Cultural Origins and Corporate ESG Risk*

Florian Kiesel†
Free University Bozen-Bolzano

This version: April 29, 2026

Abstract

Do managers' cultural origins affect firms' environmental, social, and governance (ESG) risk? We exploit cultural heterogeneity among firms operating within South Tyrol, a single region characterized by a shared legal-economic framework and homogeneous climate-related exposure. We find systematic differences in firms' ESG risk across cultural backgrounds. These differences are concentrated in the environmental and social dimensions, while governance risk shows no systematic differences. We further document significant differences in firms' certification activity, indicating that certification is associated with lower ESG risks. The results are robust to differences in firm size, industry, and local climatic conditions.

*The authors gratefully acknowledge Cerved for providing access to the data used in this study. The author would like to thank Andrea Coali (Cerved) for helpful comments and suggestions.

†Associate Professor of Corporate Finance, email: `florian.kiesel@unibz.it`. Postal address: Piazza Università 1, 39100 Bolzano, Italy.

1 Introduction

Environmental, social, and governance (ESG) practices are increasingly expected of firms, even when not explicitly required by regulation.[1] At the same time, ESG-related activities are costly, requiring managerial time, organizational resources, and sustained commitment. Firms therefore face trade-offs when allocating resources toward such activities. Yet firms operating under similar legal, economic, and environmental conditions exhibit substantial heterogeneity in ESG practices beyond differences in size and industry. Firms' ESG practices reflect managerial choice, and such heterogeneity need not be driven solely by external constraints or incentives. This study examines whether managers' cultural origins are associated with differences in firms' ESG risk profiles.

Isolating the role of managers' cultural background on firms' ESG practices is econometrically challenging. Cultural differences are rarely observed in isolation and are often correlated with geography, institutions, and regulation. This concern is particularly relevant in the context of ESG, where environmental conditions, social characteristics, and governance requirements vary systematically across regions. As a result, cross-regional comparisons may confound cultural effects with differences in external conditions that affect firms' ESG practices.

To address this challenge, we study firms operating in a geographically compact area that combines cultural heterogeneity with a shared institutional environment: the Autonomous Province of South Tyrol in Northern Italy. Firms in this region operate under the same institutional framework and face similar economic conditions, yet differ systematically in the cultural origins of their managers. This setting allows us to examine whether firms' ESG risk profiles vary systematically with managerial cultural origins, as captured at the CEO level, while holding constant institutional and geographic factors that would otherwise complicate identification. The region has been used in prior research as a nat-

[1] Institutional investors incorporate ESG considerations into their investment decisions and frequently rely on ESG scores when allocating capital (e.g., Hartzmark and Sussman, 2019; Avramov et al., 2022).

ural laboratory to study the economic effects of culture under common institutions (e.g., Bedendo et al., 2020, 2023; Accetturo et al., 2023; Cascarano et al., 2025). South Tyrol is among the wealthiest regions in Europe and is home to two main cultural and linguistic groups, Italian and Germanic. Firms are predominantly small and privately held, implying that managerial decisions are less mediated by complex organizational structures or capital market pressures, such as institutional investors (Dyck et al., 2019; Krueger et al., 2020).

Prior research documents systematic differences across these cultural backgrounds in attitudes, preferences, and economic behavior relevant for environmental and social decision-making (e.g., Guiso et al., 2006, 2009; Tabellini, 2010). Survey data from the European Union further indicate substantial differences across European populations in attitudes toward climate-related actions. An important geographic consideration shapes the relevant comparison in our setting: the province borders Austria, and the German-speaking population of South Tyrol is historically Tyrolean, sharing cultural and institutional heritage with Austria. Data from the 2023 Special Eurobarometer SP538 on climate change show that 83% of Italian respondents consider climate change to be a very serious problem, compared with 62% of Austrian respondents.[2] Moreover, 43% of Italian respondents report being personally exposed to environmental and climate-related risks such as fires, floods, pollution, and extreme weather conditions, compared with 28% of Austrian respondents. These differences suggest that individuals associated with Italian cultural backgrounds may place greater emphasis on environmental risk management, potentially translating into stronger ESG risk practices at the firm level.

A second mechanism, operating through long-term orientation, leads to the opposite prediction. Cultural origins in South Tyrol are historically linked to different parts of Europe. Individuals of Italian cultural origin are more closely connected to Mediterranean areas, whereas individuals of Germanic cultural origin are linked to Central and Northern Europe. Because the Mediterranean region is expected to be particularly exposed to climate

[2]See the 2023 data provided by Special Eurobarometer SP538: Climate change.

change impacts (Intergovernmental Panel on Climate Change (IPCC), 2023), managers of Italian cultural origin may perceive environmental risks as more salient and therefore place greater emphasis on ESG risk management. At the same time, a large literature shows that cultural and linguistic differences are associated with variation in intertemporal preferences and long-term economic behavior. In particular, the German language differs from Italian in its grammatical treatment of future events and speakers of languages that grammatically associate future actions with the present exhibit greater long-term orientation, including higher saving rates and different attitudes toward public spending and debt (e.g., Chen, 2013; Sutter et al., 2018; Ayres et al., 2023). To the extent that ESG practices involve long-term investments with uncertain and deferred payoffs, this channel would predict stronger ESG risk management among Germanic-origin managers. These differences motivate examining whether managers' cultural origins are associated with variation in firms' ESG risk profiles.

Measuring ESG practices for small and privately held firms poses an additional challenge, as these firms are generally not subject to mandatory non-financial disclosure requirements. To address this challenge, we use firm-level ESG scores from Cerved, the primary provider of financial and non-financial information on private firms in Italy. An important definitional distinction applies: unlike ESG ratings, which involve supervised assessment processes with human analyst oversight, Cerved ESGp is an automated, model-based scoring system constructed entirely from administrative records, firm surveys, and proprietary data sources without individual firm interviews or analyst review. The scoring is risk-oriented: a score of zero represents the lowest ESG risk (best performance), and higher scores indicate greater ESG risk. We use the raw scores directly throughout the paper, so that lower values uniformly correspond to better ESG risk management. CEO names or cultural classifications are not inputs into the scoring process. We rely on Cerved's ESG scores because they offer the broadest coverage of privately held firms in Italy, for which alternative ESG data are largely unavailable.

Our results document systematic differences in firms' ESG risk scores across managers' cultural origins. Unconditional mean comparisons show that firms managed by individuals of Italian cultural origin exhibit lower overall ESG risk scores than firms managed by individuals of Germanic cultural origin. These differences are concentrated in the environmental and social dimensions, while governance risk scores do not differ systematically across cultural groups. After controlling for firm characteristics, industry, city, and year fixed effects, the differences remain statistically and economically significant. The average ESG risk score in the sample is 1.69 on the 0–4 scale. Italian-origin CEOs are 9.7% more likely to achieve an ESG risk score at or below the sample median. The difference is primarily driven by the environmental dimension: Italian-origin CEOs are 12.9% more likely to achieve an environmental risk score at or below the sample median. Differences in the social dimension are also present, although considerably smaller in magnitude. Governance risk scores do not exhibit statistically significant differences across cultural origins in the cross-sectional analysis.

An important identification concern is whether differences in ESG risk scores reflect differences in firms' underlying ESG practices or instead capture variation in disclosure, certification activity, or formal compliance with reporting standards. To address this issue, we examine certification activity and transparency-related outcomes that are directly observable for private firms. We find that firms managed by individuals of Italian cultural origin hold more certifications on average and are more likely to report active certification. Importantly, this pattern corroborates the main ESG risk findings: the cultural group exhibiting lower ESG risk scores also engages more actively in formal sustainability certification, indicating that both measures reflect genuine differences in underlying ESG practices. We next examine labor costs and selected governance-related characteristics. Firms managed by individuals of Germanic cultural origin exhibit significantly higher labor costs, in line with their relatively higher social ESG risk scores along the employee investment dimension. By contrast, we find no differences across cultural origins in whether

firms' financial statements are audited or in the share of women in top management.

Our empirical setting holds institutional and macroeconomic conditions constant by construction, mitigating concerns that the results reflect variation in these factors. We further assess the robustness of the findings in a series of additional tests. First, we examine whether the results are sensitive to the fiscal year used in the analysis. Extending the analysis to a longer time window covering the years 2020–2024 leads to similar differences in ESG risk across managerial cultural origins, indicating that the results are not driven by year-specific effects. Second, we exploit the 2022 European heat wave as an external environmental shock. ESG risk scores improve for all firms after 2022, reflecting a broad response to heightened climate-related salience. Germanic-origin CEO firms exhibit larger improvements, partially closing the baseline gap with Italian-origin CEO firms. This convergence points to the heat shock increasing the perceived relevance of climate risk among firms that were initially less engaged, inducing greater relative adjustment, while the baseline differences across cultural origins remain throughout the panel. The results are also robust across subsamples defined by climate conditions, the firm's local embeddedness, and urban location, including firms operating in the culturally heterogeneous city of Bozen-Bolzano.

We conduct several additional robustness tests addressing concerns related to managerial turnover, ESG measurement, and sample composition. CEO turnover is rare in our sample, and excluding observations with recent CEO changes leaves the main results unchanged. Replacing the raw ESG risk score with firms' ESG rank produces similar results, indicating that the findings do not depend on the cardinal scaling of the ESG measure. To further address observable differences across firms, we implement a propensity score matching approach and document that lower ESG risk scores among firms led by Italian-origin CEOs remain. We also expand the sample to include firms located in the neighboring Province of Trento, which does not share South Tyrol's historical German-speaking cultural background and is predominantly Italian-speaking, and find that firms led by Germanic-

origin CEOs continue to exhibit higher ESG risk scores relative to a broader Italian baseline. Finally, we verify that the results are not driven by foreign CEO status.

This paper contributes to the literature examining the role of culture in firm behavior and economic outcomes (see Karolyi, 2016, for a survey). A substantial body of research documents that cultural background is associated with corporate risk taking (Li et al., 2013), firm performance (Frijns et al., 2016), corporate savings and cash holdings (Chen et al., 2017), and capital structure choices (Levine et al., 2018). A related strand studies the influence of culture on financial decisions, including investment, financing, and contracting choices (Giannetti and Yafeh, 2012; Ahern et al., 2015; Fisman et al., 2017; Pan et al., 2017; Giannetti and Zhao, 2019; Pan et al., 2020; Pursiainen, 2022).

Closest to our study is Bedendo et al. (2020) who examine firms in South Tyrol and show that managers' cultural origins are associated with systematic differences in capital structure choices. Exploiting the within-region cultural variation, they document differences in leverage and financing behavior across cultural groups, highlighting the role of managerial preferences in firms' financial policies. We follow their empirical design, which builds on the framework developed in Fernández (2011) and extend it to a different and increasingly important dimension of firm behavior, namely firms' ESG risk profiles. Related recent work also exploits within-region variation to study cultural effects under common institutions (Bedendo et al., 2023; Accetturo et al., 2023; Cascarano et al., 2025).

This paper also contributes to the literature on the determinants of firms' ESG practices. Prior research documents that ESG outcomes are influenced by ownership structure, political and institutional environments, and internal governance. For example, exogenous increases in institutional ownership are associated with higher corporate social responsibility performance (Dyck et al., 2019), while ownership structures can also affect ESG practices through common ownership links with rating agencies (Tang et al., 2025). Firms' political environment, as well as the political orientation of CEOs and directors, has further been shown to influence sustainability-related outcomes (Di Giuli and Kostovetsky, 2014).

At a broader level, cross-country evidence documents that national institutions systematically explain variation in corporate social performance (Ioannou and Serafeim, 2012). In particular, Liang and Renneboog (2017) document that legal origin is associated with CSR ratings, with firms in civil law countries exhibiting higher CSR ratings than those in common law countries. Related work also shows that longstanding differences in governance structures and organizational processes distinguish high-sustainability firms (Eccles et al., 2014). Finally, mandatory ESG disclosure regulations affect firms' disclosure behavior and information production (Krueger et al., 2024).

By focusing on small, privately held firms operating within a single regional setting, our analysis abstracts from several prominent determinants of ESG practices, including institutional investor pressure, capital market discipline, and mandatory non-financial disclosure.[3] We find that variation in ESG risk is not fully explained by observable firm characteristics or institutional constraints, pointing to heterogeneity in managerial preferences. This view treats ESG risk management as an outcome of firm behavior and highlights the role of managerial decision-making in non-financial choices.

Our findings contribute to the interpretation of ESG practices in settings where external incentives are weak. Rather than reflecting only compliance or reputational considerations, ESG risk profiles vary systematically with managers' cultural origins and preferences, suggesting that ESG risk management reflects managerial decision-making within firms. More broadly, ESG practices can be viewed as part of firms' non-financial decision-making, even outside traditional capital market or regulatory channels.

The remainder of the paper is organized as follows. Section 2 outlines the institutional setting and develops the conceptual framework linking managerial culture to firms' ESG risk. Section 3 describes the data and variables, while Section 4 reports the main empirical

[3] A large literature examines whether corporate social responsibility is driven by financial performance or whether well-performing firms are more likely to engage in such activities; see, for example, Orlitzky et al. (2003); Renneboog et al. (2008); Krüger (2015); Flammer (2015) and Dimson et al. (2015). These explanations do not fully account for cross-firm variation in ESG practices (Liang and Renneboog, 2017).

findings. Section 5 presents additional robustness tests and explores potential channels. Section 6 concludes.

2 Background and Motivation

2.1 Institutional setting

We study firms operating in South Tyrol, an autonomous province in Northern Italy, which combines cultural heterogeneity with a uniform institutional and economic environment.[4] The province borders Austria and Switzerland and was part of the Austro-Hungarian Empire until its annexation to Italy in 1919. Following political tensions and linguistic repression during the Fascist period, South Tyrol was granted extensive self-governance under the Second Statute of Autonomy in 1972. This institutional framework remains in place today and governs political representation, public administration, and economic activity throughout the province.

South Tyrol comprises distinct linguistic and cultural groups that operate under a shared institutional framework with uniform legal, regulatory, and fiscal rules, while administrative services are organized by language group. Proportional representation rules prevent dominance by any single group in political and administrative bodies. As a result, cultural identity remains stable over time, whereas formal institutional conditions are uniform across the region. This setting allows us to study cultural influences on firm behavior while institutional factors are held constant (e.g., as in Bedendo et al., 2020, 2023; Accetturo et al., 2023; Cascarano et al., 2025).

According to the most recent linguistic declaration, 68.6% of residents in South Tyrol report German as their primary language, 27.0% Italian, and 4.4% Ladin (Istituto Provin-

[4]South Tyrol is referred to as 'Südtirol' in German and 'Alto Adige' in Italian. The German name reflects the region's historical and cultural ties to the County of Tyrol, most of which is located in present-day Austria. The Italian name emphasizes the region's geographic location north of the Adige River and its incorporation into Italy following World War I.

ciale di Statistica, 2025). These aggregate shares have remained broadly stable over time,[5] while the distribution of linguistic groups differs across municipalities. Italian speakers are more prevalent in larger urban centers and along the Adige valley, with the highest concentrations observed in Bolzano (74.7%), the capital, and Merano (51.4%), the second-largest city, whereas rural and peripheral municipalities are predominantly German-speaking. Figure 1 illustrates the geographic distribution of linguistic groups across the 116 municipalities in the province.

