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The Influence of National Culture Dimension on the ESG Results of Countries

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Abstract

This paper aims to advance the understanding of the "intangible aspects" of the National Culture Dimensions, based on the question: Are there intangible factors derived from a national culture that influence the production of National ESG performance of a country? If there are, what are those factors? Using deductive reasoning, secondary data from different countries found in the relevant literature, and PLS-SEM analysis, this paper confirms the hypothesis that there is a relationship between National Culture Dimensions and the ESG results from that country. Furthermore, this paper allows for an organizational understanding of the national cultural dimensions that can contribute to developing corporate governance methodologies customized according to national cultural characteristics.

Keywords

Safety Culture, Culture, ESG, CSR, National Culture, Power

1. Introduction

International standard tools and methodologies applied to environmental, social, and governance risks, what Verheyden, Eccles & Feiner (2016) label as "nonfinancial" Environment, Social, and Governance (ESG) results, were not capable of solving practical issues around the theme, such as achieving world-class results. Organizations must understand how the national culture influences. Migueles, Lafraia & Costa (2007) addressed those issues, but it is still necessary to determine specific National Culture Dimensions (Hofstede, 2010) to implement more customized national ESG practices.

The relationship between ESG and Corporate Financial Performance (CFP) is well established since the beginning of the 1970s (Friede, Busch, & Bassen, 2015)

and to support the increasing importance of Safety, Environment, and Governance issues, organizations' ESG balance sheet report include information about these issues (Olsen et al., 2021). Organizations that provide ESG disclosures reassure stakeholders that management is serious about their risks and mitigate the harmful impacts that fatalities and other controversial incidents cause. However, despite their effort to mitigate them, recent events show that these issues still need to be solved and keep damaging companies' reputations and values. For instance, in 2019, a residue dam at one of Vale S. A. (NYSE: VALE) mines failed and led to nearly 300 fatalities; according to Nirino, Santoro, Miglietta & Quaglia (2021), the Boeing incident with the Boeing 737 Max has led the company to lose value on the stock exchange and has damaged its reputation.

Another critical question in the context of ESG is whether the company's governance systems can prevent corruption, which should be treated as a governance accident involving top management. Although ESG proclaimed attention, corruption is still causing shareholder losses and fines of billions of dollars at companies like Odebrecht, Alstom, Odebrecht, Petrobras, Rolls-Royce, Siemens, Telia, Teva Pharmaceutical, VimpelCom and Volkswagen (Kotsantonis & Serafeim, 2019). Moreover, one must also add indirect costs, such as the time and energy devoted to fixing the consequences of accidents, such as the reputational damage, the impact on sales, declines in employee engagement and productivity, and increases in employee turnover.

To prevent these negative performances from occurring, scholars keep searching for their root causes, despite all efforts developed by executives to achieve high levels of Corporate Financial Performance (CFP) and non-financial results addressed by ESG disclosures. For example, many studies attribute direct CFP performance to national cultural factors (Aras & Crowther, 2008; Karolyi, 2016; Yesil & Kaya, 2013; Kaufmann, Kraay, & Mastruzzi, 2010; Han, Kang, Salter, & Yoo, 2010; Haxhi & van Ees, 2010; Ioannou & Serafeim, 2012; Nirino et al., 2021; Kwok & Tadesse, 2006; Pollard, Sherwood, & Klobus, 2018; Verheyden et al., 2016; Friede, Busch, & Bassen, 2015; Crisóstomo, Freire, & Vasconcellos, 2011). Additionally, Zak & Knack's (2001) research shows that a national cultural factor such as trust, developed by Michigan political science professor Ronald Inglehart with a large international team published as The World Values Survey is positively related to subjective measures of well-being across countries and other economic factors such as investment and growth.

Environment, health, and safety (EHS) concerns rank among the highest risks companies most exposed to ESG risks face. According to Olsen et al. (2021), ESG disclosures typically include environmental performance, worker health, and safety information. For example, the national culture's influence on organizations' safety performance was investigated in previous studies in Brazil (Gonçalves, Andrade, & Marinho, 2010). They reported that an average of 577,760 accidents per year are recorded in Brazil, with 14,005 involving deaths. The work mortality rate in Brazil is 16.6 deaths per 100,000 workers, while in other countries, the rate is

lower; for example, Canada has 6.4; France has 3.0; Finland 2.9; and Spain 1.9 (Hamalainem, Takala, & Saarela, 2006). This disparity shows that the risk of death due to an accident at work in Brazil is about three to eight times higher than in the countries cited.

The extent to which national culture predicts a firm's ESG ratings, including safety, environment, and governance results, remains to be determined (Mearns & Yule, 2009; Tear, Reader, Shorrock, & Kirwan, 2020). However, Moura, Beer, Patelli, Lewis & Knoll (2016) note that analyzing major accidents with catastrophic consequences concludes that human-related features significantly contribute to undesirable outcomes.

Therefore, the international comparison indicates that a firm's ESG risk index performance may vary according to national cultural factors. However, this affirmative lack statistical confirmation and is still to be developed with theoretical and methodological consistency, capable of guaranteeing the necessary credibility of such factors. Furthermore, different national cultures with different governance characteristics may produce different risks and ESG results.

