Sustainability performance indicators: Definition, interaction, and influence of

contextual characteristics

Abstract

Financial markets and investors are pushing modern firms to increase their commitment

to sustainable development. Corporate sustainability refers to processes that develop from

normative traditions, ethical roots, and stakeholder attitudes in such organizations. These

processes require that we define suitable sustainability indicators and other measurement

instruments. Therefore, this study analyzes the influence of cultural and legal contextual

characteristics on the design and internal workings of such indicators. The results show

that sustainability measurements are indeed shaped by cultural and legal factors.

However, no unique pattern can be identified. Thus, what emerges is variation under

different cultural contexts and legal systems.

Keywords: Corporate sustainability, sustainability performance indicators, contextual

characteristics, institutional theory.

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1. Introduction

Current contextual challenges require that firms acknowledge their social and environmental footprints, and consider the planet's capacity to withstand the effects of their actions (Whiteman et al., 2013; Antonini & Larrinaga, 2017; Schaltegger & Burritt, 2018, p.242; Bebbington & Unerman, 2018). These challenges are associated with corporate sustainability, which emerges naturally from the traditional concept of corporate social responsibility (Hörisch et al., 2014, p.341). Corporate sustainability is defined as a set of practices that relate stakeholder interdependence to issues of management, economic and socio-environmental responsibility, financial performance, and access to resources and consensus (Salvioni & Gennari, 2016). These practices develop from normative traditions, ethical roots, and stakeholder demands (Bergman et al., 2017, p.757). External characteristics, largely determined by a country's cultural and legal context, play a key role in the conceptualization of sustainability and the development of sustainable practices and sustainability indicators (Renneboog & Spaenjers, 2012). Alshehhi et al. (2018), and Hou et al. (2019) analyzed the construction of sustainability performance indicators (SPIs), how they work as learning tools and accountability instruments. Although cultural and legal factors may well underlie the implementation and effects of SPIs and their interactions, the role of such factors has not been studied in detail.

Thus, our aim is to analyze the influence of cultural and legal factors, as contextual characteristics, on SPIs. They are treated as learning tools used by companies (SP_LTIs) and as accountability instruments in order to show the sustainability outcomes (SP_OIs). Our sample comprises European companies drawn from the RobecoSam–Yearbook for the period 2008–2017. A main finding is that cultural and legal factors condition the

meaning of SPI. We also show that generic SPIs do not work well because individual cultural contexts tend to promote their own concepts of sustainability. Thus, stakeholders require a set of SPIs consistent with their cultural values and legal regulations. Furthermore, we confirm that firm size and activity modulate the development of SPIs. Our results evidence common patterns in relation to both aspects, although the intensity varies with the contextual factors. Finally, although global markets dominate the current economic situation, contextual characteristics introduce some relativism to the comparison between SPIs. Thus, we recommend considering these characteristics when designing and implementing SPIs. In other cases, an inadequate use of SPIs would mean that stakeholders could not understand the impact of an organization's activities.

The remainder of this paper is structured as follows. Section 2 describes the background and hypotheses. Section 3 presents our data, variables, and the statistical techniques. Section 4 discusses the results, and Section 5 concludes the paper.

2. Background and hypotheses

SPIs are instruments used to implement, measure, and demonstrate levels of corporate sustainability (Waas et al., 2014). These indicators are constructed based on suggestions made by external agents, who incorporate their own attitudes and contextual values when assessing sustainability levels (Roszkowska-Menkes & Aluchna, 2018; López-Arceiz et al., 2018). Despite the globalization agenda, the results of corporate sustainability assessments may vary significantly because of organizational context (Strand et al., 2015). Institutional theory attributes this phenomenon to cultural and legal differences among countries (Svensson et al., 2018; Miska et al., 2018).

Institutional theorists suggest various factors that might motivate organizations to adjust to their context (DiMaggio & Powell, 1983). Babiak and Trendafilova (2011) and Ortiz-

de-Mandojana et al. (2016) conclude that stronger legitimacy and the management of strategic values may result in such an adjustment. DiMaggio and Powell (1983) and Cubilla et al. (2019) proposed that firms respond and adapt to their context using coercive, mimetic, and normative isomorphism¹, which describes how an organization comes to resemble others within its context.

Pressure from governmental institutions and markets provide a coercive force, resulting in sustainability adoption for legal compliance reasons (Baughn et al., 2007; Roszkowska-Menkes & Aluchna, 2018). In the European context, the implementation of Directive 2014/95/EU and Communication 2017/C 215/01/EU on the disclosure of non-financial information related to implementing socially responsible and sustainable policies are an example of external pressure on firms (Aureli et al., 2016). These contextual pressures require voluntary or mandatory frameworks to accountability purposes. The nature of such frameworks must be embedded into the construction of SPIs (Orsato et al., 2015). Therefore, some SPIs are designed as accountability instruments, summarizing firms' sustainability outcomes (SP OI).

Additionally, the adoption of sustainable practices for value creation and managerial improvement may be a manifestation of mimetic and normative isomorphism. Thus, SPIs serve as a learning tool by management to improve decision-making processes and integrate stakeholders (SP_LTI). Trianni et al. (2019) consider that SPIs can be used as a tool for benchmarking, a systemic learning process based on the continuous comparison among operators in the same or related sectors. As learning tools, SP LTIs often focus

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¹An organization evolves in response to political impositions (coercive forces) by mimicking other entities to protect itself from uncertainty (mimetic forces), or as the result of the professionalization of organic organizational structures (normative forces) (DiMaggio & Powell, 1983)

on organizations within the same industry, but tend to ignore the influence of cultural and legal characteristics (Haffar & Searcy, 2018).