[Insert Figure 1 around here]

From an economic perspective, South Tyrol is among the wealthiest regions in Europe, with average annual income approximately 57% above the European average and per capita income of about 62,100 euros.[6] The economy is dominated by small and medium-sized, privately held firms operating primarily in tourism, agriculture, manufacturing, and local services, alongside a smaller number of firms with global operations. There are no stock-listed firms headquartered in the region, and ownership is typically concentrated, implying a limited role for institutional investors in firm policy choices. Firms are subject to the same legal and regulatory framework, and financial and non-financial information is collected using the same reporting standards.

South Tyrol's location in the Alpine region makes environmental conditions economically relevant for a broad set of firms, particularly in economically important sectors. Firms are exposed to temperature variation, snow reliability, and water availability through production processes, energy use, labor conditions, and seasonal demand. The province is also characterized by relatively low annual precipitation in the main valley: the Adige valley around Bolzano is among the driest areas in the Alps, making water scarcity and drought salient environmental concerns alongside temperature risk, particularly for agricul-

[5] As of the 2011 census, the most recent census prior to the current one, 69.4% of South Tyrol's population reported German as their mother tongue, 26.1% Italian, and 4.5% Ladin (Istituto Provinciale di Statistica, 2015).

[6] See Chamber of Commerce, Industry, Crafts, Tourism and Agriculture of Bolzano (2025).

ture, tourism, and hydropower-dependent activities. Recent increases in summer temperatures and greater variability in winter snow conditions have affected operating costs and business continuity, especially in tourism, agriculture, and related supply chains. These environmental factors align closely with the practices captured by firm-level environmental ESG indicators.

This combination of cultural heterogeneity, institutional uniformity, limited capital market involvement, and shared environmental exposure makes South Tyrol a suitable setting to study the role of managerial culture in firm behavior. The region has been used in prior research to examine cultural effects, including differences in capital structure and financing choices (Bedendo et al., 2020, 2023), household portfolio behavior (Cascarano et al., 2025), and firm borrowing decisions (Accetturo et al., 2023). We build on this empirical approach and extend it to the analysis of firms' ESG risk.

2.2 Managerial cultural origins and ESG risk

ESG risk management involves real resource allocation. Even in the absence of regulatory mandates, firms adopt environmental and social practices that require managerial time, organizational capacity, and ongoing investment, often with uncertain and delayed payoffs. For small, privately held firms, these decisions more directly reflect managerial decision-making because they are less mediated by institutional investors, public reporting pressures, or complex governance structures. Understanding why otherwise similar firms differ in their ESG risk profiles is important for interpreting the economic content of ESG measures and for assessing the role of managerial decision-making in firms' non-financial policies.

South Tyrol provides an ideal setting in which this question can be examined under relatively clean conditions. Firms vary in managerial cultural origins, primarily between Germanic and Italian groups, while operating in an otherwise homogeneous institutional and economic environment. These cultural differences are long-standing and salient in everyday economic interactions, while formal institutional arrangements are shared. Prior

research documents systematic differences across these cultural backgrounds in how individuals evaluate long-term trade-offs, collective goods, and investments with deferred and uncertain benefits (Chen, 2013; Sutter et al., 2018; Ayres et al., 2023). Accordingly, observed differences in ESG risk may reflect heterogeneity in how managers evaluate and prioritize non-financial objectives.

This distinction is particularly relevant in the context of ESG risk. Many ESG-related activities require managers to internalize future environmental and social benefits that are only imperfectly reflected in current cash flows. As a result, ESG risk profiles may reflect managerial approaches to sustainability and collective welfare rather than mechanical responses to regulation or investor pressure, in line with theoretical and empirical work on intrinsic motivation and organizational commitment in corporate sustainability choices (Bénabou and Tirole, 2010; Eccles et al., 2014).

The salience of climate-related risks is a key factor influencing these managerial orientations. Cultural origins in South Tyrol are historically linked to different parts of Europe: individuals of Italian cultural origin are more closely connected to the Mediterranean basin, a region expected to be among the most severely affected by climate change (Intergovernmental Panel on Climate Change (IPCC), 2023), whereas individuals of Germanic cultural origin are linked to Central Europe and the Alpine interior. Population-level survey evidence further shows that Italian respondents report substantially higher perceived exposure to climate-related risks and greater climate-change concern than Austrian respondents. To the extent that these cultural differences in risk salience extend to managerial behavior, Italian-origin managers may embed greater environmental awareness into their firms' ESG practices. This mechanism operates alongside differences in long-term orientation associated with linguistic structure (Chen, 2013), which would predict the opposite pattern. Our empirical analysis is designed to assess which of these forces is better supported by the observed ESG risk differences.

Our empirical analysis first examines whether firms' overall ESG risk varies across man-

agerial cultural origins. We then assess whether any differences are concentrated in specific ESG dimensions. Environmental practices typically involve longer investment horizons and greater exposure to uncertainty related to energy use, emissions, and climate risk, while social practices reflect workplace policies and stakeholder relations. Governance practices for small, privately held firms are more closely tied to legal requirements and ownership structure, leaving less scope for discretionary cultural influence. Given the economic relevance of environmental conditions in South Tyrol, we also examine climate-related components of environmental ESG practices. To assess whether the cultural-origin effect is concentrated in sectors with longer investment horizons, in line with a long-term orientation channel, we also examine heterogeneity by sector-level capital intensity.

3 Data and Variables

We obtain firm-level data from Cerved, an Italian data provider and the primary source of financial and non-financial information on private firms in Italy. The dataset includes financial information from firms' mandatory public filings, as well as firm characteristics derived from these records. Non-financial information includes detailed data on top executives, including the identity and characteristics of the CEO. Our sample covers virtually the universe of limited liability firms headquartered in the Autonomous Province of South Tyrol, excluding financial firms and utilities, which operate under distinct regulatory frameworks. For each firm, we use information from the most recent available fiscal year, corresponding to either 2023 or 2024.[7] We restrict the estimation sample to firm–year observations with available financial statements, which are required to construct standard firm-level controls. Since filing obligations apply uniformly across legal entity types in the sample, this restriction is unlikely to introduce systematic selection bias correlated with CEO cultural origin.

[7]Data was obtained from Cerved in October 2025.

3.1 CEO cultural origin

Following Bedendo et al. (2020, 2023) and Accetturo et al. (2023), we classify CEOs' cultural origins using given names and surnames. A CEO is classified as Italian if all given names and surnames are Italian, and as Germanic if all given names and surnames are Germanic, using the German and Italian name databases as listed in Bedendo et al. (2020). CEOs whose names indicate neither Italian nor Germanic origin are classified as foreign and excluded from the sample. Foreign-origin CEO names represent a small share of observations (5.1%), similar to what is reported in prior studies using this approach.

When a given name is common to both linguistic groups, classification relies on the surname. If both the given name and surname are ambiguous, we use publicly available information to resolve classification, including social media profiles, the language of education, and the predominant language used in professional profiles and firm communications. These secondary indicators are applied only when name-based classification is inconclusive and do not override discordant name–surname combinations, which remain excluded.[8]

After applying the CEO cultural classification criteria and requiring the availability of financial statement data, the final sample consists of 8,854 firms. Approximately 31.6% of firms are managed by CEOs of Italian cultural origin. This share is similar to those in prior studies using this setting (Bedendo et al., 2020, 2023).

Figure 2 illustrates the geographic distribution of Italian-origin CEOs across the 116 municipalities in South Tyrol. A comparison with the population distribution in Figure 1 shows that the broad geographic patterns are similar, with Italian-origin CEOs more prevalent in urban areas and German-origin CEOs dominating rural municipalities. At the municipal level, however, the correspondence is not one-to-one, as some towns exhibit lower or higher Italian CEO representation than suggested by population shares.

[Insert Figure 2 around here]

[8] More details are provided in Appendix A in the supplementary materials.

3.2 Firms' ESG risk scores

We measure firms' ESG risk using scores provided by Cerved ESGp, in line with prior studies that rely on third-party ESG assessments as proxies for firms' ESG practices (e.g., Lins et al., 2017; Liang and Renneboog, 2017; Eccles et al., 2014; Tang et al., 2025). Unlike ESG ratings, which involve supervised assessment processes with human analyst oversight, Cerved ESGp is an automated, model-based scoring system constructed entirely from administrative records, firm surveys, and proprietary data sources without individual firm interviews or analyst review. The system provides separate scores for the environmental (ENV), social (SOC), and governance (GOV) dimensions, as well as an aggregate ESG indicator. CEO names or cultural classifications are not inputs into the scoring process.

Each ESG dimension is reported as a categorical ESG risk score on a discrete 0–4 scale. The scoring is risk-oriented: a score of zero represents the lowest ESG risk (best performance), and a score of four represents the highest ESG risk (worst performance). We use the raw scores directly throughout the paper without recoding, so that lower values uniformly correspond to better ESG risk management. This convention is applied uniformly to the overall ESG measure and to all environmental, social, governance, and composite sub-scores. As with other third-party ESG measures, this score is subject to measurement concerns (e.g., Berg et al., 2022; Christensen et al., 2022). However, Cerved ESGp provides broad coverage of small, privately held firms, for which alternative ESG measures are largely unavailable, making it particularly suitable for our setting. We assess the external validity of the ESG risk scores by examining directly observable firm outcomes, including certification activity, labor costs, and financial statement auditing, in Section 4.3.

3.3 Control variables and descriptive statistics

In the regression analysis, we include a standard set of firm-level controls commonly used in studies of private firms in South Tyrol, following Bedendo et al. (2020, 2023). Given

the focus on privately held firms, the availability of additional controls is limited. The baseline specifications therefore include firm size, firm age, leverage, asset tangibility, cash holdings, operating margin, sales growth, and investment. These variables capture differences in scale, maturity, financial structure, liquidity, and growth opportunities that may be correlated with firms' ESG risk profiles. Variable definitions are reported in Table A.1.

We also control for ownership and management characteristics to account for evidence that ownership identity and control rights can influence ESG outcomes in other settings (Villalonga et al., 2025). Given the prevalence of family ownership in the sample, we include an indicator for family-owned firms. To capture heterogeneity within the top management team, we include a measure of age dispersion and an indicator for young managers (not older than 35 years). In addition, we control for CEO age and gender.

Table 1 reports summary statistics for the main variables used in the analysis. The average overall ESG risk score is 1.69 on the 0–4 scale, where lower values indicate better ESG risk management. Environmental and social risk scores are, on average, lower than governance risk scores, with mean values of 1.58 and 1.29, respectively, compared with an average governance risk score of 2.53, reflecting that governance practices in small, privately held firms tend to be more standardized and subject to regulatory requirements. Climate-related environmental risk scores closely track the overall environmental score, while the combined social-governance risk score has a mean of 1.66. Firms in the sample are predominantly small and mature. The logarithm of firm size has a mean of 6.85, corresponding to approximately 1 million Euro in total assets, and the average firm age is 16.5 years. Profitability, sales growth, and investment also show considerable dispersion across firms. Approximately 66% of firms are family owned, reflecting the typical ownership structure of firms in the region. CEOs are on average 54.5 years old, and the vast majority are male.

[Insert Table 1 around here]

Table 2 reports mean differences between firms managed by CEOs of Germanic and

Italian cultural origin using two-sample t-tests. Firms led by CEOs of Italian cultural origin exhibit significantly lower overall ESG risk scores than those led by CEOs of Germanic cultural origin. The difference is economically and statistically significant (0.15 points) and reflects lower risk in both the environmental and social dimensions, while governance risk scores do not differ significantly across the two groups. The univariate evidence provides initial evidence of cross-cultural variation in ESG risk management. Moreover, these differences are concentrated in dimensions that involve greater managerial discretion, rather than in governance practices that are more closely linked to formal regulatory requirements.

[Insert Table 2 around here]

Firms led by CEOs of Germanic cultural origin also differ along several firm and management characteristics. Relative to firms led by CEOs of Italian cultural origin, these firms are larger and older, exhibit higher operating margins, hold a greater share of tangible assets, and are more likely to be family owned. They also show a greater age distribution within the top management team and a higher incidence of younger managers. By contrast, leverage, sales growth, and investment do not differ significantly across the two groups. These comparisons are unconditional and do not account for differences in firm characteristics or location, motivating the multivariate analysis that follows in the next section.

4 Main Results

4.1 ESG risk

We examine whether firms' ESG risk varies systematically with the cultural origins of their CEOs. Because ESG risk scores are measured on an ordered scale from 0 to 4, our baseline specification uses an ordered logit model.[9] Specifically, we model the latent ESG

[9]The results are robust to alternative estimators. Using OLS and ordered-probit specifications leads to coefficients of the same sign and similar statistical significance (see Appendix B).

risk propensity of firm i as

$$ESG_RISK_i = \beta\, ITALIAN_ORIGIN_i + X_i\gamma + \delta_j + \lambda_m + \tau_t + \varepsilon_i,$$

where $ITALIAN_ORIGIN_i$ is an indicator equal to one if firm i is managed by a CEO of Italian cultural origin and zero if the CEO is of Germanic cultural origin. X_i denotes a vector of firm-, top management-, and CEO-level control variables, similar to the approach of Bedendo et al. (2020, 2023). The specification includes industry fixed effects δ_j, defined using the main categories of the ATECO 2007 classification,[10] municipality fixed effects λ_m, and year fixed effects τ_t. Although the analysis is primarily cross-sectional, year fixed effects account for differences between fiscal years 2023 and 2024.[11] Standard errors are robust to heteroskedasticity.[12] In addition to the overall ESG risk score, we estimate analogous specifications for the environmental, social, governance, climate-related environmental, and combined social–governance sub-scores.

Table 3 reports the results of the ordered logit estimations for firms' overall ESG risk scores. Column (1) presents a baseline specification including firm-level controls and no fixed effects. The results indicate that firms managed by CEOs of Italian cultural origin exhibit significantly lower ESG risk scores than firms managed by CEOs of Germanic cultural origin. Columns (2)–(4) progressively introduce industry, municipality, and year fixed effects. Across all specifications, the coefficient on $ITALIAN_ORIGIN$ remains negative and statistically significant. In the most demanding specification in Column (4), which includes firm characteristics as well as industry, municipality, and year fixed effects, the coefficient on $ITALIAN_ORIGIN$ is –0.286, indicating a lower latent ESG risk propensity among firms managed by Italian-origin CEOs. Translating this into marginal effects,

[10] This is the Italian version of the European nomenclature NACE Rev. 2.

[11] The results are robust to restricting the analysis to 2023 for all firms, even when more recent observations are available.

[12] In robustness checks, we additionally cluster standard errors at the municipality level, with no material effect on the results.