The present paper aims to investigate the most significant intangible and hidden factors derived from a national culture that influence the production of national ESG performance, including national safety results worldwide. Thus, this study will emphasize factors of national culture that operate to maintain emerging country ESG performance, such as high work accident rates at the national level and poor Gross Domestic Product (GDP).

This research may bring new elements to the analysis and open the possibility of enlarging the understanding of the methodology for isolating national culture factors to verify if they can remove the barriers of national culture hitherto treated as data in cultural studies. If these questions are confirmed, this research will contribute to developing prevention governance methodologies customized according to national culture.

2. Theoretical Background

2.1. Environmental, Social, and Governance (ESG)

Environmental, Social, and Governance (ESG) has recently received much attention from stakeholders. The ESG acronym is sometimes referred to as nonfinancial business performance. It is preferred by accounting and finance authors. In contrast, Corporate Social Responsibility (CSR) or Corporate Social Activities (CSA) is the term adopted by operations and supply chain management scholars (Olsen, Awuah-Offei, & Bumblauskas, 2021).

ESG and sustainability, at a very high level, address nonfinancial factors that impact a business's financial performance. ESG is essentially a taxonomy that divides this universe of factors into environmental, social, and governance factors, and it is arguably the most widely adopted taxonomy for doing so.

In the 1990s, very few listed companies disclosed ESG data in their issued reports, whereas, in 2014, more than 6000 companies informed their ESG activities.

This trend shows the increasing importance of ESG to firms, stakeholders, and the asset management industry.

The ESG approach presents additional challenges to corporations that solely focus on shareholders' value and return because it encompasses other stakeholders' needs not addressed by the "shareholder primacy" era. An increasing number of corporations are now realizing that they must split their effort with different types of stakeholders' requirements and needs, which has given birth to the "stakeholder primacy" era when social purpose and benefits beyond financial performance are expected by society.

According to Friede et al. (2015), the search for a relationship between environmental, social, and governance (ESG) criteria and corporate financial performance (CFP) started at the beginning of the 1970s. Since then, various scholars (Nirino et al., 2021; Díaz et al., 2021; Ioannou & Serafeim, 2019; Verheyden et al., 2016) research showed that the adoption of ESG or CSR practices and/or strategies by corporations are positively correlated to its performance such as financial performance, return on capital, market valuation, employee commitment, innovation, corporate reputation, for instance. This trend continues even in turbulent times, such as the Covid-19 period when S&P 500 companies index with high ESG scores outperform those with low ESG one (Díaz et al., 2021).

2.2. Macro-Level and Micro-Level Influence

To study the effects of national culture and other national factors such as trust, this paper will use the approach proposed by Melinder (2007), which separates these factors at a macro-level and micro-level.

According to (Melinder, 2007), macro-level factors relate to those variables that influence the results and other variables that have a more close and visible influence on the results, and they are usually independent or moderation exogenous variables. Culture and trust, and governance are typical macro-level factors found in the literature.

The Stakeholder theory also (Donaldson & Preston, 1995; Freeman, 1984; Cleland, 1997; Johnson et al., 2015) supports this article since we would like to test if Hofstede's (2010) National Culture Dimensions and Inglehart's trust approach (Inglehart & Welzel, 2005) affects national ESG, safety, economic and governance results. The synergy of Trust and Cultural dimensions has been studied in public organizations (Zanini & Migueles, 2018), but its use in the industrial context has almost no study. In this article, we are going to review the relevant National Culture Dimensions variables that could be tied to the outcomes produced at the national macro-level. However, the variables that could represent entire nations as if they were organizations could be used as a proxy to represent many micro-level factors related to the organizational level where the stakeholders are totally different.

2.3. Trust

Although Trust has been widely investigated in past research (Dias et al., 2022;

Gillespie & Dietz, 2009; Govier, 1994; Gunia et al., 2014; Khodyakov, 2007; Labonne & Chase, 2010; Lewicki & Brinsfield, 2012; Lewicki & Hanke, 2012; Lewicki & Bunker, 1995; Lewicki & Polin, 2013; Dias, 2016), there are some uncovered issues about Trust in past research, here investigated. Therefore, this article is limited to interpersonal Trust (Dias et al., 2022; Dias, 2016; Lewicki & Brinsfield, 2012). Other aspects of Trust are not addressed in the present study, such as 1) Institutional Trust (Khodyakov, 2007); 2) Trust in Markets (Fukuyama, 1995); 3) Trustworthiness (Lewicki & Polin, 2013); 4) Trust and Game Theory (Evans & Krueger, 2014; Malhotra, 2004); 5) Trust among Nations (Labonne & Chase, 2010); 6) The process of Trust (Khodyakov, 2007); 7) Trust and risk-taking (Evans & Krueger, 2014); 8) Trust associated with Honesty (Lewicki & Hanke, 2012), amongst others.