Consequently, SPIs can be grouped into two categories: SP_LTIs constitute learning tools for the development of corporate sustainability; and SP_OIs are instruments oriented toward accountability. Both are conditioned by the cultural and legal context (Vastola et al., 2017; López-Arceiz & Bellostas, 2017, p.140). However, prior studies do not compare the influence of external characteristics on SP_LTIs and SP_OIs. Thus, we formulate the following hypotheses:

H₁: Cultural and legal factors, as contextual characteristics, have a significant impact on the use of SPIs as a learning tool (SP_LTI).

H₂: Cultural and legal factors, as contextual characteristics, have a significant impact on the use of SPIs to reflect the sustainability outcomes (SP_OIs).

Rejecting these hypotheses would mean that SPIs are independent of cultural and legal contexts. In contrast, a non-rejection of the hypotheses would mean that the sustainability profile may differ depending on the instrument of assessment, and may not reflect the true level of sustainability. Moreover, the two categories of SPIs could be interrelated; the SP_OI may depend on the implementation of the SP_TLIs. In this sense, De Olde et al. (2017), Cherrafi et al. (2017), and Chaudhury and Jayaram (2019) show that the implementation of sustainability tools positively affects sustainability outcomes. Nevertheless, others (e.g., Gnanaweera & Kunori, 2018; Grainger-Brown & Malekpour, 2019) find mixed results, showing that sustainability tools are not related to all dimensions of sustainability performance. These contradictory results could be attributed

to the omission in previous studies of the role of contextual characteristics. Therefore, we propose the following hypothesis:

H₃: Cultural and legal factors, as contextual characteristics, significantly impact on the relationship between SPIs used to reflect sustainability results (SP_OI) and those used as learning tools (SP_LTI).

A non-rejection of this hypothesis implies that the interaction between SP_OIs and SP_LTIs is affected by contextual characteristics. The transmission process between tools and results is moderated by cultural and legal factors, which may represent a relevant omitted variable in previous studies. In contrast, rejecting this hypothesis would indicate that contextual characteristics cannot explain the gap found in previous research.

3. Methodology

3.1. Sample

We test our hypotheses on a sample of 324 European companies drawn from the RobecoSam–Yearbook, where companies are ranked according to their sustainability records (gold, silver, or bronze medalists, or simply mentioned as members). The selected entities are all listed companies and are included in the Dow Jones Sustainability Europe Index. Table 1 shows the sample composition during the period 2008–2017.

INSERT_TABLE_1

The entities shown in Table 1 belong to different sectors, although most fall within the financial sector (22.5%), followed by the industrial (17.6%), consumer cyclical (15.8%),

and basic materials (11.2%) sectors. The only values lower than 5% are those related to technology (3.3%) and telecommunication services (4.3%). The median asset value is EUR 20,617,000; therefore, we use this as a reference when classifying firms as having a high or a low asset value. These firms are based in various countries around Europe. These countries vary in terms of their cultural and legal factors, according to the Hofstede's classification (2011). For example, the UK has high levels of individualism (89) and indulgence (69). In contrast, Italy is characterized by high levels of masculinity (70) and uncertainty avoidance (75). These values indicate different legal and cultural contexts, which are the motivation for this study.

Market prices and data on other individual company characteristics are drawn from DataStream-Worldscope, Orbis, RobecoSAM, Thomson Sustainability4Assets, Bloomberg ESG,² and the Sustainable Society Index (SSI).

3.2. Main variables

3.2.1. Sustainability performance indicators-SPIs-

In 2003, the European Commission published a report titled "Mapping instruments for the CSR" in response to the proliferation of different CSR instruments (European Commission, 2003, p.12). The report classifies SPIs into four groups: a) aspirational principles and codes of practice; b) management systems and certification schemes; c) rating indices; and d) accountability and reporting frameworks. In our study, we merge categories b) and d), because both are defined as guidelines and tools that consider and

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² The SP_LTIs and SP_OIs are based on Thomson ESG-Asset4. Thomson standardizes the public information, guaranteeing comparability across all companies. The Bloomberg ESG scores are based on two sources: SAM's corporate sustainability assessment (CSA) and public reports. RobecoSAM designs the annual CSA, which is the basis for the RobecoSAM-Yearbook. The CSA contains 80-120 questions per questionnaire on economic, environmental, and social dimensions, although it varies by industry. The Thomson Reuters Business Classifications were accessed from Datastream-Worldscope. Finally, the ORBIS database contains information about companies' financial statements.

usually implement external assurance mechanisms. Consequently, we consider three groups: 1) recommendations, principles, and reporting frameworks; 2) management systems and certification schemes; and 3) rating indices. Groups 1 and 2 consist of SP_LTIs, and Group 3 is composed of SP_OIs. This reclassification is also motivated by regulatory developments in Europe related to non-financial reporting (Directive 2014/95/EU and Communication 2017/C215/01/EU), together with the proliferation of mechanisms and their success in promoting corporate sustainability.

In the first category of SP_LTIs, we include the following recommendations, principles, and reporting frameworks: a) socially responsible principles; b) SIGMA; c) ISO26000; d) OECD; e) UN Global Compact; f) Global Sullivan Principles; g) ECCR/ICCR; h) health and safety; and i) human rights; references recognized by the European Commission (Directive 2014/95/EU and Communication 2017/C215/01/EU). They guide the development of sustainability policies, albeit without establishing formal monitoring mechanisms. The second category of SP_LTIs, management systems and certification schemes, comprises tools for the implementation, supervision, and external certification of compliance with standards, thus contributing to sustainability goals and addressing stakeholder concerns (Kolk, 2008, p.3). We consider ISO14001, GRI standards, ISO9001, and EMAS. The main difference between these mechanisms is the extension of external assurance (Ball et al., 2000; Owen et al., 2000).