Italian-origin CEOs are 5.4 percentage points – or 9.7% relative to the baseline probability of the median ESG risk category – more likely to achieve an ESG risk score at or below the sample median, indicating better ESG risk management. The coefficient remains stable in magnitude and statistical significance across specifications, indicating that the result is not driven by differences in industry composition, geographic location, or fiscal year effects.

[Insert Table 3 around here]

In addition, several firm-level controls are in line with the risk-scoring interpretation of the ESG measure. Larger firms and more leveraged firms exhibit higher ESG risk scores, reflecting greater inherent exposure associated with broader operations and financial constraints on ESG risk mitigation. Cash holdings and investment intensity are negatively associated with ESG risk, suggesting that liquidity and capital expenditure support firms' capacity to address ESG-related exposures (Bénabou and Tirole, 2010). Operating margins are positively linked to ESG risk scores after controlling for firm and time fixed effects. At the management level, female CEOs are associated with lower ESG risk scores, in line with prior evidence that gender is correlated with managerial sustainability orientation (Adams and Funk, 2012; Di Giuli and Kostovetsky, 2014).

Overall, the results document systematic differences in ESG risk across firms with different managerial cultural origins. The findings remain after controlling for firm characteristics, including management composition and CEO characteristics, as well as industry, location, and time effects.

4.2 ESG risk sub-scores

We next examine whether the differences in overall ESG risk are concentrated in specific ESG dimensions. Table 4 reports ordered logit estimates for the environmental, social, and governance sub-scores, as well as for the climate-related environmental score and the combined social–governance score. Across the different sub-scores, the coefficient on Italian cultural origin is largest in magnitude for the environmental dimension. In the reported

specification, which includes firm characteristics and the full set of fixed effects, the coefficient is –0.281 for the environmental risk score, indicating a lower latent environmental risk propensity among firms managed by Italian-origin CEOs. Translating this into marginal effects, Italian-origin CEOs are 6.6 percentage points – or 12.9% relative to the baseline probability of the median environmental risk category – more likely to achieve an environmental risk score at or below the sample median. The climate-related environmental score shows a similar pattern, indicating that the overall environmental results are not driven by non-climate components of the environmental pillar.

[Insert Table 4 around here]

The social dimension also differs significantly across CEO cultural origins, but the estimated magnitude is smaller than for the environmental score. The coefficient is –0.127 for the social dimension, and Italian-origin CEOs are 1.9 percentage points – or 8.7% relative to the baseline probability of the median social risk score category – more likely to achieve a social risk score at or below the sample median. By contrast, the governance dimension shows limited differences across CEO cultural origins in the cross-sectional analysis, as the coefficients are economically small and lack statistical significance, in line with the univariate results. These findings indicate that cross-cultural differences in ESG risk management are concentrated in managerially determined dimensions, most pronounced in the environmental dimension and, to a lesser extent, in the social dimension. Governance practices appear less sensitive to managerial cultural origins, likely due to the stronger influence of external rules and ownership structure in small, privately held firms, though the panel results suggest this pattern may not be fully stable across settings.

4.3 Certification, transparency and underlying practices

In this section, we examine whether the differences in ESG risk scores reflect substantive differences in firms' behavior or instead capture variation in disclosure, certification, or formal compliance. This identification concern is particularly relevant for small, privately

held firms, for which publicly observable ESG-related information is limited. Table 5 reports regression estimates relating managerial cultural origin to certification activity, transparency-related outcomes, and selected social indicators that are directly observable for private firms. Accordingly, we exclude ESG risk scores from these analyses and focus on directly observable firm outcomes.

[Insert Table 5 around here]

Columns (1)–(3) focus on the firm's certification activity. The results show that firms managed by CEOs of Italian cultural origin hold more certifications on average and are more likely to report both the presence of at least one certification and active certification. These differences are statistically significant across specifications. Importantly, this pattern corroborates the main ESG risk findings: the cultural group exhibiting lower ESG risk scores also engages more actively in formal sustainability certification. Both the ESG risk score and observable certification behavior point in the same direction, supporting the interpretation that differences in ESG risk reflect substantive differences in underlying firm ESG engagement rather than differences in reporting or scoring methodology. Among firms registered as Società Benefit, a legal corporate form introduced in Italy in 2016 that formally embeds social and environmental objectives into the firm's legal statute, 14 are managed by Italian-origin CEOs and only 4 by Germanic-origin CEOs. Although the small number of Società Benefit firms in the sample precludes formal statistical analysis, this distributional pattern supports the interpretation that the observed differences in ESG risk reflect genuine differences in underlying ESG engagement.

Columns (4)–(6) examine transparency and social outcomes that are less reliant on discretionary disclosure. We find no systematic differences across CEO cultural origins in whether firms' financial statements are audited, indicating that differences in ESG risk profiles are not driven by formal transparency or reporting practices. By contrast, firms managed by Germanic-origin CEOs exhibit significantly higher labor costs, in line with their relatively higher social ESG risk scores along the employee investment dimension

and indicating greater direct commitment to workforce-related expenditure. Finally, the share of women in top management does not differ systematically between the two cultural groups.

Overall, these results indicate that the differences in ESG risk scores documented earlier are corroborated by directly observable firm outcomes. Certification activity and ESG risk scores point in the same direction, and observable governance and transparency characteristics do not account for the main findings.

5 Robustness Tests

5.1 Panel evidence and extreme heat

A remaining identification concern is that cultural differences in ESG risk management may reflect time-varying exposure to environmental, social, or governance-related pressures rather than stable managerial orientations. If firms led by different cultural groups are differentially exposed to such pressures, relative ESG risk could evolve mechanically over time as these risks become more salient. We address this concern in two ways. First, we exploit the full 2020–2024 time series to assess whether the estimated differences are stable across years. Second, we leverage an extreme and plausibly exogenous environmental shock, namely the exceptional summer heat experienced in Italy in 2022,[13] to examine ESG risk adjustments around a sudden increase in climate-related risk (see Figure 3).

We begin by estimating pooled ordered logit models on the panel and report the results in Table 6. Panel A presents estimates without interaction terms. The panel results broadly mirror the cross-sectional findings, with one notable difference: the governance coefficient is also negative and statistically significant in the panel setting, in contrast to the cross-sectional results. The coefficient on the Italian-origin culture indicator remains negative and statistically significant for the overall ESG risk score and for the environmental, social, and

[13]The Italian National Institute of Statistics reported that 2022 was the hottest year in more than 50 years, recording a thermal anomaly of +1.7°C compared to the 1981–2010 reference period, Istat (2025).

climate-related sub-scores, indicating that the cross-sectional ESG risk differences remain when firms are observed repeatedly over time and are not driven by specific years. The governance result in the panel likely reflects within-firm variation in governance-related inputs captured in the Cerved scoring model over the 2020–2024 period, such as changes in formal compliance and transparency indicators, that exhibit culturally patterned trends over time while remaining relatively stable in the cross-section. The cross-sectional estimates may therefore be conservative in capturing the full extent of cultural-origin differences in ESG risk. Firm fixed effects are not included because managerial cultural origin exhibits essentially no within-firm variation over the sample period, which prevents identification from within-firm changes.

We next use the 2022 temperature shock to assess whether the baseline differences could reflect differential exposure to environmental stress. As shown in Figure 3, daily maximum and minimum temperatures during the summer of 2022 in Bolzano exceeded historical norms by a substantial margin, with frequent exceedances of standard heat thresholds. Similar to the extreme heat events studied by Pankratz et al. (2023), this episode represents a sudden and externally imposed increase in the salience of climate-related risk.

Beyond its direct economic implications, unusually high temperatures can affect perceptions of climate change, as Choi et al. (2020) document that abnormally warm local temperatures lead individuals to revise their beliefs about global warming upward and increase attention to climate-related issues, suggesting that extreme heat events may heighten the perceived relevance of environmental risks even absent immediate changes in firm fundamentals. Motivated by this mechanism, we examine whether the exceptional summer of 2022 led to differential ESG risk adjustments across firms led by managers of different cultural origins. If the baseline differences primarily reflect heterogeneous exposure to environmental pressures, one would expect the gap to widen following a common and salient climate shock. Conversely, if cultural differences reflect stable managerial preferences, the heat shock may differentially accelerate ESG risk improvements among firms that were

initially less engaged.

Panel B of Table 6 reports estimates from a panel specification that interacts the cultural-origin indicator with an indicator for the shock year and its immediate aftermath (2022–2024). The estimates reveal three patterns. First, ESG risk scores improve on average in the post-shock period, particularly along environmental and climate-related dimensions, indicating that firms broadly reduce their measured ESG risk following the heat event, pointing to a broad response to increased climate-risk salience. Second, the interaction between Italian cultural origin and the post-shock indicator is positive and statistically significant for the overall ESG risk score and for the environmental and climate-related subscores. A positive interaction indicates that the improvement in ESG risk is smaller for Italian-origin CEO firms than for Germanic-origin CEO firms after the shock: Germanic-origin firms exhibit larger reductions in ESG risk following the heat event, partially closing the baseline gap. This is in line with the heat shock increasing the perceived relevance of climate-related risks among Germanic-origin managers, who were initially less attuned to environmental risks, inducing greater relative ESG risk improvement. Italian-origin firms, already operating at a lower ESG risk baseline, experienced smaller additional improvements. Third, the interaction pattern differs across ESG pillars: social risk outcomes deteriorate relatively more for Italian-origin firms, while governance outcomes exhibit no meaningful differential response.

These patterns are informative for identification. If differential exposure were the primary driver of the baseline gap, the gap should widen following a common environmental shock rather than narrow. The convergence from the Germanic side instead points to the baseline cultural difference reflecting stable managerial orientations, with the shock reducing but not eliminating the gap as firms that were less engaged accelerate their ESG risk management. This finding is in line with evidence in Choi et al. (2020) that abnormally warm temperatures lead to upward revisions in climate-change beliefs. Overall, the baseline differences in ESG risk across cultural origins remain throughout the panel period,

indicating that the main results are not driven by differential exposure to environmental stress or by transitory changes in ESG salience.

5.2 Local environment and ESG heterogeneity

A remaining identification concern is that the association between CEO cultural origin and firm ESG risk may reflect differences in local environments or urbanization rather than causal effects of culture on firm behavior. In South Tyrol, cultural composition varies geographically and is correlated with long-run climatic conditions and with urban versus rural location. While cultural heterogeneity across municipalities has already been documented in Figure 1, Figure 4 further shows substantial and stable variation in average summer temperatures and precipitation, providing a relevant source of heterogeneity within a shared institutional environment.[14] If CEO cultural origin proxies for these factors, the estimated ESG risk differences should vary systematically across municipalities with different climate exposure and across locations with varying degrees of urbanization and local embeddedness.

We address this concern using cross-sectional analyses and report the results in Table 7. The table presents separate regressions for subsamples defined by long-run local climate conditions and by location and the firm's local embeddedness, using the same specification and controls as in the baseline ESG risk score regressions.

Panels A and B of Table 7 examine heterogeneity across long-run climatic conditions at the municipality level. Panel A restricts the sample to firms located in municipalities with above-median average summer temperatures (relative to the regional distribution), while Panel B focuses on municipalities with above-median long-run precipitation.[15] We note

[14] The figure uses daily data from 1999–2022, excluding 2023 and 2024, which are used for the cross-sectional analysis. The results are not sensitive to this choice of sample period and are similar when using alternative time windows.

[15] Daily temperature and precipitation data are obtained from official representative weather stations for the period 1999–2022. Additional details on the construction of the municipality-level weather measures are provided in Appendix C.

that South Tyrol is one of the driest regions in the Alps, with the median municipality receiving approximately 812 mm of precipitation annually, well below typical Alpine levels. Municipalities below this median are genuinely drought-stressed, making water scarcity a materially relevant ESG concern. Across both panels, firms managed by Italian-origin CEOs exhibit significantly lower ESG risk scores, particularly along environmental and climate-related dimensions. The magnitude and structure of the coefficients are comparable to those in the full sample, while governance risk scores again show no systematic differences. These results indicate that the baseline cultural-origin effect remains robust among firms located in municipalities with higher climate exposure.

Panels C and D examine heterogeneity by local embeddedness and location. Panel C focuses on firms with stronger local embeddedness, while Panel D considers only firms located in Bolzano, the most urban and culturally heterogeneous municipality in the province and the main concentration of firms in the sample. In both subsamples, firms managed by Italian-origin CEOs continue to exhibit significantly lower ESG risk scores, again driven by environmental and climate-related components, with no statistically significant differences in governance risk scores. The stability of the effect within the city of Bolzano is particularly relevant, as firms in this setting operate under highly similar local conditions while exhibiting substantial cultural heterogeneity among managers.

These heterogeneity patterns indicate that the association between CEO cultural origin and ESG risk is not confined to specific local contexts. The effect is stable across subsamples and mirrors the pillar structure of the main results, supporting the interpretation that cultural origin captures systematic differences in managerial approaches to ESG risk rather than proxying for local conditions.

5.3 Reverse causality and CEO identity

A further identification concern is reverse causality or mechanical bias in the construction of ESG risk scores. In particular, one might worry that ESG assessments directly condition

on CEO identity, such as cultural origin inferred from names, rather than on underlying ESG-relevant firm behavior. This interpretation is unlikely for institutional reasons. Cerved ESGp scores are constructed from standardized indicator-level inputs based on administrative records, compliance information, and firm-provided documentation within an automated, model-based scoring framework. CEO names or cultural classifications are not explicit inputs into the scoring process. If identity-related bias were present in the scoring model, it would more plausibly operate through observable governance attributes collected by the data provider, such as whether the CEO is foreign, rather than through subtle name-based classifications. We therefore examine whether ESG risk scores respond systematically to foreign CEO status as a direct test of mechanical identity-based bias.

Table 8 reports regressions in which we replace the name-based cultural-origin indicator with an indicator for a foreign CEO, while maintaining the same set of firm-level controls and fixed effects as in the baseline specification. The results reveal no systematic relationship. Across the overall ESG risk score and the environmental, social, and climate-related sub-scores (columns (1)–(3) and (5)–(6)), the coefficient on the foreign CEO indicator is small and statistically insignificant. This indicates that ESG risk assessments in the dimensions where cultural-origin differences are strongest are not mechanically driven by CEO foreign status.

In contrast, column (4) shows a positive and statistically significant association between foreign CEO status and the governance risk score, indicating that firms led by foreign CEOs exhibit higher governance risk. This pattern may reflect that foreign CEOs operate with less familiarity with local governance norms and institutional expectations, resulting in weaker governance risk management in the host-country context (Bertrand et al., 2021). Importantly, governance is the ESG pillar for which we find no significant association with CEO cultural origin in the main analysis. The foreign-CEO governance effect therefore does not confound the cultural-origin results, but instead highlights that governance risk responds differently to CEO identity characteristics than environmental or social risk.

We next consider reverse causality operating through CEO selection. If firms with lower ESG risk profiles systematically attract or appoint CEOs from particular cultural backgrounds, the estimated association could reflect sorting rather than managerial influence. Several characteristics of the sample mitigate concerns about this mechanism. Firms in our sample are predominantly small and privately held, operate in a localized managerial labor market, and tend to have very low CEO turnover. Only 2.4% of firms experience a CEO change in the most recent year, and just 3.9% of firm–year observations over the 2020–2024 period record a CEO change.