2.4. Work Safety

National ESG performance has many factors involved, but accident rates are the factors that could represent the whole nation as if they were organizations. From this perspective, the first factor the literature has considered about countries is work safety, measured by the number of work fatalities per 200,000 inhabitants (FAR) (Hamalainem et al., 2006).

Firms may provide environment and safety disclosures on their ESG report to reassure stakeholders that management is serious about safety risks or to mitigate the impacts of controversial publicity from safety incidents. According to Eccles, Ioannou & Serafeim (2014), high-sustainability companies are significantly more likely to measure and disclose their number of fatal accidents.

The studies on the relationship between national culture and safety culture have produced shreds of evidence that this influence is significant (Tear, Reader, Shorrock, & Kirwan, 2016; Yorio, Edwards, & Hoeneveld, 2019; Tear et al., 2020; Appelbaum et al., 2016; Liao, 2015; Reader, Noort, Shorrock, & Kirwan, 2015; Atchley, Shi, & Yamamoto, 2014; Edwards, Davey, & Armstrong, 2013; Starren, Horniks, & Luijters, 2013; Taylor, 2011; Gonçalves, Andrade, & Marinho, 2010; Mohamed, Ali, & Tam, 2009; Soeters & Boer, 2000; Helmreich, Merritt, & Wilhelm, 1999).

Hamalainem et al. (2006) estimates of occupational accidents presented in 175 countries show that occupational accidents are a big problem globally. Global estimates (ILOSTAT, 2020) show that occupational problems are as prominent as ever. The number of accidents is under-reported, but figures are still adopted as a baseline for occupational safety work. Significantly, figures for occupational fatal and non-fatal accidents in developing countries are underestimated. Occupational accidents cause direct and indirect or hidden societal costs (ILOSTAT, 2020). Regarding the search for causal relations between national culture and work safety, Noort, Reader, Shorrock & Kirwan (2016) analyze the impact of the uncertainty avoidance index (UAI), showing that high uncertainty avoidance also negatively affects work safety.

To show the national culture influence on work safety performance, Gonçalves, Andrade & Marinho (2010) report that an average of 577,760 accidents per year

are recorded in Brazil, of which 14,005 involve deaths. The work mortality rate in Brazil is 16.6 deaths per 100,000 workers (FAR), Power Distance Index (PD) of 69, Individualism (INDI) of 38 and Trust of 6,5; while in other countries where the death rate is lower, power distance (PD) is lower, individualism (IND) is higher and trust also higher, respectively. To give examples from other countries with the respective variables: Canada 6.4 (FAR), 39 (PD), 80 (INDI), 41 (Trust); France 3.0 (FAR), 68 (PD), 71 (IND), 18.6 (Trust); Finland 2.9 (FAR), 33 (PD), 63 (IND), 58 (Trust); and Spain with 1.9 (FAR), 57 (PD), 51 (IND), 19 (Trust) (Hamalainem, Takala, & Saarela, 2006; Hofstede, 2010). This disparity shows that the risk of death due to an accident at work in Brazil is about three to eight times higher than in the countries cited and the respective combination of cultural variables.

3. Hypotheses

The question "Are there intangible factors derived from a national culture that influence the production of ESG performance of a country? If there are, what are those factors?" provides one of the first academic quantitative studies about National Culture Dimension and Trust and ESG results. The literature regarding this question is very scarce (almost nonexistent).

To study the combined effect of the National Culture and Trust, we use a latent exogenous variable called National Culture and Trust (NAC), formed by the manifested variables power distance, uncertainty avoidance, individualism, masculinity, and trust. Moreover, to find the answer to the research question, we use the dependent latent National ESG performance (ESG), explained in detail in Section 2.6, so that we have established the following hypotheses:

H1: National Culture and Trust (NAC) predicts National ESG performance (ESG) within a given nation.

H2: National Culture (NAC) predicts Governance (GOV).

H3: Governance (GOV) predicts National ESG performance (ESG) within a given nation.

H4: Governance (GOV) mediates National Culture (NAC) on National ESG performance (ESG) within a given nation.

Conceptual Model

Daniel, Cieslewicz & Pourjalali (2012) demonstrate that Hofstede's cultural dimensions, such as uncertainty avoidance and power distance, were positively and significantly related to the country's ESG ratings using the World Bank ESG index. However, the relationship between trust and cultural dimensions and the country's ESG ratings has yet to be found in the literature review, even though qualitative and quantitative studies in Brazil show that trust is a crucial issue for safety results (Zanini & Migueles, 2018). Furthermore, these Brazilian studies did not test the influence of Individualism (Migueles et al., 2019; Zanini & Migueles, 2018).

As discussed in the literature review, National ESG performance (ESG) is affected by national culture and trust (NAC) and governance (GOV).

Figure 1 illustrates the general conceptual model with the hypotheses. The arrows between the constructs represent the path with the relationships between the independent latent (NAC and Governance) and the dependent latent (ESG), with the respective path and hypothesis, where path "a" is defined as the direct effect of National Culture and Trust (NAC) on ESG results (**H1**); path "b" is defined as the direct effect of National Culture and Trust (NAC) on the latent Governance (**H2**) and path "c" is defined as the direct effect of the latent Governance (GOV) on the latent ESG results (**H3**). **H4** is Governance acting as a possible mediator of the effect of NAC on ESG.