Finally, the SP_OIs are rating indices related to company sustainability outcomes. We use the Thomson Reuters ESG-Asset4 and Bloomberg ESG functions, focusing on ESG performance, with values ranging from zero to 100.

3.2.2. Contextual factors: Cultural values and the legal system

Contextual characteristics are analyzed based on cultural values and legal systems. The cultural values are based on Hofstede's (2011) six dimensions: power distance, individualism, femininity, uncertainty avoidance, long-term orientation, and indulgence. We also include two variables related to the legal context, one for the legal system, and one for the level of investor protection. In particular, we focus on the contrasting effects of Anglo-saxon and continental countries (La Porta et al., 1997, 1998), as well as the effect of minority investor protection. Annex I describes the main variables.

3.3. Statistical techniques

We start by carrying out a descriptive analysis of the SPIs in terms of their position measurements. Then, we conduct "t-tests" of the equality of the means to evaluate the performance of the SPIs, taking into account the cultural and legal factors. The data analysis method is conditioned by the absence of latent variables with formative indicators³, sample size, lack of multivariate normality, reduction of the database dimensionality, and dependence between observations. Therefore, following Moneva and Ortas (2010), we select a panel-SEM approach. The specification for the confirmatory factor analysis is as follows [1–3]:

$$X_{i}=\lambda^{x}_{i1}\xi_{1}+\delta_{i}$$
 \forall $i=1,...,9$ [1]
 $X_{i}=\lambda^{x}_{i2}\xi_{2}+\delta_{i}$ \forall $i=10,...,13$ [2]
 $X_{i}=\lambda^{x}_{i3}\xi_{3}+\delta_{i}$ \forall $i=14,...19$ [3]

Expressions [1] and [2] define the SP_LTIs. Particularly, the expression [1] specifies the dimension encompassing the recommendations, principles and reporting frameworks (ξ_1) and the expression [2] expresses the components of the management systems and

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³In a formative model, latent variables are assumed to influence all observed variables, such that the measurement errors are correlated (Bollen, 1989, p.228). In a reflective model, the causal relationship follows the latent variables via indicators; therefore, the values of the latent variables are confirmatory.

certification schemes dimension (ξ_2). The specification of the SP_OIs (rating indices) dimension (ξ_3) is given by the expression [3]. The Xi indicators denote the different SPIs, factor loadings are denoted by λ , and δ is the measurement error for the latent variables.

After estimating the overall dimensions, we used the factor scores. The effects of external characteristics, proposed in H1 and H2, were tested by performing a multigroup analysis (Wald test) to assess all effects across the whole sample using a set of moderator variables. These moderator variables mix contextual characteristics with the level of assets and the sector of activity. Finally, H3 is tested using a regression model. We consider the rating indices (SP_OIs) as the dependent variable and the dimensions of recommendations, principles, and reporting frameworks, management systems, and certification schemes as independent variables (SP_LTIs).

We used MPLUS 8.0, which contains the MLR estimator with a COMPLEX correction to account for non-normality and time dependence among observations.

4. Results

Table 2 summarizes the main descriptive statistics and t-test statistics considering the cultural and legal factors. We highlight the use of socially responsible principles (0.954) and OECD guidelines (0.942). The implementation of GRI standards (0.959) contrasts with that of the EMAS (0.188). High scores emerge for rating indices in both the Thomson ESG-Assets4 (58.618–77.636) and Blomberg ESG scores (40.285–60.628).

INSERT TABLE 2

Table 2 also shows the t-test results for the SPIs. We observe some patterns that depend on the cultural and legal factors (p-value<0.100). The SP_LTIs are more intense in contexts characterized by a low power distance, high individualism, high masculinity, low uncertainty avoidance, a short-term orientation, and low levels of indulgence. SP_LTIs are widely used in the continental countries, with its low level of minority investor protection. The rating indices (SP_OIs) show a singular pattern. While environmental and social aspects show high values in the context of the above-mentioned characteristics, the governance aspects are assessed in the opposite contexts. This provides initial evidence of the impact of contextual factors on the use of SP_LTIs and SP OIs.

Table 3 shows the three-factor measurement model estimates. The global fit indices suggest an acceptable fit in terms of χ^2 , CFI, RMSEA and SRMR, enabling the assessment of the proposed models.

INSERT_TABLE_3

The first and second measurement models show reasonably good individual fit (AVE>0.5; CRC>0.7). The results obtained for the two dimensions of SP_LTIs (factor loadings[0.492–1.000]) indicate a relationship of complementarity between the sustainability frameworks. The SP_OIs measurement model also shows an acceptable individual fit (factor loadings[0.738–1.000]).

Table 4 contains the standardized average factor score for each contextual factor, together with the significance level of the Wald statistic of parameter equality (multigroup model).

INSERT TABLE 4

Cultural values have a strong effect on the factor scores across all dimensions (p-value W-test<0.010). SP_OIs and SP_LTIs are especially relevant in contexts with a low power distance, uncertainty, long-term orientation, and indulgence. These contexts are also characterized by high individualism and masculinity. This pattern is more common in the continental countries and with low minority investor protection. This result reveals that SPIs are especially useful for some types of societies. In this sense, the less developed a context in terms of its cultural values, the greater is the importance of its SPI implementation.

