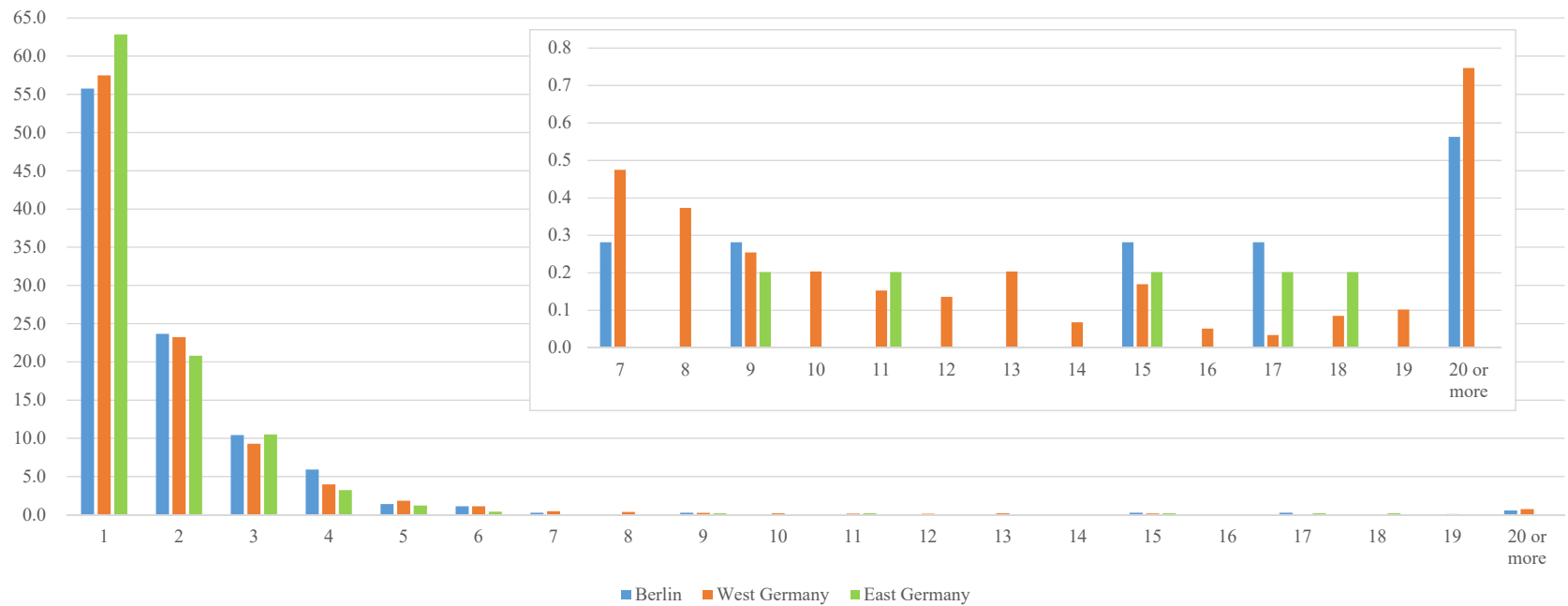
Note: Table 2 provides detailed definitions and descriptive statistics of the variables used in estimation. Standard errors are computed using the Huber–White sandwich estimator and reported in parentheses beneath the corresponding coefficients. The Wald/F test examines the null hypothesis that all regression coefficients are zero. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix Figure A1. Number of female and foreign officers