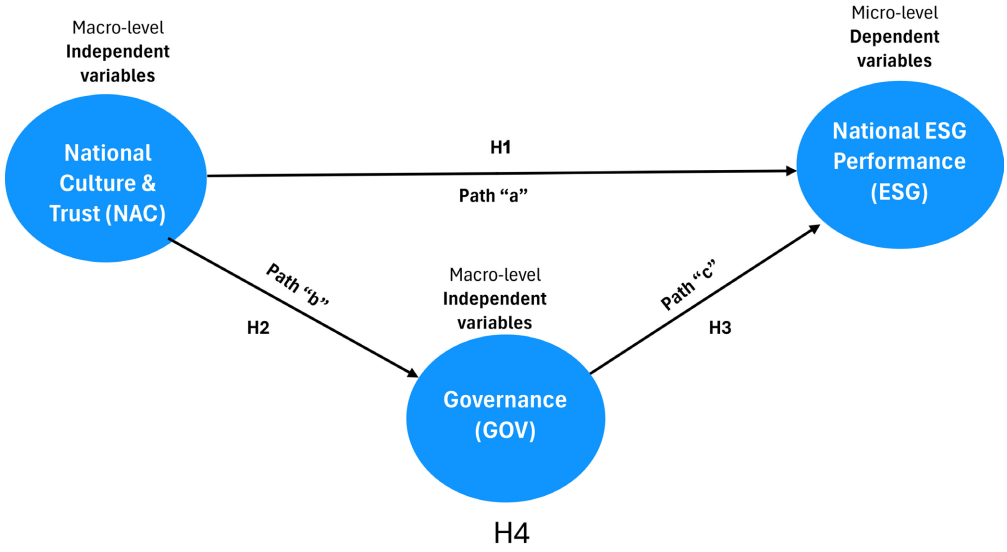

Figure 1. Conceptual model with the hypotheses.

4. Research Design

According to Venturini & Mehmetoglu (2019), there is an ongoing debate around the strength and weaknesses of ML-SEM (Maximum likelihood-Structural Equation Modeling) and PLS-SEM (Partial Least Squares-Structural Equation Modeling) based on the suggestions of Hair et al. (2021) that the latter should be used to small size samples, and that it makes no assumptions about data distribution. In contrast, ML-SEM usually requires normal distributions and large samples (Hair et al., 2021). Based on that, PLS-SEM tested the hypotheses in this research to suit best the research modeling, which hypothesizes causal relationships among variables and tests the causal models with path analysis and linear equation system (Hair et al., 2021).

Causal models can involve manifested, latent, or both—one important note. Before choosing PLS-SEM or ML-SEM, an OLS models were tested to verify the correlations among the observed variables in the literature. However, using latent variables to observe the effect on the reflective measured variable using PLS-SEM proved better (Venturini & Mehmetoglu, 2019).

SmartPLS 4 (Ringle, Wend, & Backer, 2024) software programs were adopted

to solve the model's equations with PLS-SEM with missing values technique to estimate the results.

Data

To assess how perceived culture values affects National ESG performance, as proposed in the research question of this Article, a deductive theory is built through comprehensive archival research. To study these interactions between the factors and dimensions discussed in this paper, an auto-compiled database was set with secondary data collected from various data sources described in **Table 1** (Dependent latent and manifested variable) and **Table 2** (Independent and mediating latent and manifested variable).

Table 1. Dependent latent and manifested variables.

Variable	*Description*	*Author(s)*
	Dependent latent variable	
ESG	**National ESG Performance**	
	Outer manifested (observed) variables that comprises the latent ESG	
CESG	Country average ESG ratings	2023 Refinitiv Eikon data base
GDPC	Gross domestic product per capita	World Economic Forum (2019)
RAR	Number of road fatalities per 100,000 inhabitants	Bishaia, D., Quresha, A., Prashant Jamesb, P., & Ghaffarc, A. (2006) National road casualties and economic development, Health Econ, 15, 65-81.
FAR	Number of work fatality per 200,000 work hours	Fatal occupational injuries per 100,000 workers. Downloaded from ILOSTAT (2020). Fatal Injury Rate at Work by Country, Ryoichi HORIGUCHI, 2013. Hamalainem, P. (2006) Global estimates of occupational acidentes, Safety Science, 44, 137-156.

Table 2. Independent and mediating latent and manifested variables.

Variable	*Description*	*Author(s)*
	Independent latent variable	
NAC	**National Culture & Trust**	
	Independent manifested (observed) variables that comprises the latent NAC	
PD	Power distance Index	- Hofstede (2018)
UA	Uncertainty Avoidance Index	- Hofstede (2018)
INDI	Individualism Index	- Hofstede (2018)
MASCI	Masculinity Index	- Hofstede (2018)
Trust	Inglehart level of trust in others	- Hofstede (2018)
	Independent (possible mediator) latent variable	
GOV	**Governance**	
	Independent manifested (observed) variables that comprises the latent GOV	
PV	Political Stability and Absence of Violence/Terrorism	- World Bank (2020)
RQ	Regulatory Quality	- World Bank (2020)

Continued

GE	Government Effectiveness	- World Bank (2020)
RL	Rule of Law	- World Bank (2020)
CC	Control of Corruption	- World Bank (2020)
VA	Voice and Accountability	- World Bank (2020)

These manifested variables extracted from the literature review can explain the latent National Culture and Trust, Governance, and the latent ESG result. Table 3 shows basic statistics information on the manifested variables.