Accordingly, controlling explicitly for CEO turnover does not affect the magnitude or statistical significance of the cultural-origin coefficients (see additional robustness checks). Moreover, the structure of the results argues against a selection-based explanation. CEO sorting would most plausibly operate through governance-related characteristics that are salient ex-ante in the matching process between firms and managers. In contrast, the strongest cultural-origin differences appear in environmental and climate-related outcomes, which involve long-horizon investments and are less immediately observable, while governance outcomes show no systematic differences across cultural groups.

Overall, the evidence indicates that the main results are unlikely to be driven by mechanical aspects of ESG risk scoring or by CEO selection based on ESG considerations. Instead, they are in line with managerial cultural origin being associated with differences in firms' ESG risk, while governance outcomes primarily reflect formal organizational responses to informational and institutional frictions.

5.4 Additional robustness checks

We conduct a set of additional robustness tests addressing concerns related to CEO classification, ownership structure, managerial stability, the measurement of ESG risk outcomes, covariate imbalance, and the scope of the baseline comparison group.[16]

[16]Regression results for the robustness tests discussed in this subsection are reported in Appendix B.

A first concern is that the baseline results may be affected by the inclusion of foreign managers among those classified by name. Using Cerved's foreign-CEO indicator, only a small share of Italian-origin CEOs are flagged as foreign (approximately 3.5%), whereas the corresponding share is larger among German-origin CEOs (approximately 14%). This asymmetry reflects the institutional setting of South Tyrol. Italian names are rarely observed among managers from outside Italy and therefore predominantly correspond to locally embedded managers. By contrast, the German-name category includes both local German-speaking South Tyroleans and a non-negligible share of foreign managers entering the regional labor market from neighboring countries, primarily Germany and Austria. Re-estimating the baseline specifications after excluding all firms led by a foreign CEO produces estimates that are quantitatively and qualitatively similar to the baseline results.

We next restrict the sample to closely held firms by excluding public-sector firms, cooperatives, foreign-owned firms, and firms belonging to national structured groups. These ownership forms are more likely to be subject to external mandates or group-level ESG practices, which limit the scope for firm-level managerial decisions.[17] This restriction leaves a sample of independent firms, accounting for approximately 72% of the full dataset. The results in this restricted sample closely track the baseline estimates.

We also examine whether the cultural-origin effect on ESG risk varies with the long-term investment horizon of the firm's sector, using sector-level asset tangibility as a proxy. The results, reported in Appendix B, show that the main effect of Italian cultural origin remains negative and statistically significant for the overall ESG risk score and for the environmental and climate-related dimensions. The interaction term is statistically significant only for the social and combined social-governance dimensions, while the absence of a significant interaction for the environmental dimension suggests that the environmental ESG risk advantage of Italian-origin managers is not primarily driven by long-horizon

[17] Cerved primarily covers Italian legal entities. Excluding foreign-owned and group-affiliated firms mitigates concerns that ESG risk scores simply reflect international parent-level characteristics.

investment considerations, and is more in line with the salience mechanism proposed in Section 2. We further verify that controlling for ownership concentration leaves the main results unchanged. The interaction between Italian cultural origin and above-median single-owner stake is statistically insignificant across all ESG risk dimensions, indicating that the cultural-origin effect is not mediated by the degree of ownership concentration.

We further examine whether the baseline estimates may be affected by CEO turnover. If ESG-related policies adjust around leadership transitions, the estimated association could partly reflect short-run dynamics rather than long-term managerial orientation. CEO turnover is rare in our data, but to address this concern directly we re-estimate the baseline specifications after excluding observations with a CEO change in the current year and, more stringently, after excluding firms with any CEO change in the preceding five years. In both cases, the estimates remain stable. As an additional proxy for managerial experience, we interact CEO cultural origin with an indicator for above-median CEO age. The main cultural-origin effect remains unchanged. The interaction is statistically significant only for the social risk dimension, suggesting that older Italian-origin CEOs manage social risk particularly well, while the environmental result does not vary systematically with CEO age.

We also assess whether the results depend on the measurement of ESG risk outcomes. Specifically, we re-estimate the baseline specification using firms' ESG risk rank as an ordinal outcome rather than the raw score. This test relies solely on firms' relative ESG risk positioning and therefore abstracts from assumptions about the cardinal structure of ESG risk categories. The ordered-logit estimates based on ESG ranks confirm that firms led by Italian-origin CEOs are more likely to be positioned in lower risk categories, indicating that the baseline findings are not driven by the scaling of the ESG measure.

We further examine whether the baseline results reflect differences in observable firm characteristics rather than differences associated with managerial orientation. We implement a propensity score matching robustness test by estimating the probability that a firm is

led by an Italian-origin CEO as a function of baseline firm characteristics, top management team characteristics, CEO characteristics, and industry and year fixed effects. We impose common support and match Italian-origin CEO firms to otherwise similar Germanic-origin CEO firms using one-to-one nearest-neighbor matching with ties allowed. In the matched sample, the estimated average treatment effect on the treated for the overall ESG risk score equals -0.082 (bootstrap standard error 0.026) and is highly statistically significant, indicating that lower ESG risk scores among Italian-origin CEO firms remain even when comparisons are restricted to observationally similar firms. For completeness, the matched sample also produces a small negative ATT for the governance risk score (-0.043, $p = 0.047$). This governance result, which contrasts with the absence of a governance effect in the main cross-sectional analysis, likely reflects residual imbalance in matched firm characteristics related to governance structure, and we do not interpret it as overriding the main cross-sectional governance result.

As a final robustness check, we expand the analysis to include firms located in the neighboring Province of Trento, which together with South Tyrol constitutes the Autonomous Region of Trentino-Alto Adige/Südtirol.[18] Unlike South Tyrol, Trentino does not have a substantial German-speaking population and therefore provides a comparison environment in which Italian-origin CEOs represent the dominant cultural background. Incorporating Trentino firms substantially enlarges the sample, increasing the number of observations by nearly 50% to 14,222 observations. In this expanded sample, we redefine the cultural-origin indicator by assigning $GERMAN_ORIGIN$ equal to one for firms led by Germanic-origin CEOs in South Tyrol and zero for firms led by Italian-origin CEOs in South Tyrol and Trentino. The regression results indicate that firms led by Germanic-origin CEOs continue to exhibit significantly higher ESG risk scores relative to this expanded Italian baseline, mirroring the results obtained when restricting the sample to South Tyrol.

[18]This test follows the approach of Bedendo et al. (2020). Cerved does not cover Austria, which could otherwise provide an additional external comparison group.

A related alternative interpretation deserves brief consideration. Italian speakers constitute approximately 27% of South Tyrol's population and are therefore a linguistic minority within the province. Minority status can heighten cultural identity salience and lead to more deliberate expression of cultural values in everyday behavior, which could translate into stronger ESG engagement as a form of cultural differentiation. However, several considerations argue against this as the primary driver of our results. First, Italian-speaking managers in South Tyrol are not a minority in any broader legal or institutional sense: they operate within the Italian national regulatory framework, are embedded in Italian business networks, and are subject to the same national norms and expectations as any other Italian firm. Second, the Trentino extension, where Italian-origin CEOs represent the dominant cultural group rather than a minority, produces a pattern of ESG risk differences that mirrors the main results. If minority status were driving the effect, one would expect the ESG risk patterns among Italian-origin CEOs to differ systematically between South Tyrol and Trentino, which they do not. Third, the differences are concentrated in environmental and climate-related dimensions rather than in governance or social dimensions where identity assertion would more plausibly manifest. Together, these considerations suggest that the minority-status channel is unlikely to account for the main findings, and that cultural differences in climate-risk salience remain the more parsimonious interpretation.

Overall, these additional tests address concerns related to foreign-manager composition, ownership structures, leadership transitions, ESG scoring methodology, observable selection, and the definition of the Italian benchmark group. The association between CEO cultural origin and ESG risk remains concentrated in environmental and climate-related dimensions, while governance outcomes continue to show no systematic differences in the cross-sectional analysis, in line with the interpretation that cultural background is associated with differences in managerial approaches to ESG risk management.

6 Conclusion

Differences in firms' ESG performance are typically attributed to variation in regulatory environments, regional characteristics, investor demand, stakeholder pressure, and market incentives. However, substantial heterogeneity remains even among firms operating under similar institutional conditions. This raises the question of whether managerial characteristics contribute to differences in ESG risk management.

In this paper, we show that ESG risk scores vary systematically with managers' cultural backgrounds, even among small, privately held firms operating under similar institutional, regulatory, and environmental conditions. The differences are particularly pronounced in environmental and social dimensions, with no systematic differences in governance risk scores in the cross-sectional analysis. To isolate this relationship, we exploit within-region cultural variation in South Tyrol, which allows comparisons across firms operating in a common institutional environment. The results are robust across a range of specifications and sample restrictions and are not explained by local environmental conditions, ownership structures, or observable firm and managerial characteristics.

The within-region setting isolates managerial influences from cross-country institutional differences and points to a behavioral interpretation. Our results do not support disclosure- or certification-driven explanations: the cultural group with lower ESG risk scores also holds more certifications and engages more actively in formal ESG practices, indicating that both measures reflect genuine differences in underlying ESG engagement. The evidence is instead in line with differences in the perceived salience of climate-related risks across cultural backgrounds playing a role in influencing managerial orientations toward ESG risk. Survey evidence shows that Italian populations report substantially higher climate-change concern and personal exposure to environmental risks than Austrian populations, the culturally closest external reference for South Tyrol's Germanic community, and the concentration of cultural-origin differences in environmental and climate-related dimensions supports this

interpretation. We acknowledge, however, that the Eurobarometer data reflect national population averages rather than the specific attitudes of managers in our sample, and we cannot directly test whether the salience mechanism operates at the individual managerial level. Future research collecting primary data on managerial climate-risk perceptions in bilingual regional settings would provide a more direct test.

More broadly, we document systematic differences in firms' ESG risk profiles across managerial cultural backgrounds that remain within a common institutional environment. For policymakers, the results suggest that differences in ESG risk across otherwise comparable firms may not be fully addressable through regulation, disclosure requirements, or external incentives alone, but may also depend on managerial orientations toward environmental and social risks that appear to vary with cultural background.

Data availability statement

The data analyzed in this study were obtained from Cerved and cannot be shared publicly due to licensing restrictions. The analysis code is available from the author upon request and may be used to reproduce the results with authorized access to the data.

References

Accetturo, A., Barboni, G., Cascarano, M., Garcia-Appendini, E., 2023. The role of culture in firm-bank matching. *Journal of Financial Intermediation* 53, 101018. doi:10.1016/j.jfi.2023.101018.

Adams, R.B., Funk, P., 2012. Beyond the glass ceiling: Does gender matter? *Management science* 58, 219–235. doi:10.1287/mnsc.1110.1452.

Ahern, K.R., Daminelli, D., Fracassi, C., 2015. Lost in translation? The effect of cultural values on mergers around the world. *Journal of Financial Economics* 117, 165–189. doi:10.1016/j.jfineco.2012.08.006.

Avramov, D., Cheng, S., Lioui, A., Tarelli, A., 2022. Sustainable investing with ESG rating uncertainty. *Journal of Financial Economics* 145, 642–664. doi:10.1016/j.jfineco.2021.09.009.

Ayres, I., Katz, T.K., Regev, T., 2023. Languages and future-oriented economic behavior–Experimental evidence for causal effects. *Proceedings of the National Academy of Sciences* 120, e2208871120. doi:10.1073/pnas.2208871120.

Bedendo, M., Garcia-Appendini, E., Siming, L., 2020. Cultural preferences and firm financing choices. *Journal of Financial and Quantitative Analysis* 55, 897–930. doi:10.1017/S0022109019000103.

Bedendo, M., Garcia-Appendini, E., Siming, L., 2023. Managers' cultural origin and corporate response to an economic shock. *Journal of Corporate Finance* 80, 102412. doi:10.1016/j.jcorpfin.2023.102412.

Bénabou, R., Tirole, J., 2010. Individual and corporate social responsibility. *Economica* 77, 1–19. doi:10.1111/j.1468-0335.2009.00843.x.

Berg, F., Kölbel, J.F., Rigobon, R., 2022. Aggregate confusion: The divergence of ESG ratings. *Review of Finance* 26, 1315–1344. doi:10.1093/rof/rfac033.

Bertrand, O., Betschinger, M.A., Moschieri, C., 2021. Are firms with foreign CEOs better citizens? A study of the impact of CEO foreignness on corporate social performance. *Journal of International Business Studies* 52, 525–543. doi:10.1057/s41267-020-00381-3.

Cascarano, M., Garcia-Appendini, E., Sekerci, N., Stradi, F., 2025. Cultural bonds. *SSRN Working Paper* doi:10.2139/ssrn.4836119.

Chen, M.K., 2013. The effect of language on economic behavior: Evidence from savings rates, health behaviors, and retirement assets. *American Economic Review* 103, 690–731. doi:10.1257/aer.103.2.690.

Chen, S., Cronqvist, H., Ni, S., Zhang, F., 2017. Languages and corporate savings behavior. *Journal of Corporate Finance* 46, 320–341. doi:10.1016/j.jcorpfin.2017.07.009.

Choi, D., Gao, Z., Jiang, W., 2020. Attention to global warming. *The Review of Financial Studies* 33, 1112–1145. doi:10.1093/rfs/hhz086.

Christensen, D.M., Serafeim, G., Sikochi, A., 2022. Why is corporate virtue in the eye of the beholder? The case of ESG ratings. *The Accounting Review* 97, 147–175. doi:10.2308/TAR-2019-0506.

Di Giuli, A., Kostovetsky, L., 2014. Are red or blue companies more likely to go green? Politics and corporate social responsibility. *Journal of Financial Economics* 111, 158–180. doi:10.1016/j.jfineco.2013.10.002.

Dimson, E., Karakaş, O., Li, X., 2015. Active ownership. *The Review of Financial Studies* 28, 3225–3268. doi:10.1093/rfs/hhv044.

Dyck, A., Lins, K.V., Roth, L., Wagner, H.F., 2019. Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics* 131, 693–714. doi:10.1016/j.jfineco.2018.08.013.

Eccles, R.G., Ioannou, I., Serafeim, G., 2014. The impact of corporate sustainability on organizational processes and performance. *Management Science* 60, 2835–2857. doi:10.1287/mnsc.2014.1984.

Fernández, R., 2011. Does culture matter? *Handbook of Social Economics* 1, 481–510.

Fisman, R., Paravisini, D., Vig, V., 2017. Cultural proximity and loan outcomes. *American Economic Review* 107, 457–492. doi:10.1257/aer.20120942.

Flammer, C., 2015. Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science* 61, 2549–2568. doi:10.1287/mnsc.2014.2038.

Frijns, B., Dodd, O., Cimerova, H., 2016. The impact of cultural diversity in corporate boards on firm performance. *Journal of Corporate Finance* 41, 521–541. doi:10.1016/j.jcorpfin.2016.07.014.