(a) Female officers



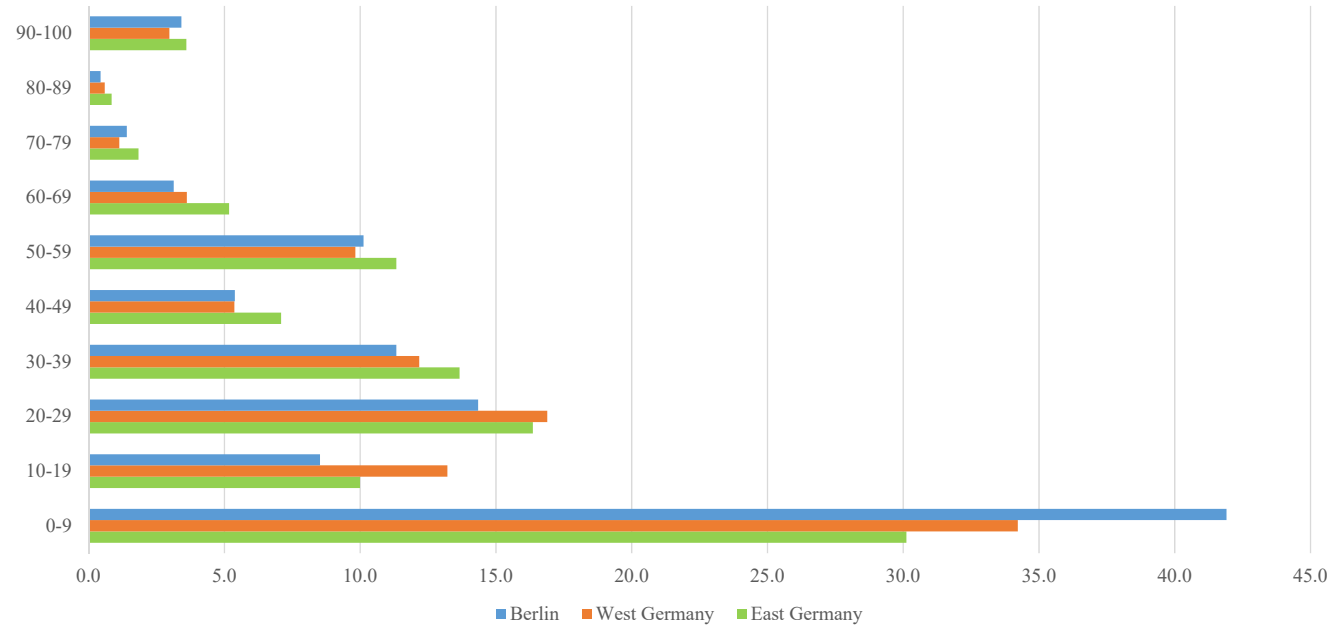
(b) Foreign officers



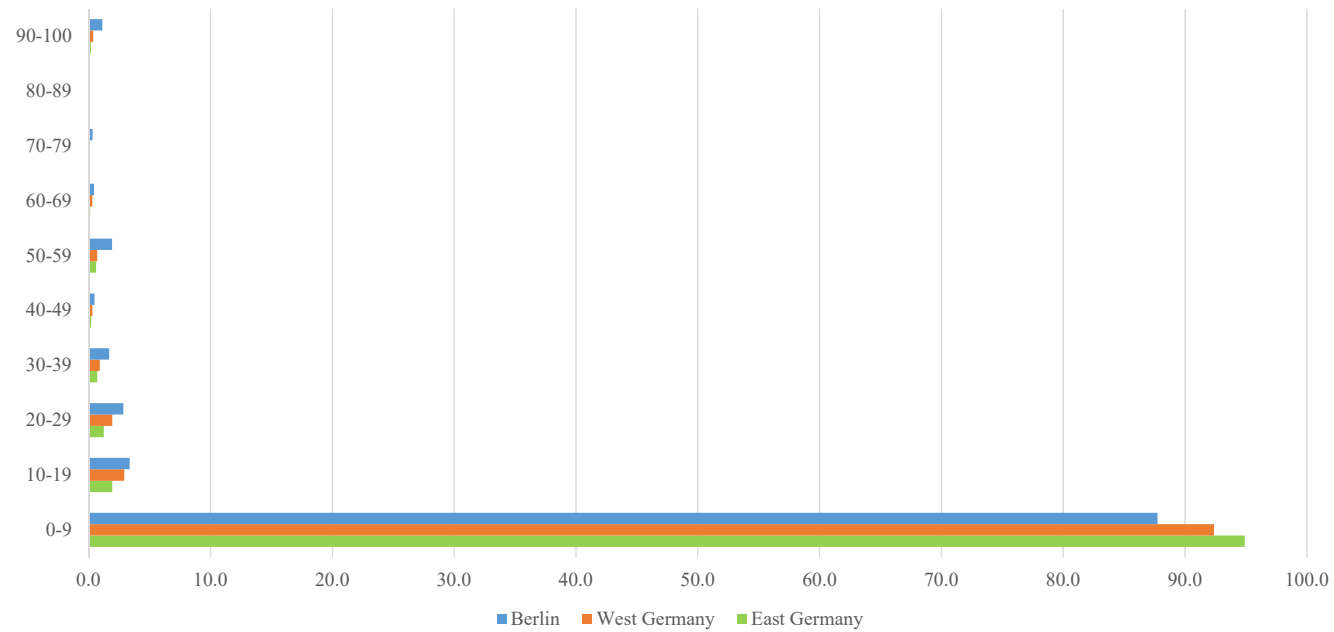
Note: The horizontal axis is the number of female/foreign officers. The vertical axis is the proportion of sample firms to the total number of companies with a female/foreign officer(s) (%).