Table 3. Basic information on the variables.

Variable	*Description*	*mean*	*sd*	*min*	*max*	*N*
	Dependent manifested (observed) variables that comprises the latent ESG					
CESG	Country average ESG ratings	4,406,378	1,114,718	2	6,666,667	45
GDPC	Gross domestic product per capita	2,149,701	2,342,115	0.2422	1,117,163	87
FAR	Number of work fatality per 200,000 work hours	1,307,552	7,329,469	0.63	29.9	87
RAR	Number of road fatalities per 100,000 inhabitants	1,395,977	8,597,789	2.8	36.2	87
	Independent manifested (observed) variables that comprises the latent NAC					
PD	Power distance Index	0.6355814	0.2072771	0.11	1	86
UA	Uncertainty Avoidance Index	0.6454651	0.2171454	0.08	1	86
INDI	Individualism Index	0.4082558	0.2289731	0.06	0.91	86
Trust	Inglehart level of trust in others	0.2612848	0.1684494	0.028	0.737	66
	Independent manifested (observed) variables that comprises the latent GOV					
PV	Political Stability and Absence of Violence	0.0636975	0.9375222	−2,483,173	1,519,183	87
RQ	Regulatory Quality	0.3897288	0.9937103	−2,274,461	2,180,612	87
GE	Government Effectiveness	0.4100723	0.9458144	−1,891,929	2,206,245	87
RL	Rule of Law	0.3365264	1,017,289	−224,108	2,036,334	87
CC	Control of Corruption	0.3032983	1,066,553	−1,626,686	2,283,942	87
VA	Voice and Accountability	0.3329939	0.9032717	−1,727,506	1,664,908	87

Note 1: The 2023 Refinitiv Eikon data base has ESG data for more than 35,000 companies, but they are in just 46 countries. Limitation: Limited to ESG data from only 46 countries, which may not provide a comprehensive picture of the global landscape. Some key regions may be underrepresented or entirely missing, affecting the universality of the findings. The same is valid for Hofstede study and those countries that have data related the variables in this paper, such as accidents at work and roads. This study is valid for those countries with economic and social organization that allow for the collection of culture, governance, accident and ESG data. In this study we consider the most economically and administratively developed countries in the world. Therefore, some key regions are underrepresented or entirely missing, affecting the universality of the findings.

Note 2: According to Daniel, Cieslewicz & Pourjalali (2012), variables found in the literature review such as GINI index, Human Development Index (HDI), Corruption Perceptions Index (CPI), percentage of Catholics in the country, country speed limit, miles of roads built per capita, number of vehicles per capita, alcohol consumption per capita were excluded from the data because they do not contribute to the quality criteria, construct reliability and validity, discriminant validity, collinearity statistics (VIF) and model fit of the PLS-SEM method. Moreover, these variables are components of the Governance components of the World Bank variables.

5. Results and Analysis

Firstly, before we present the study's analysis, **Figure 2** has the proposed theoretical model, which includes the three main constructs displayed in circles—National Culture and Trust (NAC), Governance (GOV) and ESG Results (ESG), with their respective manifested variables displayed in boxes. In **Figure 2**, arrows pointing to manifested variables represent reflective latent variables or constructs (Venturini & Mehmetoglu, 2019), that are used as exogenous predictors, such as NAC and GOV. These manifested variables were left after using the PLS-SEM quality criteria, including analysis of R and f square, construct reliability and validity, discriminant validity, collinearity statistics (VIF) and model fit and section criteria using SmartPLS 4.