This general pattern may vary with a company's size and sector of activity (Tables 5-6). These tables show the results for combinations of contextual factors-company size and contextual factors-activity.

INSERT TABLE 5

Table 5 shows that the largest firms tend to implement some SP_LTIs (p-value W-test<0.010), such as recommendations, principles, and reporting frameworks, obtaining high values in relation to the SP_OIs. This tendency is more pronounced in contexts with a low power distance, high individualism, high masculinity, high uncertainty, a short-term orientation, and low indulgence. These contexts belong to the continental countries. Moreover, two key issues arise when considering a company's size. First, although size

has no effect on the adoption of management systems and certification schemes, contextual factors play a strong role, which is reasonable considering the legal pressure behind these SP_LTIs. Second, while the largest companies promote SP_LTIs related to the implementation of recommendations, principles, and reporting frameworks and SP_OIs, they can, in some specific contexts, be pressured further to implement other SP_LTIs, such as management systems and certification schemes. The effectiveness of such pressure might also vary with the company's sector of activity (Table 6).

INSERT_TABLE_6

In relation to the sector of activity, energy, basic materials, and technology do not show differences in signs when cultural factors are considered (p-value W-test<0.010). In contrast, firms in the industrial, consumer cyclical, consumer non-cyclical, financial, and healthcare sectors are strongly affected by these factors. The industrial and consumer cyclical and non-cyclical sectors show an intense implementation in terms of SPI when the companies are settled in contexts characterized by a low power distance, low individualism, low masculinity, high uncertainty, a long-term orientation, and low indulgence. The remaining sectors are inclined toward particular sets of SPIs, causing the average effect previously described (Tables 4-5). Moreover, the results reveal that SP_LTIs related to management systems and certification schemes are characteristics of continental and low minority investment protection contexts, complementing recommendations, principles, and reporting frameworks. Thus, we cannot reject the first two hypotheses because cultural and legal factors have a significant impact on SP_LTIs and SP OIs.

Table 7 shows the estimated parameters when the SP_OIs are the dependent variable, and the SP_LTIs are treated as independent variables.

INSERT TABLE 7

We observe a positive interaction between the SP_LTIs and the SP_OIs (p-value<0.010). However, this interaction is moderated by contextual factors. This effect is especially intense in relation to recommendations, principles, and reporting frameworks. Therefore, a low power distance, high individualism, high masculinity, low uncertainty, short-termism, and low levels of indulgence potentiate the effect of these SP_LTIs. This effect increases when there is low minority investor protection under the continental legal system. This result contrasts with that for the second set of SP_LTIs, in which the only moderating factors are the low power distance and the short-term orientation. Therefore, we cannot reject H3, because contextual characteristics, such as cultural and legal factors, have a significant effect on the relationship between SP OIs and SP LTIs.

5. Discussion

Our findings reflect strong cultural and legal effects on SPIs. Thus, in general terms, certain cultural values relating to a low power distance, high individualism, high masculinity, low uncertainty avoidance, a short-term orientation, and low indulgence, potentiate the implementation of both SP_TLIs and SP_OIs. Moreover, continental countries and low minority investor protection are favorable to their use. These results show that the perception of sustainability depends on the cultural and regulatory framework. Therefore, we disagree with authors who posit a convergence toward a global

concept of sustainability, a proposal that has grown out of globalization and an inclination toward the Anglo-Saxon model (Khanna et al., 2006; Muller & Kolk, 2009; Bozec & Día, 2012). This proposal is rejected by other authors, who instead advocate for alternative institutional models (La Porta et al., 1997, 1998; Licht et al., 2007; Blazy et al., 2012; Chan & Cheung, 2012). Under the first of these premises, cultural and legal aspects have no impact on SPIs. Gjølberg (2009) concludes that sustainability is essentially global in nature, a product of transnational processes in which corporate interest is linked intrinsically to a corporate globalization agenda. In the same vein, Strand et al. (2015) find no differences between the definitions of sustainability, attributing this to a tendency toward a global framework. Our results reveal that the perception and use of SP_LTIs and SP_OIs depend on cultural and legal factors. Therefore, we agree with those authors who find profound differences attributable to the institutional context (Jackson & Apostolakou, 2010; Brammer et al., 2012; Ioannou & Serafeim, 2012).

There is some debate in the economic literature on how cultural and legal characteristics affect each of the two categories of SPIs proposed in our study. Branco et al. (2018, p.917) analyzed a sample of Nordic and Mediterranean countries, finding that companies in Mediterranean European countries present higher levels of engagement with some SPIs, such as the Global Reporting Initiative. This effect can be explained by the higher awareness of sustainability issues and the idiosyncrasy of Mediterranean countries. In contrast, Villiers et al. (2016) claim that the implementation of SP_LTIs is due to the positive effect of institutional pressure, regardless of the framework adopted. According to Morsing et al. (2008) and Fifka and Drabble (2012), contextual characteristics condition the choice and use of these mechanisms. Our results are partially consistent with the findings of these authors, although we also find some differences when the firm

size and sector of activity are considered. Key differences were also observed in relation to SP_OIs. Dahlsrud (2008) evidences that European organizations have made an effort to understand and design corporate social responsibility tools for specific cultural and legal contexts. Significant cross-country and cross-cultural differences have also been obtained in other organizational fields by La Porta et al. (1997, 1998), Hossain and Reaz (2007), and López-Arceiz and Bellostas (2017). Similarly, Joyce and Pakin (2016) conclude that sustainability practices contribute to environmental, social, governance, and economic value creation, despite being assessed differently by diverse cultures. Gallego-Alvarez and Pucheta-Martinez (2020) obtain the same conclusion for sustainability reporting. Our results support these conclusions for the different types of SPI. Thus, a country's sustainability practices vary with its cultural and legal contexts (Barkemeyer et al., 2015; Wood et al., 2014).