Giannetti, M., Yafeh, Y., 2012. Do cultural differences between contracting parties matter? evidence from syndicated bank loans. *Management Science* 58, 365–383. doi:10.1287/mnsc.1110.1378.

Giannetti, M., Zhao, M., 2019. Board ancestral diversity and firm-performance volatility. *Journal of Financial and Quantitative Analysis* 54, 1117–1155. doi:10.1017/S0022109018001035.

Guiso, L., Sapienza, P., Zingales, L., 2006. Does culture affect economic outcomes? *Journal of Economic Perspectives* 20, 23–48. doi:10.1257/jep.20.2.23.

Guiso, L., Sapienza, P., Zingales, L., 2009. Cultural biases in economic exchange? *The Quarterly Journal of Economics* 124, 1095–1131. doi:10.1162/qjec.2009.124.3.1095.

Hartzmark, S.M., Sussman, A.B., 2019. Do investors value sustainability? A natural experiment examining ranking and fund flows. *The Journal of Finance* 74, 2789–2837. doi:10.1111/jofi.12841.

Intergovernmental Panel on Climate Change (IPCC), 2023. Climate change 2022 - Impacts, adaptation and vulnerability: Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. doi:10.1017/9781009325844.

Ioannou, I., Serafeim, G., 2012. What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies* 43, 834–864. doi:10.1057/jibs.2012.26.

Karolyi, G.A., 2016. The gravity of culture for finance. *Journal of Corporate Finance* 41, 610–625. doi:10.1016/j.jcorpfin.2016.07.003.

Krueger, P., Sautner, Z., Starks, L.T., 2020. The importance of climate risks for institutional investors. *The Review of financial studies* 33, 1067–1111. doi:10.1093/rfs/hhz137.

Krueger, P., Sautner, Z., Tang, D.Y., Zhong, R., 2024. The effects of mandatory ESG disclosure around the world. *Journal of Accounting Research* 62, 1795–1847. doi:10.1111/1475-679X.12548.

Krüger, P., 2015. Corporate goodness and shareholder wealth. *Journal of Financial Economics* 115, 304–329. doi:10.1016/j.jfineco.2014.09.008.

Levine, R., Lin, C., Xie, W., 2018. Corporate resilience to banking crises: The roles of trust and trade credit. *Journal of Financial and Quantitative Analysis* 53, 1441–1477. doi:10.1017/S0022109018000224.

Li, K., Griffin, D., Yue, H., Zhao, L., 2013. How does culture influence corporate risk-taking? *Journal of corporate finance* 23, 1–22. doi:10.1016/j.jcorpfin.2013.07.008.

Liang, H., Renneboog, L., 2017. On the foundations of corporate social responsibility. *The Journal of Finance* 72, 853–910. doi:10.1111/jofi.12487.

Lins, K.V., Servaes, H., Tamayo, A., 2017. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *the Journal of Finance* 72, 1785–1824. doi:10.1111/jofi.12505Digital.

Orlitzky, M., Schmidt, F.L., Rynes, S.L., 2003. Corporate social and financial performance: A meta-analysis. *Organization studies* 24, 403–441. doi:10.1177/0170840603024003910.

Pan, Y., Siegel, S., Wang, T.Y., 2017. Corporate risk culture. *Journal of Financial and Quantitative Analysis* 52, 2327–2367. doi:10.1017/S0022109017000771.

Pan, Y., Siegel, S., Yue Wang, T., 2020. The cultural origin of CEOs' attitudes toward uncertainty: Evidence from corporate acquisitions. *The Review of Financial Studies* 33, 2977–3030. doi:10.1093/rfs/hhz109.

Pankratz, N., Bauer, R., Derwall, J., 2023. Climate change, firm performance, and investor surprises. *Management Science* 69, 7352–7398. doi:10.1287/mnsc.2023.4685.

Pursiainen, V., 2022. Cultural biases in equity analysis. *The Journal of Finance* 77, 163–211. doi:10.1111/jofi.13095DigitalObjectIdentifier(DOI).

Renneboog, L., Ter Horst, J., Zhang, C., 2008. The price of ethics and stakeholder governance: The performance of socially responsible mutual funds. *Journal of Corporate Finance* 14, 302–322. doi:10.1016/j.jcorpfin.2008.03.009.

Sutter, M., Angerer, S., Glätzle-Rützler, D., Lergetporer, P., 2018. Language group differences in time preferences: Evidence from primary school children in a bilingual city. *European Economic Review* 106, 21–34. doi:10.1016/j.euroecorev.2018.04.003.

Tabellini, G., 2010. Culture and institutions: Economic development in the regions of europe. *Journal of the European Economic Association* 8, 677–716. doi:10.1111/j.1542-4774.2010.tb00537.x.

Tang, D.Y., Yan, J., Yao, Y., 2025. The determinants of ESG ratings: Rater ownership matters. *Journal of Accounting Research* doi:10.1111/1475-679X.70016.

Villalonga, B., Tufano, P., Wang, B., 2025. Corporate ownership and ESG performance. *Journal of Corporate Finance* 91, 102732. doi:10.1016/j.jcorpfin.2024.102732.

Table 1: Descriptive statistics.

This table reports the descriptive statistics of the total sample of 8,854 firms in South Tyrol (October 2025). The average, median and standard deviation are reported, alongside the 25% and 75% percentiles. All continuous variables are winsorized at the 1% and 99% percentiles. The variable definitions are provided in Table A.1.

	Count	Mean	SD	P25	P50	P75
Dependent variables						
ESG_SCORE	8,854	1.689	0.708	1.000	2.000	2.000
ENV_SCORE	8,283	1.584	0.667	1.000	2.000	2.000
SOC_SCORE	8,854	1.293	1.149	0.000	1.000	2.000
GOV_SCORE	8,854	2.526	0.570	2.000	3.000	3.000
ENV_CLIMATE_SCORE	8,283	1.589	0.663	1.000	2.000	2.000
SG_SCORE	8,854	1.658	0.658	1.000	2.000	2.000
CEO Cultural Origin						
ITALIAN_ORIGIN	8,854	0.316	0.465	0.000	0.000	1.000
Firm control variables						
OP_MARGIN	7,853	0.148	0.548	0.036	0.115	0.292
SALES_GROWTH	6,922	0.105	0.588	-0.042	0.053	0.215
INVESTMENTS	8,236	0.054	0.142	0.000	0.010	0.048
ASSET_TANG	8,618	0.290	0.371	0.009	0.117	0.497
CASH_TA	8,609	0.204	0.303	0.013	0.079	0.269
FIRM_SIZE	8,618	6.850	1.941	5.572	6.871	8.163
LEVERAGE	8,609	0.159	0.312	0.000	0.000	0.189
FIRM_AGE	8,854	16.510	14.877	5.000	12.000	24.000
FAMILY_OWNED	8,854	0.660	0.474	0.000	1.000	1.000
Top management team variables						
STD_AGE	8,854	5.134	6.910	0.000	1.414	8.999
YOUNG_MANAGER	8,854	0.114	0.318	0.000	0.000	0.000
CEO control variables						
CEO_AGE	8,854	54.525	12.186	47.000	55.000	62.000
CEO_MALE	8,854	0.859	0.348	1.000	1.000	1.000

Table 2: *t*-tests for differences in mean values.

This table reports mean values, standard deviations, and *t*-tests for differences in means (with corresponding p-values) for the dependent and control variables. The sample includes firms headquartered in the South Tyrol province with a CEO of German or Italian origin, based on the latest available year prior to 2025. All Variables are obtained from Cerved and definitions are provided in Table A.1.

	CEO GER ORIGIN		CEO ITA ORIGIN				
	Mean	SD	Mean	SD	Diff.	t-Stat	p-Value
Dependent variables							
ESG_SCORE	1.736	0.722	1.587	0.666	0.149	9.24	0.0000
ENV_SCORE	1.623	0.681	1.500	0.629	0.122	7.77	0.0000
SOC_SCORE	1.365	1.172	1.138	1.083	0.227	8.67	0.0000
GOV_SCORE	2.524	0.565	2.532	0.579	-0.008	-0.61	0.5445
ENV_CLIMATE_SCORE	1.627	0.678	1.507	0.623	0.120	7.66	0.0000
SG_SCORE	1.690	0.665	1.588	0.637	0.102	6.83	0.0000
Firm control variables							
OP_MARGIN	0.158	0.537	0.125	0.570	0.033	2.49	0.0129
SALES_GROWTH	0.101	0.575	0.114	0.619	-0.012	-0.81	0.4164
INVESTMENTS	0.053	0.137	0.055	0.153	-0.003	-0.79	0.4297
ASSET_TANG	0.311	0.374	0.245	0.361	0.066	7.68	0.0000
CASH_TA	0.198	0.295	0.216	0.321	-0.018	-2.51	0.0119
FIRM_SIZE	7.077	1.871	6.356	2.000	0.721	16.26	0.0000
LEVERAGE	0.157	0.308	0.164	0.320	-0.008	-1.05	0.2926
FIRM_AGE	17.449	15.334	14.481	13.620	2.969	8.77	0.0000
FAMILY_OWNED	0.667	0.471	0.644	0.479	0.023	2.13	0.0332
Top management team variables							
STD_AGE	5.360	7.057	4.646	6.557	0.714	4.53	0.0000
YOUNG_MANAGER	0.126	0.332	0.087	0.282	0.039	5.42	0.0000
CEO control variables							
CEO_AGE	54.388	12.157	54.819	12.247	-0.431	-1.55	0.1221
CEO_MALE	0.872	0.334	0.830	0.376	0.043	5.36	0.0000

Table 3: The impact of cultural origin on ESG scores.

This table reports ordered logit estimates of the relation between CEO cultural origin and firms' overall ESG scores. The dependent variable is the overall ESG score measured on an ordered scale from 0 to 4. *ITALIAN_ORIGIN* equals one if the CEO is of Italian cultural origin and zero if the CEO is of Germanic cultural origin. All specifications include the baseline firm- and CEO-level controls described in Table A.1. Industry fixed effects are defined using the main categories of the ATECO 2007 classification. Municipality and year fixed effects are included as indicated. Standard errors are robust to heteroskedasticity. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Dependent variable: ESG score			
	(1)	(2)	(3)	(4)
ITALIAN_ORIGIN	-0.3695***	-0.3560***	-0.2456***	-0.2856***
	(0.052)	(0.058)	(0.056)	(0.064)
OP_MARGIN	-0.0232	-0.0092	0.1614***	0.1832***
	(0.053)	(0.053)	(0.054)	(0.055)
SALES_GROWTH	-0.0330	-0.0073	-0.0204	-0.0032
	(0.040)	(0.041)	(0.044)	(0.046)
INVESTMENTS	-1.0638***	-1.0796***	-0.5019*	-0.5428**
	(0.228)	(0.231)	(0.258)	(0.261)
ASSET_TANG	0.5216***	0.6035***	-0.0953	-0.0134
	(0.089)	(0.091)	(0.106)	(0.109)
CASH_TA	-0.4582***	-0.4458***	-0.3232***	-0.3136***
	(0.100)	(0.104)	(0.102)	(0.106)
FIRM_SIZE	0.1058***	0.1138***	0.0389**	0.0456**
	(0.016)	(0.017)	(0.018)	(0.019)
LEVERAGE	0.4149***	0.4152***	0.4814***	0.4792***
	(0.099)	(0.100)	(0.106)	(0.108)
FIRM_AGE	0.0047**	0.0048**	-0.0019	-0.0019
	(0.002)	(0.002)	(0.002)	(0.002)
FAMILY_OWNED	0.0345	0.0115	0.0533	0.0563
	(0.053)	(0.056)	(0.058)	(0.060)
STD_AGE	-0.0153***	-0.0159***	-0.0171***	-0.0171***
	(0.004)	(0.004)	(0.004)	(0.004)
YOUNG_MANAGER	0.0991	0.0925	0.1681*	0.1518
	(0.094)	(0.094)	(0.094)	(0.096)
CEO_AGE	0.0032	0.0022	0.0041*	0.0028
	(0.002)	(0.002)	(0.002)	(0.002)
CEO_MALE	0.4276***	0.4503***	0.4044***	0.4558***
	(0.067)	(0.067)	(0.070)	(0.071)
Industry fixed effects	No	Yes	Yes	Yes
City fixed effects	No	Yes	No	Yes
Year fixed effects	No	No	Yes	Yes
Observations	6,913	6,913	6,913	6,913
Pseudo R2	0.032	0.060	0.202	0.233

Table 4: The impact of CEO cultural origin on ESG sub-scores.

This table reports ordered logit estimates of the relation between CEO cultural origin and firms' ESG sub-scores. The dependent variables are the environmental (ENV), social (SOC), governance (GOV), climate-related environmental, and combined social–governance (SG) scores measured on an ordered scale from 0 to 4. *ITALIAN_ORIGIN* equals one if the CEO is of Italian cultural origin and zero if the CEO is of Germanic cultural origin. All specifications include the baseline firm- and CEO-level controls described in Table A.1. Industry fixed effects are defined using the main categories of the ATECO 2007 classification. Municipality and year fixed effects are included as indicated. Standard errors are robust to heteroskedasticity. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	ENV_SCORE	SOC_SCORE	GOV_SCORE	ENV_CLIMATE_SCORE	SG_SCORE
	(1)	(2)	(3)	(4)	(5)
ITALIAN_ORIGIN	-0.2806***	-0.1265**	-0.1079	-0.2755***	-0.1722***
	(0.077)	(0.055)	(0.067)	(0.078)	(0.066)
OP_MARGIN	0.0978	0.0793**	0.1975***	0.0831	0.1753***
	(0.065)	(0.038)	(0.064)	(0.064)	(0.053)
SALES_GROWTH	0.0846	-0.0110	-0.0927*	0.0817	-0.0823*
	(0.052)	(0.034)	(0.049)	(0.053)	(0.042)
INVESTMENTS	-0.6335**	-0.3559*	-0.0123	-0.5502*	-0.4881**
	(0.311)	(0.211)	(0.280)	(0.318)	(0.248)
ASSET_TANG	0.1891	0.3636***	-0.1701	0.1506	0.2444**
	(0.127)	(0.092)	(0.122)	(0.129)	(0.114)
CASH_TA	-0.3273**	-0.2505**	-0.2730***	-0.3463**	-0.3066***
	(0.132)	(0.099)	(0.102)	(0.138)	(0.109)
FIRM_SIZE	-0.0389*	0.0975***	-0.1805***	-0.0175	0.0467**
	(0.022)	(0.018)	(0.020)	(0.022)	(0.021)
LEVERAGE	0.2806**	0.2648***	0.2635**	0.2635**	0.5340***
	(0.126)	(0.086)	(0.124)	(0.127)	(0.105)
FIRM_AGE	0.0030	-0.0013	-0.0221***	0.0033	-0.0094***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
FAMILY_OWNED	-0.0058	0.0591	0.7084***	-0.0333	0.2039***
	(0.071)	(0.053)	(0.066)	(0.071)	(0.064)
STD_AGE	0.0019	-0.0033	-0.1494***	0.0022	-0.0541***
	(0.004)	(0.003)	(0.006)	(0.005)	(0.005)
YOUNG_MANAGER	0.0559	0.0998	0.6234***	0.0329	0.3620***
	(0.105)	(0.090)	(0.117)	(0.108)	(0.103)
CEO_AGE	-0.0004	0.0034	0.0212***	-0.0010	0.0107***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)
CEO_MALE	0.0197	-0.1024	3.2460***	0.0313	1.1866***
	(0.082)	(0.064)	(0.106)	(0.084)	(0.083)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	6,557	6,913	6,913	6,557	6,913
Pseudo R2	0.342	0.260	0.274	0.353	0.268

Table 5: Managerial Culture, Certification, and Social Outcomes.