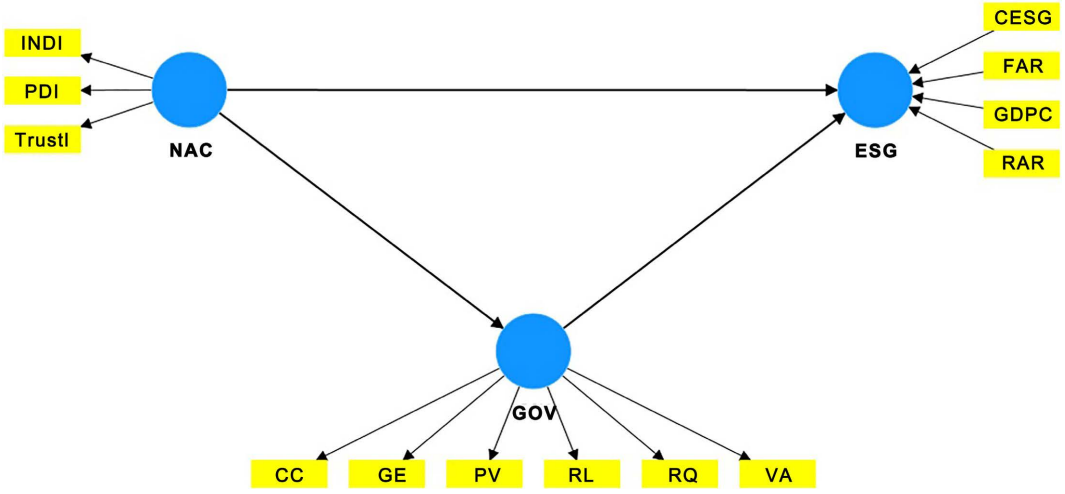

Figure 2. Conceptual Model with the manifested variables used in the final model.

Secondly, since PLS-SEM is a distribution-free method, it is not possible to get p-values. According to Hair et al. (2021), PLS-SEM is more concerned with generalization, and the goodness model is complicated yet needs to be adequately defined. Therefore, the first aspect to be observed in a model is the Convergent Validity of the constructs by verifying the Average Variance Extracted (AVE) and its internal consistency expressed in Composite Reliability (CR—Dillon-Goldstein's rho), calculated by the PLS-SEM program (Venturini & Mehmetoglu, 2019).

Table 4 shows the results above the recommended (Hair et al., 2021).

The paper's dense and intricate methodological explanations could be difficult for readers to follow, possibly hindering comprehension.

The next step in the assessment of the theoretical model is the verification of the discriminant validity (DV), which is used as confirmation that the constructs are independent of each other (Venturini & Mehmetoglu, 2019), as illustrated in Table 4. According to Fornell & Larcker (1981), discriminant validity is established if the square root of the AVE for a particular latent variable is more significant than its correlation with all other constructs in the structural model.

Table 4. Estimates and goodness of fit results for the conceptual model.

Construct	*AVE**	*CR***
National Culture & Trust (NAC)	0.554	0.812
Governance (GOV)	0.755	0.916
National ESG Perf (ESG)	0.565	0.889

*AVE = Average variance extracted > 0.5—Larger are better; **CR Composite Reliability (Dillon Golestein's rho) > 0.7; **Reliability values higher than 0.95 are not desired.

Table 5 compares each latent variable's square root of the AVE with correlations with other constructs. In this case, the square root of each AVE of the constructs is more significant than its highest correlation with other constructs. Hence, discriminant validity was also established in the model from Figure 3.

Table 5. Correlations between latent variables.

Construct	ESG	Governance (GOV)	National Culture & Trust (NAC)
ESG	**0.752**		
Governance (GOV)	−0.883	**0.869**	
National Culture & Trust (NAC)	−0.893	0.832	**0.744**

Average variance extracted; SQRT (AVE) = The square root of AVE on the main diagonal (in bold) > Highest correlation between the model constructs.

Another method for evaluating reflective measurement model is the use of Heterotrait-monotrait ratio (HTMT). According to Ringle et al. (2014), one should assume a threshold value of 0.9 for conceptually similar constructs. The HTMT value for the model in Figure 2 were 0.9 for GOV <-> ESG, 0.9 for NAC <-> ESG and 0.8 for NAC <-> GOV, at the limit of acceptability.

Finally, the PLS-SEM method used in this paper has a well-known deficiency regarding its lack of an overall optimization criterion (such as the sum of square residuals in linear regression or the likelihood function in ML-SEM), so that no index for global validation is available (Venturini & Mehmetoglu, 2019). To validate it, we conducted a series of tests presented in Table 4 and Table 5, such as

convergent validity, internal consistency, and discriminant validity, with results above the minimum recommended in the literature, indicating adequate support for the conceptual model devised in this paper.

PLS-SEM Results

The linkage between National Culture and Governance is significant ($p < 0.05$), supporting Hypothesis **H2** (National Culture directly influences Governance). The linkage between Governance and ESG results is also significant ($p < 0.05$), supporting Hypotheses **H3** (Governance has a significant influence on ESG results within a given nation). Moreover, the direct path between National Culture and ESG results is also significant ($p < 0.05$), supporting Hypothesis **H1** (National Culture directly influences ESG results) and supporting Hypothesis **H4** (The indirect effect of National Culture on ESG results through the mediating effect of Governance), as it presents that **H2** (true) and **H3** (true). However, as **H2** and **H3** have opposite signals, it means that National Culture has a partial competitive mediation on ESG results (Ringle et al., 2024), as illustrated in **Figure 3**:

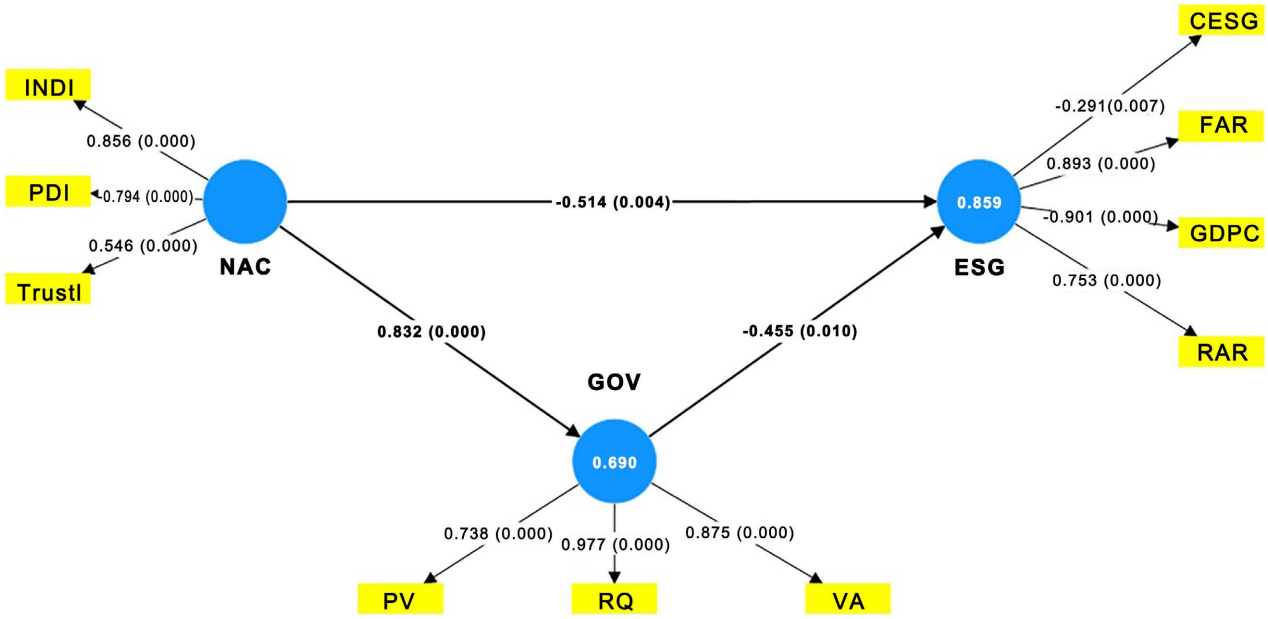

Figure 3. Conceptual model with results.

Analyzing the influence of Hofstede's (2010) National Culture Dimensions on ESG results and Governance, it should be extracted from the model that individualism has a positive significant ($p < 0.001$) correlation with the highest factor loading (0.856); power distance has a negative significant ($p < 0.001$) correlation with an intermediate factor loading (−0.794); trust has a significant ($p < 0.001$) correlation with the lower factor loading (0.546). To increase the value of AVE, uncertainty avoidance (UA) was removed from the model as it has a factor loading lower than 0.5 (Ringle et al., 2014). However, it has a significant ($p < 0.001$) correlation with trust, showing that these variables are correlated.

The PLS-SEM software SmartPLS 4 produces the decomposition of the direct, indirect, and total effects of the mediator variable, in this case, the latent Governance. **Figure 3** shows that National Culture & Trust (NAC) and Governance (GOV) have a path coefficient of 0.832. Governance (GOV) and ESG Results, −0.455. However, National Culture and ESG results have a direct coefficient of −0.514 and an indirect coefficient of −0.379, which is not presented in **Figure 3**. However, in the calculations of the PLS-SEM package.

6. Discussion

The interaction between discovered cultural dimensions and other macroeconomic factors might need to be explored. Because we are interested in the cultural factors that influence ESG and safety. As shown in the literature (Hofstede, 2010), economic factors have a well-known relationship with cultural elements. In this paper, we aim to explore the mediation/moderation effect of culture on governance (or vice versa). The point is that for good ESG results, economic factors such as GDP and governance only partially affect the ESG. Economics and good governance are only successful if supported by certain types of cultural elements, as shown here.

As outlined in the previous sections, there is a significant divergence among scholars about which Hofstede's (2010) national cultural dimensions and the national governance indicators have a significant influence on ESG, GDPC, and road and work safety results. Some point to individualism and trust as having a positive correlation with economic results and a negative correlation with accident rates. Regarding power distance, some authors point to a positive correlation between ESG commitment and, paradoxically, a positive correlation with accident rates. In contrast, others point to a negative correlation with accidents, which is contradictory. These reviews conclude that no clear empirical evidence exists of the effect of individualism, power distance, uncertainty avoidance, and trust on national ESG scores and accident rates. However, the result show that individualism, power distance and trust affect risk performance regarding serious accidents.

Empirical observations made by Migueles et al. (2007), Migueles et al. (2019), and Zanini & Migueles (2018) show evidence that the combination between considerable power distance and strong uncertainty avoidance with a low trust could increase the chances of accidents in Brazil, and probably all Latin-America countries, with a similar combination of these three dimensions. Furthermore, Dwyer & Raftery (1991) and Gonçalves, Andrade, and Marinho (2010) also observe the relevance of national and social context for understanding safety behavior in Brazilian organizations. However, in this paper we find that individualisms also plays an important role in the dependent variable.