Finally, the interaction between SP_LTIs and SP_OIs is strongly affected by contextual factors. This explains the mixed results of Gnanaweera and Kunori (2018) and Grainger-Brown and Malekpour (2019). Contextual characteristics are a relevant omitted variable, capable of modifying not only the implementation and results, but also the interactions between SPIs.

6. Conclusions

In Europe, the use of SPIs varies across countries based on contextual characteristics. Although numerous studies have analyzed the effects of such characteristics on the definitions of sustainability indicators, few have empirically examined their potential moderating effects. We show empirically that cultural and legal factors can explain the diversity of results reported in the economic literature, both in relation to the implementation of SPIs and the interactions between them.

From an academic viewpoint, institutional theory postulates that external characteristics pressure organizations to redefine and adapt themselves to their organizational context. Our results show that this process of adaptation is motivated mainly by cultural and legal factors. In this sense, the cultural dimensions and the legal systems underlying the three types of isomorphism condition the use and application of SPIs. Accordingly, societies whose cultural values and legal traditions present a weaker starting point for sustainability will need to make a greater effort to adopt SPIs. Thus, firms in such countries will need to demonstrate a higher level of commitment to sustainability. Consequently, contextual characteristics cannot be omitted variables, and must be considered in studies of corporate sustainability.

Other implications of this study apply especially to practitioners. Our findings explain the low degree of confidence in companies' sustainability reports, as shown by investors and other financial agents. So, any company wishing to access a financial market will need to focus on those SPIs that will earn a positive assessment in the target country. Failing to do so could result in a negative assessment, not because of poor sustainability practices, but because the firm uses a measuring instrument unsuited to its context. Therefore, we reject the idea that global measurements are good for all contexts. While it might be possible to establish a general notion of sustainability, cultural singularities of each country can still impede the implementation of a global set of SPIs.-Future research should explore the effect of the operational context on the ability of firms to enhance their sustainability positions.

Rating agencies, standardization organizations, and sustainability experts should consider external characteristics when building SPIs. Furthermore, company size and sector activity introduce singularities. Therefore, although there are some sectoral adaptations

of SPIs based on activities, they need to include the firm's size and external characteristics when designing additional indicators. Higher accuracy will translate into greater trust by stakeholders, who will gain a better understanding of the sustainability tools and the results.

This study also provides various insights for policymakers and international organizations. First, specific policies are required for small and medium-sized companies, which may find sustainability practices economically unaffordable, especially in some contexts. Second, sustainability disclosure and transparency must be promoted in two ways in the identified contexts: accessibility to SPIs, and long-term evaluations of their effects. Lastly, cultural and legal influences must be considered in any SPI harmonization process. The omission of these aspects would cause artefactual results. The assessment of external factors allows for a more precise comparison, given the idiosyncrasies of different cultures.

Finally, a limitation of this study is that it focuses only on Europe. Thus, future research should consider other countries. Furthermore, we consider only cultural and legal differences, whereas other characteristics of the accountability framework, social environment, and economic policies merit analyses. Thus, caution is required when extrapolating the results. An understanding of the context in which a company and its managers and investors operate will determine the level of organizational sustainability.

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 Table 1. Sample description

| | | | | | Panel | A. Cultural | origin based | on Hofstee | le's dimen | sions ^(†) | | | | | | |
|--------|----------|--------|---------|--------|-------------|-------------|-----------------------|------------|--------------------------|----------------------|------------|--------|----------|------------|--------------|--------|
| Assets | Power Di | stance | Individ | ualism | Masculinity | | Uncertainty avoidance | | Long-term orientation | | Indulgence | | Investor | protection | Legal enviro | onment |
| | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High |
| Low | 11.27% | 42.83% | 19.37% | 34.73% | 25.34% | 28.76% | 26.33% | 27.77% | 29.01% | 25.09% | 20.95% | 33.16% | 26.83% | 27.27% | 18.76% | 35.95% |
| High | 10.91% | 34.98% | 17.10% | 28.79% | 24.21% | 21.69% | 18.96% | 26.94% | 18.10% | 27.80% | 24.34% | 21.55% | 19.98% | 25.92% | 10.72% | 34.57% |

Panel B. Cultural origin based on Hofstede's dimensions^(†)