Appendix Figure A2. Proportion of female and foreign officers

(a) Female officers



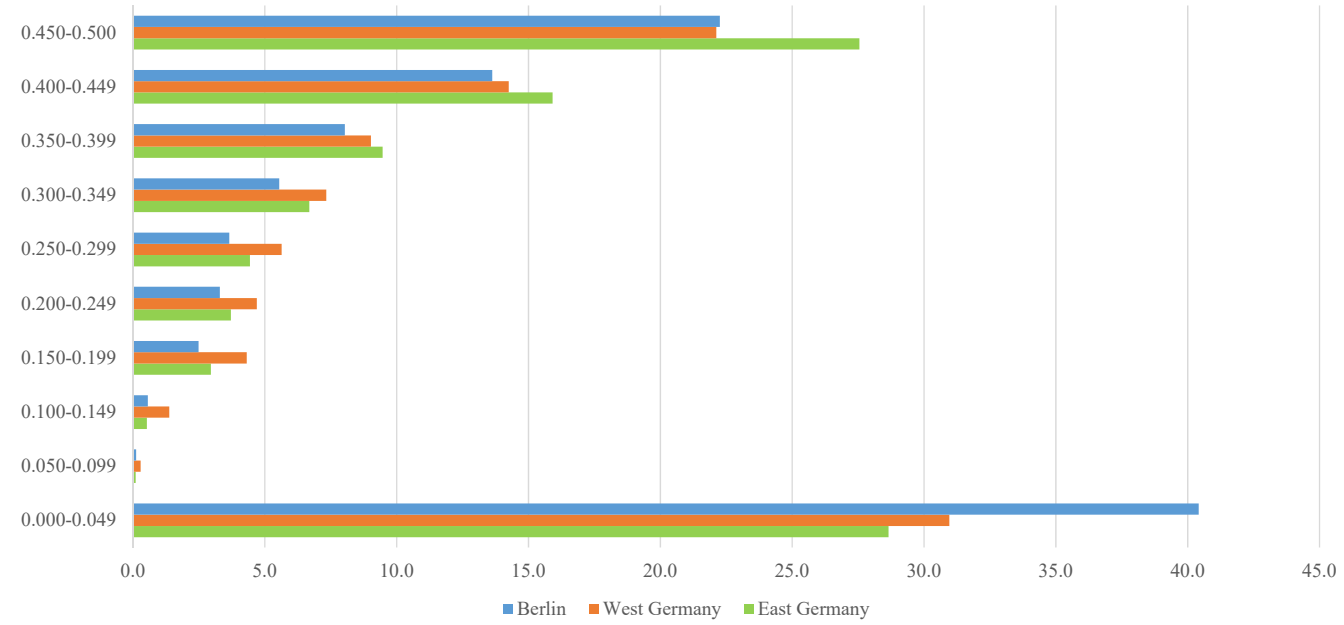
(b) Foreign officers



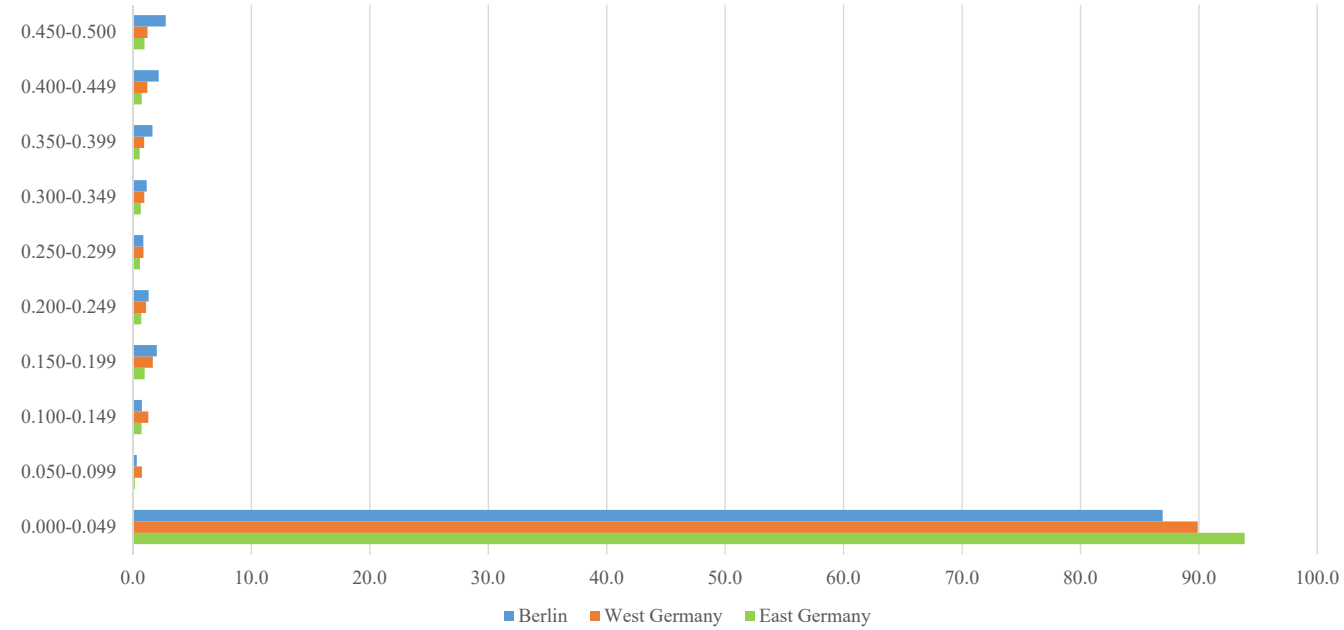
Note: The horizontal axis is the proportion of sample firms to the total number of companies (%). The vertical axis is the proportion of female/foreign officers (%).