High PDI seems to harm the development of autonomy and individualism consequently, and as Hofstede (2001) notes, the dimensions are interrelated. According to Hofstede (2001), using the word culture for both nations and organizations suggests that the two kinds of culture are identical phenomena. However, this is

incorrect because of the two cultural differences; a nation is not an organization. Hofstede's (2010) research results regarding national cultures and their dimensions proved to be only partly helpful in understanding organizational cultures as they differ in many aspects from national cultures, which is confirmed in this paper that show that PDI and IND are factors that significantly affect the ESG results.

Despite many scholars claiming that it has a strong influence on the results as presented in the literature review, uncertainty avoidance disturbed the goodness of fitness of the SEM model. Moreover, high UAI negatively affects safety, whereas UA and Trust are intertwined, according to some scholars.

Individualism, power distance and trust influence the ESG results of that country measured in this paper by the interaction of the following variables: the gross domestic product per capita (GDPC), the national work and road fatalities, and the average ESG corporation score of a country. Therefore, the PLS-SEM model in this paper based on the model from the literature review (Daniel, Cieslewicz, & Pourjalali, 2012) indicates an acceptable model fit and shows the partial mediating effect of Governance over the National Culture on ESG results, as reported by other scholars.

The answer to research question is that there are intangible factors derived from a national culture that influence the production of National ESG performance of a country. And those factors are individualism, power distance and trust. However, the results showed that the relationship between national culture and ESG results is partially mediated by Governance. Additionally, national culture predicts Governance and Governance predicts ESG results.

The use of PLS-SEM proved to help clarify the complex relationships between variables. The Governance latent independent variable significantly affects all dependent variables. On the other hand, the PLS-SEM model added that the effect of the latent variable Natural Culture and Trust (NAC) affects ESG results by altering the latent variable Governance (GOV). Finally, PLS-SEM clearly showed that Governance significantly directly affects ESG results.

7. Implications and Research Limitation

The conclusions presented are limited to the dataset investigated. Due to the limited ESG data as only 46 countries around the world have companies carrying out ESG ratings, the SEM fit in this article could be more acceptable. Therefore, checking the SEM's overall fit results with a larger sample of ESG data and other ESG databases is advisable.

As a result of this study, leadership can identify the significant factors for ESG and safety results and use their characteristics to "disclose hidden" factors impeding improvement and innovation. These factors may be related to macro-level constructs, such as culture, trust, and governance. The latter constructs should be adapted to translate the meaning from the macro-level national perspective to the organizational level. For example, what does corruption mean to the work floor

employee regarding his daily activity? At this micro-level, it may mean not following a procedure, or bending the rules, for instance.

The results have implications in other fields and subfields of research, such as 1) Project Management (Pan & Dias, 2024); 2) Business Negotiations (Navarro & Dias, 2024; Dias, 2023); 3) Trust (Santos & Dias, 2024a, 2024b); 4) Business Lobbying (Fernandes & Dias, 2024); 5) Consumer behavior (Teixeira et al., 2024); 6) Public Projects (Stech et al., 2024), amongst others.

Another important implication is the general belief that good practices can be imported from one country to the other without proper adaptation. The results of this article show that culture differs from country to country, and they directly affect that country's governance practices. To bring one practical application: Brazilian scholars have always considered power distance, uncertainty avoidance, and trust as the main factors influencing safety results (Zanini & Migueles, 2018). The results of this article show that one significant variable needed to be added: individualism. This variable had a similar factor loading as power distance and trust when the latent variable National Culture was formed in the PLS-SEM model. Individualism is related to having voice, empowerment, and independence, which is most apparent in Saxon countries and less prominent in Latin Countries. Therefore, practices that require these qualities not explicitly may not work in a context where local culture does not support them.

Last but not least, the National Cultural Dimensions partially explain the ESG results because of the partial mediation effect of governance. Based on the results of this article, management should be aware that both the local culture and sound governance practices are the precursors for good results regarding safety, environmental, financial, and compliance outcomes. Unfortunately, we have witnessed much good organizational governance fail as management needs to pay more attention to national culture. On the other hand, culture awareness alone is not enough to bring good results, as the PLS-SEM's direct and indirect moderation effect proved.

8. Conclusion

This paper adds that individualism (related to personal autonomy) affects risk performance regarding serious accidents. These factors may produce an organizational context in which the development of personal autonomy and personal discipline is jeopardized by the lack of involvement of the subordinates in the continuous improvement of rules and procedures, thus allowing for a growing distance between the planned task and the actual task that could reduce performance.

Finally, this article answered the research question by showing that factors derived from National Cultures, such as individualism, power distance, and trust, partially mediated by Governance, indirectly influence that country's National ESG performance. Additionally, National Culture predicts Governance, which predicts ESG results.

9. Future Research

Based on this paper, we also suggest applying a qualitative approach to understand the relationship between the significant variables, such as Individualism (IND), Power distance (PD), Trust, and Governance at an organizational level deeply to understand them best. One of the novelties of this article is to use the national cultural dimension with trust as an independent variable to explain country National ESG performance. However, uncertainty avoidance (UA) is highly correlated with trust. Future quantitative and qualitative studies can help to analyze more deeply.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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