| Activity | Power Distance | | Individualism | | Masculinity | | Uncertainty avoidance | | Long-term orientation | | Indulgence | | Investor | protection | Legal env | ironment |
|----------------------------|----------------|-------|---------------|-------|-------------|-------|-----------------------|-------|--------------------------|-------|------------|-------|----------|------------|-------------|-------------|
| | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Anglo-saxon | Continental |
| Energy | 4,0% | 3,0% | 2,5% | 4,5% | 2,8% | 4,2% | 4,3% | 2,7% | 4,9% | 2,1% | 2,8% | 4,2% | 3.79% | 3.47% | 1.22% | 5.78% |
| Basic Materials | 6,0% | 5,2% | 7,1% | 4,1% | 6,6% | 4,6% | 5,6% | 5,6% | 4,9% | 6,2% | 5,3% | 5,9% | 5.99% | 4.73% | 1.82% | 8.51% |
| Industrials | 11,1% | 6,5% | 10,5% | 7,1% | 7,4% | 10,2% | 8,6% | 9,0% | 10,2% | 7,4% | 9,3% | 8,3% | 10.09% | 8.83% | 3.95% | 14.29% |
| Consumer Cyclicals | 9,9% | 5,9% | 9,0% | 6,8% | 8,4% | 7,4% | 8,1% | 7,7% | 8,1% | 7,7% | 7,8% | 8,0% | 5.05% | 10.41% | 5.17% | 9.73% |
| Consumer Non-Cyclicals | 4,5% | 2,8% | 3,0% | 4,3% | 3,0% | 4,3% | 3,7% | 3,6% | 3,7% | 3,6% | 3,7% | 3,6% | 3.15% | 3.79% | 3.34% | 3.34% |
| Financials | 14,5% | 8,0% | 12,3% | 10,2% | 8,6% | 13,9% | 11,7% | 10,8% | 10,5% | 12,0% | 11,1% | 11,4% | 9.78% | 12.30% | 6.69% | 14.59% |
| Healthcare | 3,4% | 1,8% | 3,3% | 1,9% | 2,8% | 2,4% | 3,4% | 1,8% | 1,9% | 3,3% | 1,9% | 3,3% | 2.21% | 2.84% | 0.91% | 3.95% |
| Technology | 1,2% | 2,1% | 2,2% | 1,1% | 2,5% | 0,8% | 1,8% | 1,5% | 1,4% | 1,9% | 1,8% | 1,5% | 1.26% | 2.21% | 0.30% | 3.04% |
| Telecommunication Services | 1,8% | 2,5% | 1,8% | 2,5% | 2,8% | 1,5% | 2,1% | 2,2% | 1,8% | 2,5% | 2,4% | 1,9% | 1.58% | 2.52% | 0.61% | 3.34% |
| Utilities | 2,7% | 3,1% | 4,0% | 1,8% | 3,7% | 2,1% | 1,8% | 4,0% | 3,6% | 2,2% | 4,0% | 1,8% | 2.84% | 3.15% | 0.91% | 4.86% |
| Total | 59,1% | 40,9% | 55,7% | 44,3% | 48,6% | 51,4% | 51,1% | 48,9% | 51,1% | 48,9% | 50,1% | 49,9% | 45.74% | 54.26% | 28.57% | 75.08% |

Panel C. Cultural origin based on Hofstede's dimensions(†)

| Country | Power Distance | Individualism | Masculinity | Uncertainty avoidance | Long-term orientation | Indulgence | Investor protection | Legal environment |
|----------------|----------------|---------------|-------------|-----------------------|--------------------------|------------|---------------------|-------------------|
| Germany | 35 | 67 | 66 | 65 | 83 | 40 | 2 | 2 |
| Austria | 11 | 55 | 79 | 70 | 60 | 63 | 1 | 2 |
| Belgium | 65 | 75 | 54 | 84 | 82 | 57 | 2 | 2 |
| Denmark | 18 | 74 | 16 | 23 | 35 | 70 | 1 | 2 |
| Spain | 57 | 51 | 42 | 86 | 48 | 44 | 1 | 2 |
| Finland | 33 | 63 | 26 | 59 | 38 | 57 | 2 | 2 |
| France | 68 | 71 | 43 | 86 | 63 | 48 | 2 | 2 |
| Ireland | 28 | 70 | 68 | 35 | 24 | 65 | 1 | 2 |
| Italy | 50 | 76 | 70 | 75 | 61 | 30 | 2 | 2 |
| Luxembourg | 40 | 60 | 50 | 70 | 64 | 56 | 2 | 2 |
| Norway | 31 | 69 | 8 | 50 | 35 | 55 | 1 | 2 |
| Netherlands | 38 | 80 | 14 | 53 | 67 | 68 | 2 | 2 |
| Portugal | 63 | 27 | 31 | 99 | 28 | 33 | 2 | 2 |
| United Kingdom | 35 | 89 | 66 | 35 | 51 | 69 | 1 | 1 |
| Sweden | 31 | 71 | 5 | 29 | 53 | 78 | 1 | 2 |
| Switzerland | 34 | 68 | 70 | 58 | 74 | 66 | 2 | 2 |

^(†) We have considered the median values to form the groups high and low. In the case of investor protection, one represents low investment protection. Anglo-saxon legal context is represented by one.