This table reports regression estimates examining the association between managerial culture and firms' certification activity, transparency, and social outcomes. The dependent variables include the number of certifications ($CERT_NUM$), an indicator for holding at least one certification ($CERT_YN$), an indicator for active certification ($ACTIVE_CERT$), an indicator for certified financial statements ($AUDITED_FS$), labor cost ($LABOR_COST$), and the share of women in top management ($FEMALE_MGMT$). The main explanatory variable is an indicator for an Italian CEO. All specifications include firm-level control variables and industry, city, and year fixed effects. All variables are obtained from Cerved, and detailed definitions are provided in Table A.1. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	CERT_NUM	CERT_YN	ACTIVE_CERT	AUDITED_FS	LABOR_COST	FEMALE_MGMT
	(1)	(2)	(3)	(4)	(5)	(6)
ITALIAN_ORIGIN	0.0976***	0.4540***	0.4674***	-0.0278	-0.1195***	0.0071
	(0.031)	(0.069)	(0.070)	(0.071)	(0.039)	(0.005)
OP_MARGIN	-0.0062	-0.1560***	-0.1508***	-0.1085*	-0.1324*	-0.0087**
	(0.020)	(0.047)	(0.047)	(0.058)	(0.078)	(0.004)
SALES_GROWTH	-0.0053	0.0158	0.0214	-0.0371	-0.0059	0.0066**
	(0.016)	(0.041)	(0.040)	(0.052)	(0.049)	(0.003)
INVESTMENTS	0.3882***	1.1892***	1.1823***	0.5073*	0.9665***	-0.0390*
	(0.071)	(0.288)	(0.293)	(0.297)	(0.141)	(0.021)
ASSET_TANG	-0.2010***	-0.5467***	-0.5680***	-0.1894	-0.2908***	0.0285***
	(0.045)	(0.146)	(0.148)	(0.124)	(0.072)	(0.009)
CASH_TA	0.0519**	0.0236	-0.0218	0.1155	0.1320*	0.0003
	(0.022)	(0.138)	(0.135)	(0.147)	(0.079)	(0.008)
FIRM_SIZE	0.1097***	0.3206***	0.3232***	0.4863***	0.2297***	-0.0038***
	(0.015)	(0.022)	(0.022)	(0.023)	(0.012)	(0.001)
LEVERAGE	-0.0196	-0.3587**	-0.3566**	-0.1282	-0.3175***	-0.0106
	(0.036)	(0.172)	(0.171)	(0.136)	(0.100)	(0.008)
FIRM_AGE	0.0040***	0.0130***	0.0123***	-0.0011	-0.0020*	0.0001
	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.000)
FAMILY_OWNED	-0.1090***	-0.1294**	-0.1180*	-0.0649	-0.2657***	0.0025
	(0.024)	(0.066)	(0.067)	(0.067)	(0.034)	(0.005)
STD_AGE	0.0010	0.0006	0.0008	0.0037	0.0031	0.0011***
	(0.001)	(0.005)	(0.005)	(0.005)	(0.002)	(0.000)
YOUNG_MANAGER	-0.0412	-0.0416	-0.0508	-0.1622	-0.0168	-0.0003
	(0.036)	(0.114)	(0.115)	(0.119)	(0.054)	(0.009)
CEO_AGE	-0.0024**	-0.0029	-0.0023	0.0009	0.0020	0.0003
	(0.001)	(0.003)	(0.003)	(0.003)	(0.002)	(0.000)
CEO_MALE	0.0304*	0.1080	0.1293	-0.0377	-0.0043	-0.7801***
	(0.016)	(0.098)	(0.100)	(0.086)	(0.042)	(0.008)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,913	5,993	5,993	6,350	4,928	6,913
Pseudo (R2)	0.073	0.281	0.283	0.284	0.188	0.747

Table 6: Panel regression results and the 2022 temperature shock.

Panel A reports ordered logit estimates of ESG outcomes using the full 2020–2024 panel without interaction terms. Panel B extends the analysis by interacting the managerial cultural-origin indicator with a post-shock indicator, *POST*, which equals one in the shock year 2022 and its subsequent years (2022–2024) and zero otherwise. The interaction captures differential ESG adjustments following the exceptional summer heat experienced in South Tyrol in 2022 (see Figure 3). All specifications include firm-level controls as well as industry, city, and year fixed effects. Standard errors are reported in parentheses. Variable definitions are provided in Table A.1. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	ESG_SCORE	ENV_SCORE	SOC_SCORE	GOV_SCORE	ENV_CLIMATE_SCORE	SG_SCORE
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Panel estimates without interaction						
ITALIAN_ORIGIN	-0.2052***	-0.1683***	-0.1515***	-0.1231***	-0.1646***	-0.2001***
	(0.033)	(0.034)	(0.029)	(0.036)	(0.034)	(0.035)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,427	22,884	23,328	23,328	22,884	23,328
Pseudo R2	0.307	0.347	0.221	0.266	0.351	0.229
Panel B: Panel estimates with interaction						
ITALIAN_ORIGIN	-0.4585***	-0.4559***	-0.0296	-0.1595**	-0.4510***	-0.1505**
	(0.058)	(0.060)	(0.047)	(0.074)	(0.060)	(0.065)
POST	-3.1277***	-3.6165***	-1.0538***	-0.0916*	-3.6435***	-0.8526***
	(0.051)	(0.054)	(0.043)	(0.050)	(0.055)	(0.050)
ITALIAN_ORIGIN × POST	0.3354***	0.3879***	-0.1605***	0.0463	0.3869***	-0.0641
	(0.066)	(0.069)	(0.056)	(0.081)	(0.069)	(0.073)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,427	22,884	23,328	23,328	22,884	23,328
Pseudo R2	0.308	0.347	0.222	0.266	0.351	0.229

Table 7: Heterogeneity in the association between CEO cultural origin and ESG scores.

This table reports cross-sectional regression estimates examining heterogeneity in the association between CEO cultural origin and ESG scores across local climatic conditions and firm location. Panels A and B split the sample based on long-run climatic conditions at the municipality level. Panel A restricts the sample to municipalities with above-median average summer temperatures, while Panel B focuses on municipalities with above-median long-run precipitation. Local climate measures are constructed from daily weather data over the period 1999–2022. Panels C and D examine heterogeneity by local embeddedness and location. Panel C restricts the sample to firms with stronger local embeddedness, while Panel D focuses on firms located in Bolzano, the most urban and culturally heterogeneous municipality in the province. All specifications use the same set of explanatory variables as in the baseline ESG regressions and include industry and city fixed effects. Variable definitions are provided in Table A.1. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	ESG_SCORE	ENV_SCORE	SOC_SCORE	GOV_SCORE	ENV_CLIMATE_SCORE	SG_SCORE
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: High Summer Temperature						
ITALIAN_ORIGIN	-0.2931***	-0.2997***	-0.1185*	-0.0402	-0.2882***	-0.1086
	(0.073)	(0.084)	(0.066)	(0.079)	(0.086)	(0.078)
Firm/Mgmt/CEO Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,093	3,829	4,093	4,093	3,829	4,093
Pseudo R2	0.188	0.298	0.239	0.159	0.309	0.220
Panel B: High Local Precipitation						
ITALIAN_ORIGIN	-0.3024***	-0.2614***	-0.1379**	-0.1167	-0.2485***	-0.1887***
	(0.069)	(0.082)	(0.060)	(0.075)	(0.084)	(0.072)
Firm/Mgmt/CEO Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,846	4,566	4,846	4,846	4,566	4,846
Pseudo R2	0.218	0.329	0.255	0.279	0.341	0.262
Panel C: Local Embeddedness						
ITALIAN_ORIGIN	-0.4525***	-0.3814***	-0.3057***	-0.1295	-0.3712***	-0.3039***
	(0.086)	(0.094)	(0.078)	(0.090)	(0.096)	(0.090)
Firm/Mgmt/CEO Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,912	2,819	2,912	2,912	2,819	2,912
Pseudo R2	0.196	0.264	0.259	0.242	0.282	0.255
Panel D: City of Bolzano						
ITALIAN_ORIGIN	-0.2922***	-0.3006***	-0.0478	-0.0077	-0.2767***	-0.0558
	(0.086)	(0.098)	(0.079)	(0.097)	(0.101)	(0.093)
Firm/Mgmt/CEO Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,415	2,240	2,415	2,415	2,240	2,415
Pseudo R2	0.169	0.274	0.213	0.261	0.290	0.201

Table 8: Foreign CEO status and ESG scores.

This table reports regression estimates in which the dependent variables are the overall ESG score and its sub-scores, and the main explanatory variable is an indicator for whether the firm's CEO is foreign. The empirical specification follows the baseline regression (Table 3) and replaces the name-based cultural-origin measure with the foreign-CEO indicator. All regressions include the same firm-level controls and fixed effects as in the baseline specification. Standard errors are reported in parentheses. Variable definitions are provided in Table A.1. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) ESG_SCORE	(2) ENV_SCORE	(3) SOC_SCORE	(4) GOV_SCORE	(5) ENV_CLIMATE_SCORE	(6) SG_SCORE
FOREIGN_CEO	-0.0211	-0.0883	-0.0967	0.2467***	-0.1008	-0.0447
	(0.079)	(0.091)	(0.076)	(0.082)	(0.092)	(0.087)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,249	6,885	7,249	7,249	6,885	7,249
Pseudo R2	0.227	0.334	0.257	0.275	0.345	0.267

Figure 1: Distribution of Italian-speaking population in South Tyrol.

Share of the population with Italian as their first language in each city of South Tyrol, classified into four categories based on percentage thresholds. Data are obtained from the 2024 Census (Istituto Provinciale di Statistica, 2025).

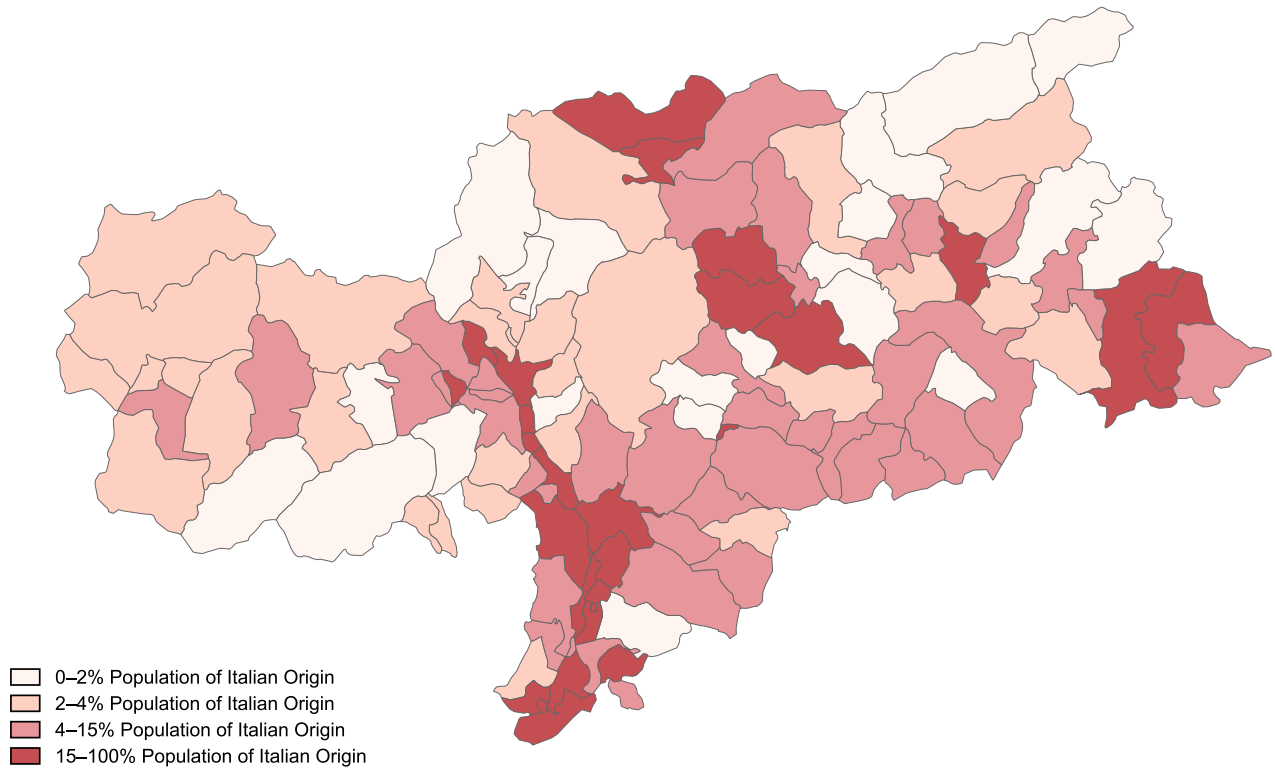


Figure 2: Distribution of cultural origin of CEOs in South Tyrol.

Average share of firms with a CEO of Italian origin in our sample in each city of South Tyrol, classified into four categories based on percentage thresholds.