Appendix Figure A3. Gender and nationality diversity of corporate officers

(a) Gender diversity

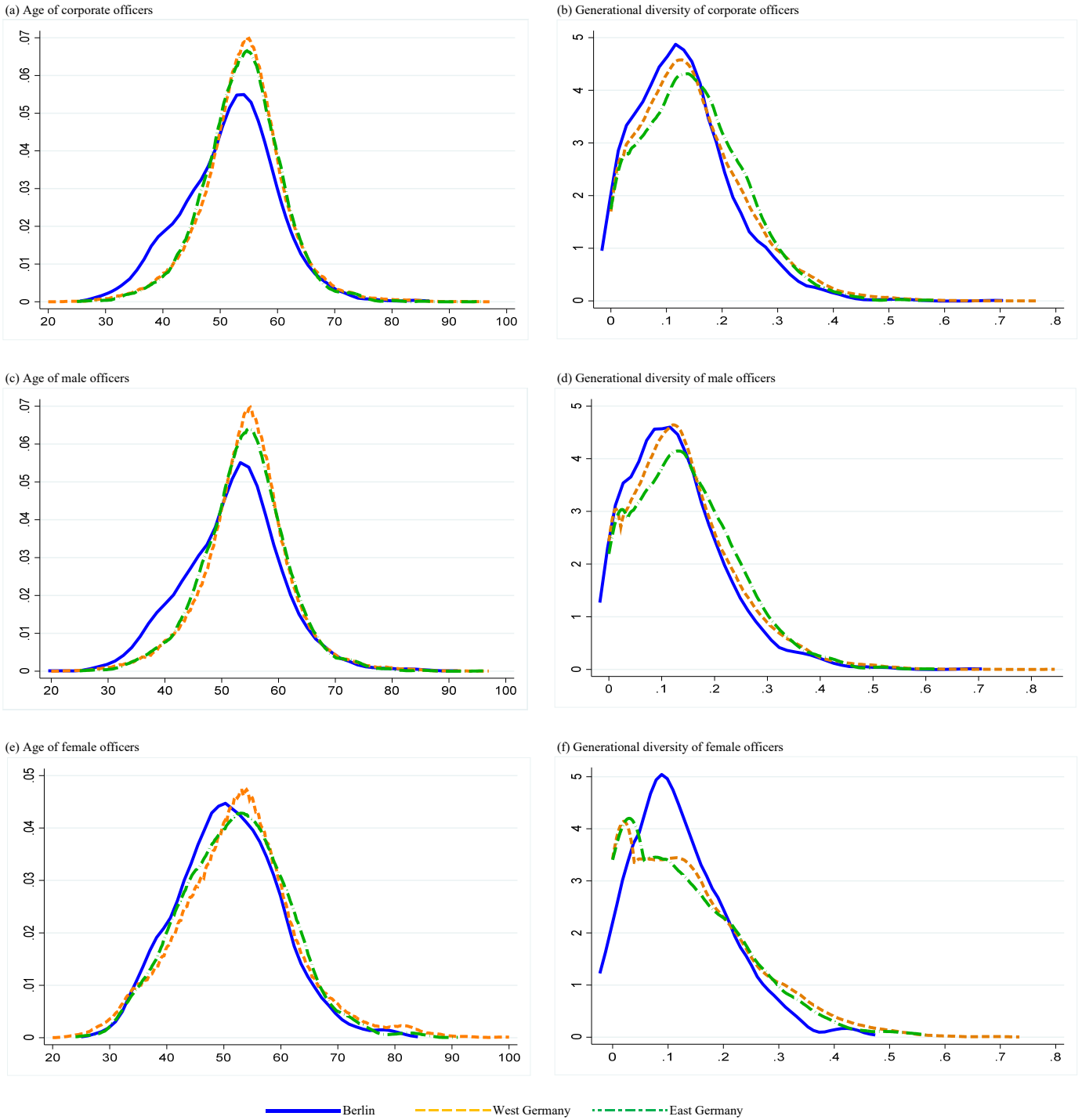


(b) Nationality diversity



Note: The horizontal axis is the proportion of sample firms to the total number of companies (%). The vertical axis is the Blau index.

Appendix Figure A4. Kernel density estimation of the age of corporate officers



Notes: The Epanechnikov kernel function was used for estimation. The vertical axis is the kernel density. The horizontal axis in Panels (a), (c), and (e) is the average age of officers. The horizontal axis in Panels (b), (d), and (f) is the coefficient of the variation of age.

Appendix Table A1. Evaluation of sample representativeness in terms of firm size

	Berlin	West Germany	East Germany	Total
(a) Sample firms				
50 to less than 250 employees	1,997	43,037	6,578	51,612
250 or more employees	492	12,443	1,198	14,133
Total	2,489	55,480	7,776	65,745
(b) Actual number of business legal units in 2019				
50 to less than 250 employees	3,266	60,836	9,721	73,823
250 or more employees	730	14,130	1,938	16,798
Total	3,996	74,966	11,659	90,621
(c) Proportion of sample firms (%)				
50 to less than 250 employees	61.1	70.7	67.7	69.9
250 or more employees	67.4	88.1	61.8	84.1
Total	62.3	74.0	66.7	72.5

Note: The actual number of business legal units is based on publicly available data from the Federal Statistical Office of Germany (https://www.destatis.de/DE/Home/_inhalt.html).