 Table 2. Descriptive statistics

| | | | | Power | distance | Indivi | dualism | Mas | culinity | | ertainty idance | | g-term ntation | Indu | ılgence | | vestor tection | Legal env | ironment |
|---|--------------------------------|--------|----------|--------|------------|--------|------------|--------|-----------|-----------|--------------------|--------|-------------------|--------|-----------|----------|-------------------|-----------|------------|
| | Indicator | Mean | Std. Dev | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | Common | Civil |
| | Socially Resposible Principles | 0.954 | 0.208 | 0.955 | 0.953 - | 0.947 | 0.965 ** | 0.948 | 0.961 | 0.956 | 0.953 - | 0.961 | 0.949 * | 0.958 | 0.952 - | 0.968 | 0.967 - | 0.972 | 0.948 *** |
| | SIGMA | 0.239 | 0.427 | 0.256 | 0.215 *** | 0.267 | 0.202 *** | 0.232 | 0.246 - | 0.246 | 0.232 - | 0.224 | 0.255 ** | 0.237 | 0.241 - | 0.236 | 0.266 * | 0.206 | 0.251 *** |
| | ISO 26000 | 0.531 | 0.499 | 0.461 | 0.633 *** | 0.645 | 0.386 *** | 0.625 | 0.442 ** | ** 0.375 | 0.697 *** | 0.453 | 0.611 *** | 0.378 | 0.684 ** | * 0.543 | 0.533 - | 0.247 | 0.636 *** |
| | OECD | 0.360 | 0.480 | 0.334 | 0.396 *** | 0.451 | 0.239 *** | 0.444 | 0.277 ** | 0.313 | 0.407 *** | 0.325 | 0.395 *** | 0.295 | 0.421 ** | 0.377 | 0.358 - | 0.165 | 0.429 *** |
| | UN Global Compact | 0.657 | 0.475 | 0.592 | 0.748 *** | 0.771 | 0.505 *** | 0.771 | 0.545 ** | 0.538 | 0.777 *** | 0.606 | 0.707 *** | 0.518 | 0.788 ** | * 0.659 | 0.680 - | 0.417 | 0.742 *** |
| - | Global Sullivan | 0.005 | 0.068 | 0.008 | 0.000 *** | 0.003 | 0.007 - | 0.002 | 0.007 * | * 0.007 | 0.002 ** | 0.007 | 0.002 ** | 0.006 | 0.004 - | 0.005 | 0.001 * | 0.007 | 0.004 - |
| | ECCR/ICCR | 0.942 | 0.233 | 0.931 | 0.959 *** | 0.937 | 0.949 - | 0.963 | 0.923 ** | * 0.951 | 0.935 * | 0.949 | 0.936 - | 0.950 | 0.936 - | 0.957 | 0.963 - | 0.940 | 0.944 - |
| 5 | Health & safety | 0.198 | 0.399 | 0.164 | 0.247 *** | 0.225 | 0.164 *** | 0.236 | 0.161 ** | 0.140 | 0.258 *** | 0.146 | 0.252 *** | 0.140 | 0.254 ** | | 0.196 - | 0.085 | 0.239 *** |
| | Human rights | 0.751 | 0.433 | 0.731 | 0.779 *** | 0.781 | 0.711 *** | 0.784 | 0.718 ** | | 0.801 *** | 0.738 | 0.764 * | 0.696 | 0.803 ** | | 0.781 - | 0.675 | 0.778 *** |
| | EMAS | 0.188 | 0.391 | 0.161 | 0.228 *** | 0.267 | 0.085 *** | 0.191 | 0.186 - | 0.061 | 0.318 *** | 0.117 | 0.260 *** | 0.071 | 0.300 ** | | 0.226 *** | 0.025 | 0.246 *** |
| | ISO 9001 | 0.907 | 0.645 | 0.695 | 0.944 *** | 0.932 | 0.705 *** | 0.949 | 0.846 ** | ** 0.447 | 0.952 *** | 0.633 | 0.964 *** | 0.385 | 0.939 ** | 0.828 | 0.993 *** | 0.342 | 0.959 *** |
| | ISO140001 | 0.540 | 0.499 | 0.470 | 0.639 *** | 0.642 | 0.404 *** | 0.627 | 0.454 ** | 0.386 | 0.695 *** | 0.465 | 0.615 *** | 0.390 | 0.682 ** | | 0.545 - | 0.266 | 0.637 *** |
| | GRI | 0.959 | 0.199 | 0.941 | 0.980 *** | 0.977 | 0.932 *** | 0.977 | 0.938 ** | ** 0.940 | 0.976 *** | 0.939 | 0.976 *** | 0.938 | 0.976 ** | * 0.960 | 0.962 - | 0.886 | 0.978 *** |
| | Sustainability4ASSETS(E) | 77.636 | 13.583 | 77.579 | 77.705 - | 78.768 | 75.862 *** | 78.027 | 77.178 - | 76.707 | 78.428 *** | 77.880 | 77.434 - | 76.436 | 78.589 ** | * 78.884 | 77.639 ** | 77.366 | 77.704 - |
| | Sustainability4ASSETS (S) | 58.618 | 19.461 | 60.082 | 56.921 *** | 57.345 | 60.618 *** | 56.285 | 61.362 ** | ** 60.775 | 56.785 *** | 58.178 | 58.988 - | 60.946 | 56.773 ** | * 59.844 | 57.906 ** | 60.541 | 58.147 *** |
| 5 | Sustainability4ASSETS (G) | 75.231 | 13.591 | 75.060 | 75.431 - | 76.279 | 73.588 *** | 74.557 | 76.026 ** | ** 74.673 | 75.707 ** | 74.608 | 75.753 ** | 74.273 | 75.992 ** | 76.083 | 75.442 - | 73.546 | 75.645 *** |
| 2 | Bloomberg (E) | 40.285 | 15.170 | 37.468 | 43.269 *** | 43.907 | 36.653 *** | 43.180 | 37.126 ** | ** 36.202 | 44.619 *** | 38.816 | 42.062 *** | 36.167 | 44.537 ** | * 39.846 | 40.753 - | 34.692 | 43.258 *** |
| | Bloomberg (S) | 50.232 | 13.899 | 48.351 | 52.234 *** | 53.134 | 47.311 *** | 51.953 | 48.365 ** | * 46.895 | 53.798 *** | 50.230 | 50.233 - | 46.807 | 53.794 ** | * 49.911 | 50.577 - | 47.555 | 51.652 *** |
| _ | Bloomberg (G) | 60.628 | 9.445 | 61.193 | 60.028 *** | 58.938 | 62.306 *** | 60.413 | 60.860 - | 61.784 | 59.385 *** | 61.118 | 60.042 *** | 61.871 | 59.331 ** | * 60.920 | 60.315 - | 62.966 | 59.393 *** |