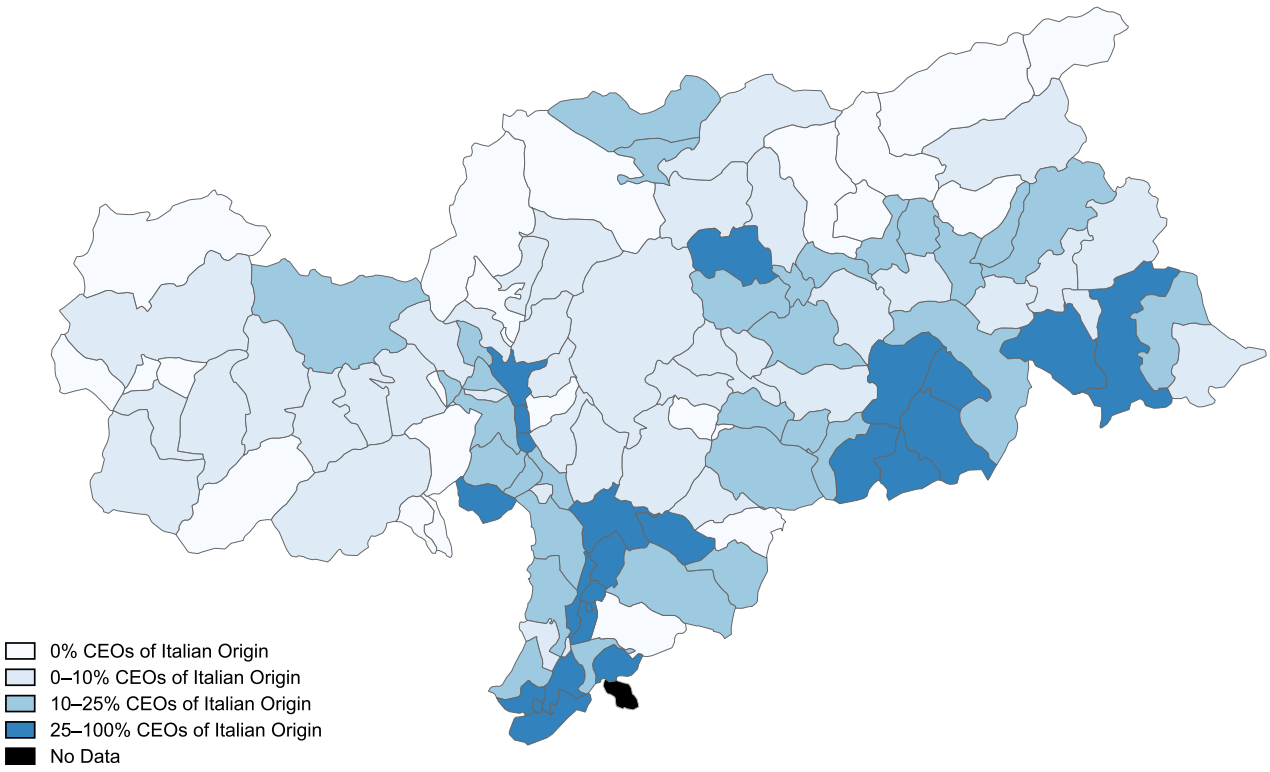
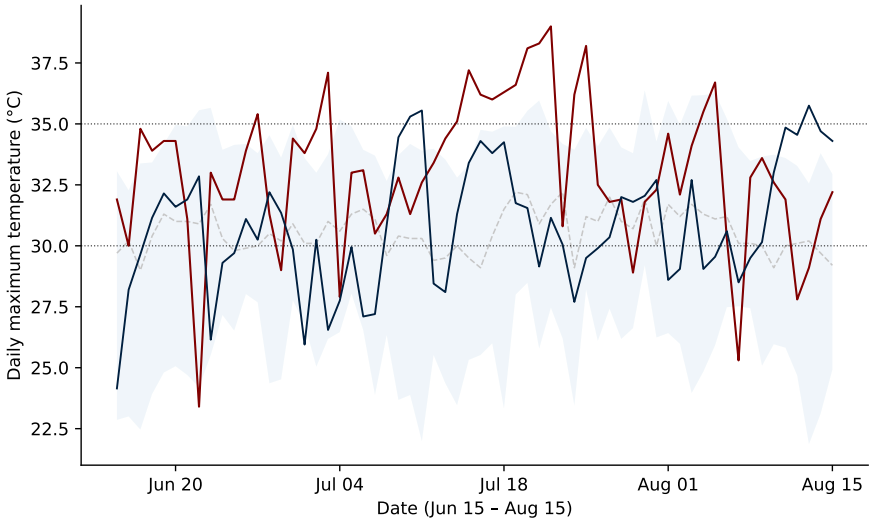


Figure 3: Abnormal summer temperature in Bolzano.

This figure shows daily temperatures measured at the Bolzano weather station from mid-June to mid-August. Shaded areas indicate the 10th–90th percentile range of daily temperatures over the baseline period 1999–2021, with the dashed line denoting the corresponding baseline median. The solid maroon line reports daily temperatures in 2022, while the solid navy line shows the median daily temperature across 2023–2024. Panel (a) plots daily maximum temperatures, with horizontal dotted lines marking the 30°C and 35°C thresholds. Panel (b) plots daily minimum temperatures, with the horizontal dotted line marking the 20°C threshold for tropical nights.

Panel A: Daily maximum temperature



Panel B: Daily minimum temperature

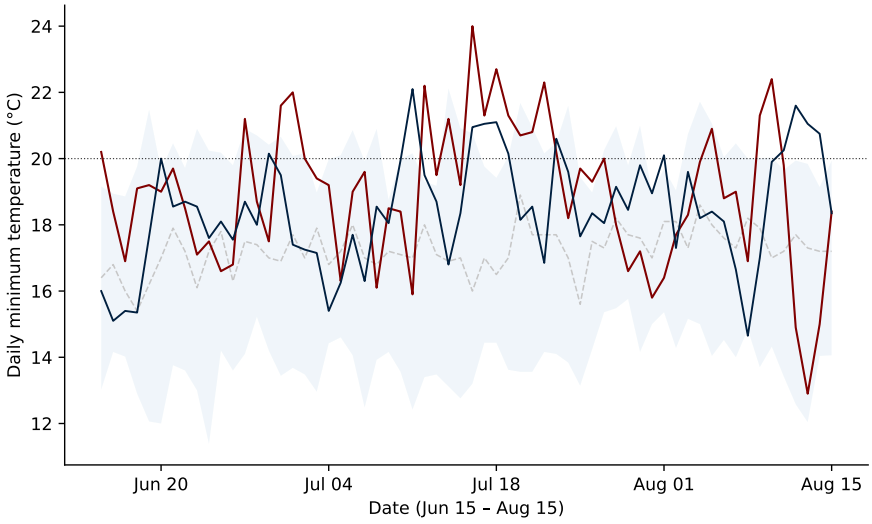
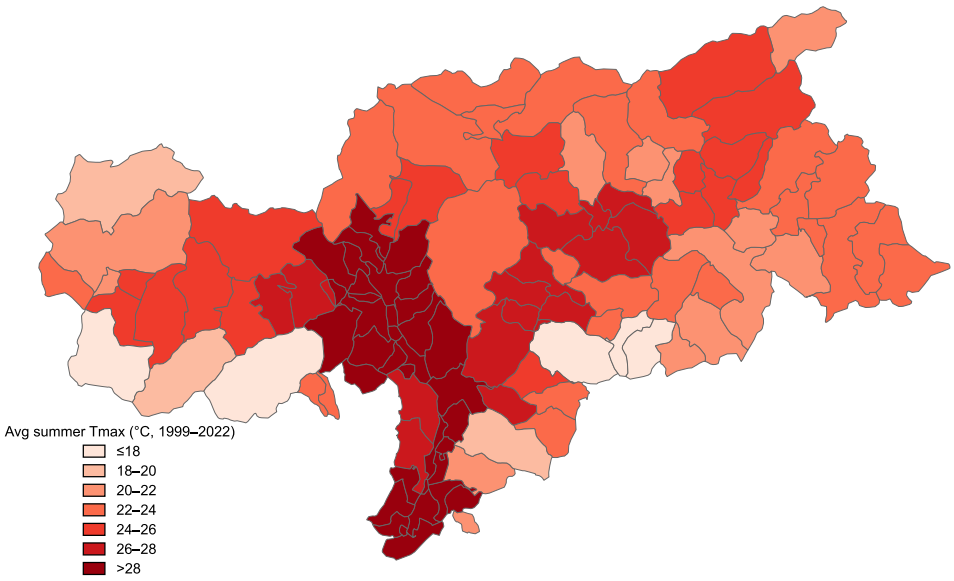


Figure 4: Long-run climate conditions across municipalities.

This figure maps long-run average climate conditions across municipalities in South Tyrol. Panel A shows the municipality-level average summer (June–August) daily maximum temperature, averaged over 1999–2022. Panel B shows the municipality-level average annual precipitation over the same period. Climate variables are measured at official provincial weather stations and assigned to municipalities based on the geographically nearest station with available data (see Appendix C). Darker shades indicate higher temperature levels in Panel A and higher precipitation levels in Panel B.

Panel A: Average Summer Maximum Temperature (1999–2022)



Panel B: Average Annual Precipitation (1999–2022)

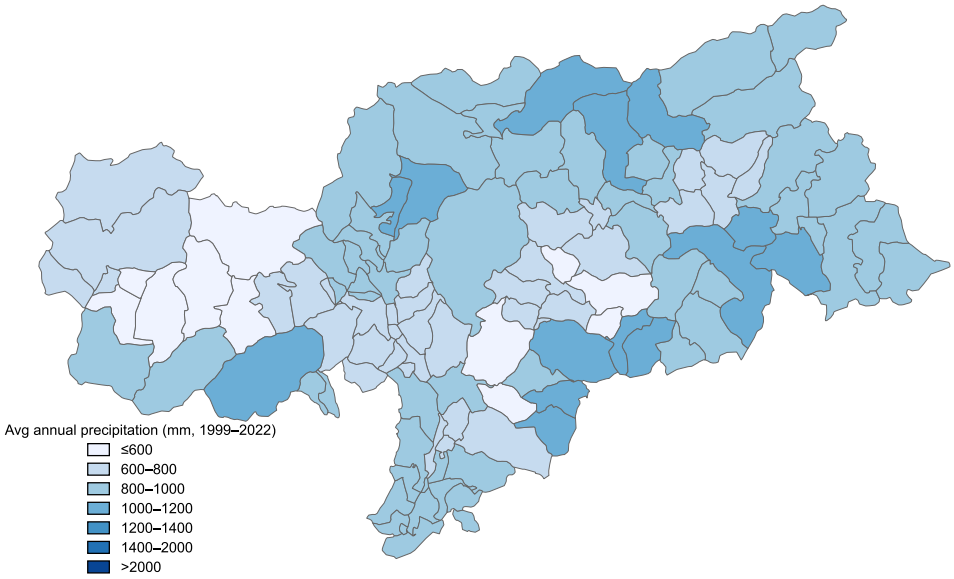


Table A.1: Variable definitions

Variable	**Definitions**
Dependent variables	
ESG_SCORE	Overall ESG score from Cerved ESG, reported on a discrete 0–4 scale.
ENV_SCORE	Environmental rating from Cerved ESG, reported on a discrete 0–4 scale.
SOC_SCORE	Social score from Cerved ESG, reported on a discrete 0–4 scale.
GOV_SCORE	Governance rating from Cerved ESG, reported on a discrete 0–4 scale.
ENV_CLIMATE_SCORE	Climate-related environmental score from Cerved ESG, reported on a discrete 0–4 scale.
SG_SCORE	Combined social and governance score from Cerved ESG, reported on a discrete 0–4 scale.
Certification, transparency, and social variables	
CERT_NUM	Number of sustainability-related certifications held by the firm.
CERT_YN	Indicator equal to 1 if the firm holds at least one sustainability-related certification, and 0 otherwise.
ACTIVE_CERT	Indicator equal to 1 if the firm holds at least one active sustainability-related certification.
AUDITED_FS	Indicator equal to 1 if the firm's financial statements have been certified in at least one of the last three fiscal years, and 0 otherwise.
LABOR_COST	Labor cost, measured at the firm level as reported in Cerved Group.
FEMALE_MGMT	Share of women in top management positions as percentage.
Local and environmental heterogeneity variables	
HIGH_TEMP	Indicator equal to 1 if the average summer maximum temperature over the period 1999–2022 in the firm's municipality exceeds the regional median (29.1°C), and 0 otherwise.
HIGH_RAIN	Indicator equal to 1 if the average annual precipitation over the period 1999–2022 in the firm's municipality exceeds the regional median (811.96 mm), and 0 otherwise.
LOCAL	Indicator equal to 1 if the firm operates more than one local unit within South Tyrol, and 0 otherwise, proxying firms' local embeddedness and exposure to local stakeholders.
Managerial culture variable	
ITALIAN_ORIGIN	Indicator equal to 1 if the CEO is of Italian origin and 0 if of Germanic origin. The classification follows Bedendo et al. (2020, 2023) and is described in Section 3 and Appendix A.
Firm control variables	
OP_MARGIN	Operating profitability, defined as earnings before interest, taxes, depreciation, and amortization (EBITDA) scaled by total sales.

Table A.1 continued from previous page

Variable	Definitions
SALES_GROWTH	Difference in the natural logarithm of sales between year t and $t-1$.
INVESTMENTS	Investment intensity, measured as the change in tangible fixed assets plus depreciation and amortization, scaled by total assets.
ASSET_TANG	Asset tangibility, defined as tangible fixed assets divided by total assets.
CASH_TA	Cash holdings, measured as cash and bank deposits scaled by total assets.
FIRM_SIZE	Natural logarithm of total assets.
FIRM_AGE	Number of years since firm incorporation.
FAMILY_OWNED	Indicator equal to 1 if managers hold an ownership stake in the firm, and 0 otherwise.
Top management team variables	
STD_AGE	Standard deviation of the age of top management team members.
YOUNG_MANAGER	Indicator equal to 1 if the firm has at least one top management team member aged no more than 35 years, and 0 otherwise.
CEO control variables	
CEO_AGE	Age of the chief executive officer, in years.
CEO_MALE	Indicator equal to 1 if the CEO is male, and 0 otherwise.
FOREIGN_CEO	Indicator equal to 1 if the CEO is of foreign nationality, and 0 otherwise.

Note: This table reports variable definitions used throughout the paper. All continuous variables are winsorized at the 1% and 99% levels. Firm-level data are obtained from Cerved Group.

Supplementary Materials to "Cultural Origins and Corporate ESG"

This appendix presents additional results to accompany the paper "Cultural Origins and Corporate ESG".

A CEO Cultural Origin Classification

Following the approach used in prior studies of firms in South Tyrol (Bedendo et al., 2020, 2023; Accetturo et al., 2023), we classify CEOs' cultural origins based on the linguistic origin of their given names and surnames. This approach exploits the strong association between personal names and linguistic identity in South Tyrol, where Italian and Germanic cultural groups have historically remained distinct.

We construct name databases using the sources described in Bedendo et al. (2020) and Bedendo et al. (2023). Italian surnames are retrieved from cognomix.it/origine-cognomi-italiani, which provides extensive lists of Italian family names together with their linguistic origin. Given names are obtained from the international name database vornamen-weltweit.de, using the listings of German male and female names as well as the geographic classification of given names. These sources provide large collections of names commonly used in Italian-speaking and German-speaking regions. We compile the name lists from these databases and manually review them to remove foreign or ambiguous entries and to ensure consistency with the linguistic classification used in the analysis.

Using these lists, CEOs are classified according to the linguistic origin of both their given name(s) and surname. A CEO is classified as *Germanic* if all given names and the surname appear in the Germanic name lists, and as *Italian* if all given names and the surname appear in the Italian name lists. To minimize potential misclassification, we require that both the given name and the surname belong to the same linguistic group. This requirement reduces the likelihood that individuals from bilingual families or mixed linguistic backgrounds are incorrectly assigned to either group, consistent with the classification strategy adopted in prior studies of this setting (Bedendo et al., 2020, 2023; Accetturo et al., 2023).