Appendix Table A2. Correlation matrix of independent variables

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
[1] Berlin	1.000															
[2] East	-0.073	1.000														
[3] Public limited company	0.021	-0.033	1.000													
[4] Private limited company	0.001	0.014	-0.574	1.000												
[5] Partnership	-0.015	0.005	-0.042	-0.572	1.000											
[6] Ownership concentration	0.016	0.029	-0.049	-0.089	0.013	1.000										
[7] State enterprise	-0.010	0.008	-0.017	-0.228	-0.017	0.087	1.000									
[8] Foreign company	0.001	-0.006	-0.011	-0.145	-0.011	0.055	-0.004	1.000								
[9] Corporate board size	-0.056	-0.010	0.243	-0.124	0.045	-0.082	0.014	-0.014	1.000							
[10] Firm size	-0.025	-0.042	0.233	-0.321	0.134	-0.108	0.124	0.020	0.483	1.000						
[11] Firm age	-0.096	-0.076	0.035	-0.113	0.103	-0.118	0.081	-0.016	0.430	0.238	1.000					
[12] Profitability	0.007	0.002	0.041	-0.117	0.078	-0.029	0.058	0.012	0.062	0.196	0.093	1.000				
[13] Financial risk	0.006	-0.007	-0.006	0.012	-0.009	0.012	-0.006	-0.001	-0.002	-0.026	-0.019	-0.027	1.000			
[14] Solvency	-0.018	0.063	0.050	-0.034	0.021	0.033	-0.028	0.000	0.105	0.093	0.111	0.210	-0.015	1.000		
[15] Business diversification	0.014	0.036	0.020	0.016	-0.017	0.008	-0.015	-0.016	0.131	0.108	0.117	0.062	0.004	0.007	1.000	
[16] R&D intensity	-0.037	-0.047	0.091	0.001	-0.043	-0.090	-0.030	-0.015	0.307	0.314	0.213	0.036	0.008	0.096	0.071	1.000

Note: Table 1 provides detailed definitions and descriptive statistics of the variables used in estimations.