CEOs are excluded from the sample when their names do not allow an unambiguous classification. This includes cases where the given name and surname belong to different linguistic groups (for example, a Germanic given name combined with an Italian surname),

as well as names that appear in neither the Italian nor the Germanic name lists. Individuals whose linguistic origin cannot be reliably determined are also excluded. Foreign-origin CEOs represent a small fraction of the observations (5.1%), consistent with prior studies examining firms in South Tyrol.

Some given names are common to both linguistic traditions. In such cases, classification relies on the surname. If both the given name and surname are ambiguous (for example due to bilingual given names or rare surnames), we use publicly available information to verify the CEO's linguistic background. Specifically, we consult LinkedIn profiles and other publicly available sources to identify the language of schooling (e.g., attendance at a German- versus Italian-language high school or the language of university studies), the predominant language used in professional profiles, the dominant language of the company website and corporate communications, and onomastic cues contained in the company name. These secondary indicators are used only when the name-based classification is inconclusive and do not override discordant name–surname combinations, which remain excluded from the analysis.

Table SM.A-1 illustrates the classification procedure using representative examples.

Table SM.A-1: Examples of CEO Cultural Classification

CEO Name	Given Name Origin	Surname Origin	Classification
Gianluca Bianchi	Italian	Italian	Italian
Georg Weiss	Germanic	Germanic	Germanic
Susanna Gabos	Foreign	Foreign	Excluded (foreign origin)
Lukas Rossi	Germanic	Italian	Excluded (mixed)
Giovanni Hofer	Italian	Germanic	Excluded (mixed)
Thomas Martin	Italian/Germanic	Italian/Germanic	Ambiguous (manual checked)

After applying the CEO cultural classification procedure and requiring the availability of financial statement data, the final sample consists of 8,854 firm-year observations with CEO cultural classification. Approximately 31.6% of firms are managed by CEOs of Italian cultural origin, which is broadly consistent with the linguistic composition of the region

and with prior studies using the South Tyrol setting (Bedendo et al., 2020, 2023).

B Additional Robustness Results

Table SM.B-1: Main results excluding foreign CEOs.

This table reports ordered logit estimates of the relation between CEO cultural origin and firms' ESG scores, excluding observations in which the CEO is flagged as foreign. The dependent variables are the overall ESG score and its subcomponents (environmental, social, governance, environmental climate, and social–governance), each measured on an ordered scale. *ITALIAN_ORIGIN* equals one if the CEO is of Italian cultural origin and zero if the CEO is of Germanic cultural origin. All specifications include the baseline firm controls, top management team controls, and CEO controls, as well as industry, municipality, and year fixed effects. Standard errors are robust to heteroskedasticity. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) ESG_SCORE	(2) ENV_SCORE	(3) SOC_SCORE	(4) GOV_SCORE	(5) ENV_CLIMATE_SCORE	(6) SG_SCORE
ITALIAN_ORIGIN	-0.3288***	-0.3640***	-0.1642***	-0.0571	-0.3638***	-0.1981***
	(0.068)	(0.082)	(0.058)	(0.070)	(0.084)	(0.070)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,222	5,913	6,222	6,222	5,913	6,222
Pseudo R2	0.244	0.353	0.264	0.280	0.364	0.274

Table SM.B-2: Main results restricted sample to closely held firms.

This table reports ordered logit estimates of the relation between CEO cultural origin and firms' ESG score in a restricted sample of closely held firms ("close company or informal group"). The dependent variables are the overall ESG score and its subcomponents (environmental, social, governance, environmental climate, and social–governance), each measured on an ordered scale. *ITALIAN_ORIGIN* equals one if the CEO is of Italian cultural origin and zero if the CEO is of Germanic cultural origin. All specifications include the baseline firm controls, top management team controls, and CEO controls, as well as industry, municipality, and year fixed effects. Standard errors are robust to heteroskedasticity. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) ESG_SCORE	(2) ENV_SCORE	(3) SOC_SCORE	(4) GOV_SCORE	(5) ENV_CLIMATE_SCORE	(6) SG_SCORE
ITALIAN_ORIGIN	-0.2908***	-0.3022***	-0.0990	-0.1249	-0.2979***	-0.1467*
	(0.079)	(0.098)	(0.066)	(0.082)	(0.099)	(0.080)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,014	4,783	5,014	5,014	4,783	5,014
Pseudo R2	0.250	0.369	0.295	0.282	0.375	0.295

Table SM.B-3: Main results controlling for CEO changes.

This table reports ordered logit estimates of the relation between CEO cultural origin and firms' ESG scores in firms without CEO turnover. Panel A excludes observations in which a CEO change occurs in the most recent period. Panel B restricts the sample to firms that never experience a CEO change over the observed sample period. The dependent variables are the overall ESG score and its subcomponents (environmental, social, governance, environmental climate, and social–governance), each measured on an ordered scale. *ITALIAN_ORIGIN* equals one if the CEO is of Italian cultural origin and zero if the CEO is of Germanic cultural origin. All specifications include the baseline firm controls, top management team controls, and CEO controls, as well as industry, municipality, and year fixed effects. Standard errors are robust to heteroskedasticity. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) ESG_SCORE	(2) ENV_SCORE	(3) SOC_SCORE	(4) GOV_SCORE	(5) ENV_CLIMATE_SCORE	(6) SG_SCORE
Panel A: No CEO change in most recent period						
ITALIAN_ORIGIN	-0.2728***	-0.2849***	-0.1198**	-0.0790	-0.2816***	-0.1473**
	(0.066)	(0.079)	(0.057)	(0.069)	(0.080)	(0.068)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,623	6,291	6,623	6,623	6,291	6,623
Pseudo R2	0.232	0.342	0.262	0.277	0.352	0.272
Panel B: No CEO change in sample period						
ITALIAN_ORIGIN	-0.3271***	-0.3105***	-0.1619***	-0.0850	-0.2996***	-0.1998***
	(0.070)	(0.083)	(0.060)	(0.074)	(0.085)	(0.072)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,859	5,569	5,859	5,859	5,569	5,859
Pseudo R2	0.232	0.339	0.267	0.281	0.347	0.278

Table SM.B-4: ESG ranks as dependent variable.

This table reports ordered logit estimates using within-year ranks of ESG scores as dependent variables. For each year, firms are ranked by the overall ESG score and by each ESG subcomponent (environmental, social, governance, environmental climate, and social–governance), and the resulting rank is used as the outcome variable. $ITALIAN_ORIGIN$ equals one if the CEO is of Italian cultural origin and zero if the CEO is of Germanic cultural origin. All specifications include the baseline firm controls, top management team controls, and CEO controls, as well as industry, municipality, and year fixed effects. Standard errors are robust to heteroskedasticity. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) ESG_SCORE	(2) ENV_SCORE	(3) SOC_SCORE	(4) GOV_SCORE	(5) ENV_CLIMATE_SCORE	(6) SG_SCORE
ITALIAN_ORIGIN	-0.2805***	-0.2684***	-0.1126**	-0.0908	-0.2724***	-0.1627***
	(0.062)	(0.073)	(0.052)	(0.057)	(0.076)	(0.062)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,913	6,557	6,913	6,913	6,557	6,913
Pseudo R2	0.432	0.498	0.354	0.406	0.526	0.445

Table SM.B-5: Main results using alternative estimators.

This table re-estimates the baseline relation between CEO cultural origin and ESG outcomes using alternative estimators. Panel A reports OLS estimates treating the ESG outcomes as approximately cardinal. Panel B reports ordered probit estimates consistent with the ordinal nature of the ESG measures. The dependent variables are the overall ESG score and its subcomponents (environmental, social, governance, environmental climate, and social–governance). *ITALIAN_ORIGIN* equals one if the CEO is of Italian cultural origin and zero if the CEO is of Germanic cultural origin. All specifications include the baseline firm controls, top management team controls, and CEO controls, as well as industry, municipality, and year fixed effects. In Panel A and Panel B, standard errors are clustered at the municipality level where indicated in the estimation procedure; otherwise they are robust to heteroskedasticity. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) ESG_SCORE	(2) ENV_SCORE	(3) SOC_SCORE	(4) GOV_SCORE	(5) ENV_CLIMATE_SCORE	(6) SG_SCORE
Panel A: OLS estimation						
ITALIAN_ORIGIN	-0.0705***	-0.0523***	-0.0657***	-0.0234	-0.0490***	-0.0438***
	(0.010)	(0.009)	(0.017)	(0.014)	(0.010)	(0.015)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,913	6,557	6,913	6,913	6,557	6,913
R2	0.392	0.507	0.495	0.362	0.514	0.398
Panel B: Ordered probit estimation						
ITALIAN_ORIGIN	-0.1547***	-0.1472***	-0.0856***	-0.0673	-0.1423***	-0.1101***
	(0.022)	(0.025)	(0.025)	(0.043)	(0.028)	(0.040)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,913	6,557	6,913	6,913	6,557	6,913
Pseudo R2	0.218	0.322	0.234	0.256	0.337	0.251

Table SM.B-6: Propensity score matching estimates.

This table reports average treatment effects on the treated (ATT) from one-to-one nearest-neighbor propensity score matching. Italian-origin CEO firms are matched to Germanic-origin CEO firms based on baseline firm characteristics, top management team characteristics, CEO characteristics, and industry and year fixed effects. Matching is performed with common support and ties allowed. Bootstrap standard errors are based on 500 replications. N denotes the number of observations used in the matched sample. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Outcome	ATT	Bootstrap SE	p-value	Observations
ESG_SCORE	-0.082	0.026	0.001***	6,913
ENV_SCORE	-0.060	0.025	0.017**	6,557
SOC_SCORE	-0.089	0.045	0.046**	6,913
GOV_SCORE	-0.043	0.021	0.047**	6,913
ENV_CLIMATE_SCORE	-0.056	0.025	0.025**	6,557
SG_SCORE	-0.072	0.025	0.005***	6,913

Table SM.B-7: Results using the Autonomous Region of Trentino–Alto Adige.

This table reports ordered logit estimates for the broader Trentino–Alto Adige region. The dependent variables are the overall ESG score and its subcomponents (environmental, social, governance, environmental climate, and social–governance), each measured on an ordered scale. *GERMANIC_ORIGIN* equals one for CEOs of Germanic cultural origin and zero otherwise; *TRENTINO_HQ* equals one for firms headquartered in Trento province and zero otherwise. Panels A and B use the full panel of firm-year observations. Panel A reports specifications with *GERMANIC_ORIGIN* only. Panel B includes both *GERMANIC_ORIGIN* and *TRENTINO_HQ* and excludes municipality fixed effects to allow identification of the province dummy. Panel C uses a cross-section constructed from the most recent fiscal year observed for each firm (i.e., one observation per firm in the last available year). All specifications include the baseline firm controls, top management team controls, and CEO controls, as well as industry and year fixed effects (municipality fixed effects are included only where indicated). Standard errors are robust to heteroskedasticity. *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) ESG_SCORE	(2) ENV_SCORE	(3) SOC_SCORE	(4) GOV_SCORE	(5) ENV_CLIMATE_SCORE	(6) SG_SCORE
Panel A: Non-Trentino Dummy						
GERMANIC_ORIGIN	0.5561***	0.5461***	0.1651***	0.2584***	0.5327***	0.2927***
	(0.019)	(0.020)	(0.019)	(0.022)	(0.020)	(0.022)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,255	45,319	46,070	46,070	45,319	46,070
Pseudo R2	0.190	0.210	0.200	0.252	0.213	0.207
Panel B: Trentino Dummy						
GERMANIC_ORIGIN	0.3757***	0.3628***	0.1859***	0.0923***	0.3595***	0.2195***
	(0.025)	(0.026)	(0.025)	(0.030)	(0.026)	(0.028)
TRENTINO_HQ	-0.2566***	-0.2604***	0.0291	-0.2332***	-0.2457***	-0.1030***
	(0.024)	(0.025)	(0.023)	(0.028)	(0.025)	(0.026)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,255	45,319	46,070	46,070	45,319	46,070
Pseudo R2	0.190	0.211	0.200	0.253	0.214	0.207
Panel C: Cross-sectional results						
GERMANIC_ORIGIN	0.2032***	0.1504***	0.1828***	0.1334**	0.1433***	0.2336***
	(0.048)	(0.051)	(0.044)	(0.054)	(0.052)	(0.051)
TRENTINO_HQ	0.3202***	0.4444***	0.0525	-0.3116***	0.4825***	-0.0896*
	(0.047)	(0.052)	(0.042)	(0.051)	(0.052)	(0.049)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Management controls	Yes	Yes	Yes	Yes	Yes	Yes
CEO controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,222	13,597	14,222	14,222	13,597	14,222
Pseudo R2	0.162	0.215	0.230	0.256	0.223	0.228

C Weather Data Construction and Municipality Matching

Daily temperature and precipitation data are obtained from the official meteorological station network operated by the Autonomous Province of Bolzano, available online under https://wetter.provinz.bz.it/download-messdaten.asp. The network comprises 55 representative stations with continuous data coverage over the relevant period (1999–2024). For each station, the raw data consist of daily observations of maximum temperature, minimum temperature, and total precipitation. These daily station-level data are used to construct annual and seasonal aggregates, including average summer (June–August) maximum temperature and total annual precipitation.

We construct long-run climate measures using the period 1999–2019, which precedes the majority of ESG observations in our sample and therefore provides predetermined measures of local climatic conditions. Specifically, for each station we compute (i) the average summer (June–August) daily maximum temperature over 1999–2019 and (ii) the average annual precipitation over the same period, where annual precipitation is defined as the within-year sum of daily precipitation and then averaged across years. These measures capture persistent geographic differences rather than short-term weather fluctuations. The heterogeneity analyses reported in the paper use the 1999–2022 measures. For completeness, we also construct analogous measures over 1999–2019 and 1999–2024; results are unchanged when using the extended window.

Not all municipalities host a weather station. We therefore assign each of the 116 municipalities to the geographically closest station based on great-circle (haversine) distance between municipality centroid coordinates and station coordinates. For each municipality, we compute distances to all stations and assign the minimum-distance station. If the nearest station lacks required variables for the relevant period, we assign the next-closest station with complete data. This procedure leads to a unique assignment for every municipality.

The station network provides dense coverage. The average municipality-station distance

is 4.28 km (median: 4.06 km). The 90th percentile distance is 7.66 km and the 95th percentile is 9.17 km. The minimum distance is 0.24 km and the maximum distance is 13.16 km. Figure SM.C-1 displays the geographic distribution of the 55 weather stations relative to municipal boundaries and illustrates the extensive coverage of the provincial weather station network.

Figure SM.C-1: Distribution of weather station locations in South Tyrol.

This figure plots the locations of the 55 official weather stations operated by the Autonomous Province of Bolzano–South Tyrol, overlaid on municipal boundaries. The station network is used to construct daily temperature and precipitation measures at the municipality level by assigning each municipality to its nearest station based on great-circle distance between municipality centroids and station coordinates. The assignment quality is high: the average municipality–station distance is 4.28 km (median: 4.06 km), the 90th percentile is 7.66 km, the 95th percentile is 9.17 km, and the maximum distance is 13.16 km. Weather data source: https://wetter.provinz.bz.it/download-messdaten.asp.