^{***}pvalue<0.010; **pvalue<0.050; *pvalue<0.100

Table 3. Measurement model

| Variable | Indicator | Factor loading (†) | pvalue | AVE | CRC | Goodness-of- fit |
|----------------------------------|-----------------------------------|-----------------------|--------|-------|-------|-------------------------|
| | Socially Resposible Principles | 1.000 | *** | | | |
| | SIGMA | 0.736 | *** | | | |
| | ISO 26000 | 0.879 | *** | | | |
| Recommendation s, principles and | OECD | 0.714 | *** | | | $\chi^2_{[34]}$:29.153 |
| reporting | UN Global Compact | 0.708 | *** | 0.579 | 0.761 | CFI:0.915 |
| frameworks | Global Sullivan Principles | 0.789 | *** | | | RMSEA:0.063 |
| (SP_LTI) | ECCR/ICCR | 0.745 | *** | | | SRMR: 0.032 |
| | Health & safety | 0.492 | *** | | | |
| | Human rights | 0.783 | *** | | | |
| Management | EMAS | 1.000 | *** | | | $\chi^2_{[2]}:11.225$ |
| systems and | ISO9001 | 0.869 | *** | 0.722 | 0.056 | CFI:0.991 |
| certification schemes | ISO 14001 | 0.779 | *** | 0.733 | 0.856 | RMSEA:0.039 |
| (SP_LTI) | GRI standards | 0.775 | *** | | | SRMR: 0.011 |
| | Sustainability4ASSETS (E) | 1.000 | *** | | | |
| | Sustainability4ASSETS (S) | 0.918 | *** | | | $\chi^2_{[6]}$:24.713 |
| Rating indices | Sustainability4ASSETS (G) | 0.775 | *** | 0.604 | 0.027 | CFI:0.995 |
| (SP_OI) | Bloomberg (E) | 0.738 | *** | 0.684 | 0.827 | RMSEA: 0.043 |
| | Bloomberg (S) | 0.780 | *** | | | SRMR:0.024 |
| | Bloomberg (G) | 0.753 | *** | | | |

Condition number for the information matrix: Recommendations, principles and reporting frameworks:0.122E-05; Management systems and certification schemes: 0.429E-09; Rating indices: 0.158E-03. The correlations between factors are lower than 0.30. χ^2 : Chi-square test, CFI: Comparative fit index, RMSEA: Root mean square error of approximation. SRMR: Standarized root mean-square

^{***}pvalue<0.010; **pvalue<0.050; *pvalue<0.100

Table 4. Wald test. Contextual characteristics

| | | SP_L | Т | SP_OI |
|---------------------|-------------|---|---|----------------|
| | | Recommendations, principles and reporting frameworks | Management systems and certification schemes | Rating indices |
| | High | -0.321 | -0.048 | -0.216 |
| Power distance | Low | 0.466 | 0.071 | 0.314 |
| | W-test | *** | *** | *** |
| | High | 0.705 | 0.083 | 0.407 |
| Individualism | Low | -0.893 | -0.104 | -0.515 |
| | W-test | *** | *** | *** |
| | High | 0.551 | 0.056 | 0.191 |
| Masculinity | Low | -0.525 | -0.053 | -0.181 |
| - | W-test | *** | *** | *** |
| | High | -0.719 | -0.116 | -0.472 |
| Uncertainty | Low | 0.756 | 0.123 | 0.495 |
| | W-test | *** | *** | *** |
| ••••••• | High | -0.358 | -0.056 | -0.144 |
| Long term | Low | 0.376 | 0.060 | 0.151 |
| | W-test | *** | *** | *** |
| | High | -0.783 | -0.111 | -0.515 |
| Indulgence | Low | 0.774 | 0.110 | 0.509 |
| | W-test | *** | *** | *** |
| | High | 0.109 | -0.002 | 0.116 |
| Investor protection | Low | 0.180 | 0.015 | 0.077 |
| protection | W-test | - | - | - |
| | Anglo-saxon | -1.458 | -0.192 | -0.644 |
| Legal tradition | Continental | 0.543 | 0.072 | 0.241 |
| trauttion | W-test | *** | *** | *** |

^{***}pvalue<0.010; **pvalue<0.050; *pvalue<0.100

 Table 5. Wald test. Contextual characteristics-size

| | | | SP_LTI | · | SP_OI | | | | SP_LTI | | SP_OI |
|---|---------|-----------|--|--|----------------|----------------------|-------------|-----------|--|--|----------------|
| | | | Recommendations, principles and reporting frameworks | Management systems and certification schemes | Rating indices | | | | Recommendations, principles and reporting frameworks | Management systems and certification schemes | Rating indices |
| | High | Size High | 0.727 | -0.049 | 0.463 | | High | Size High | 0.589 | -0.047 | 0.572 |
| | IIIgii | Size Low | -1.183 | -0.047 | -0.777 | | mgn | Size Low | -1.106 | -0.064 | -0.708 |
| Power distance | Low | Size High | 0.992 | 0.065 | 1.144 | Long term | Low | Size High | 1.072 | 0.043 | 0.921 |
| _ | LOW | Size Low | -0.031 | 0.076 | -0.471 | | Low | Size Low | -0.297 | 0.076 | -0.597 |
| × | W-test | | *** | *** | *** | | W-test | | *** | *** | *** |
| 200000000000000000000000000000000000000 | II: ab | Size High | 1.411 | 0.055 | 1.135 | | II: ~L | Size High | 0.119 | -0.117 | 0.094 |
| | High | Size Low | -0.108 | 0.115 | -0.433 | | High | Size Low | -0.143 | -0.107 | -0.951 |
| Individualism | τ. | Size High | -0.187 | -0.101 | 0.067 | Indulgence | Low | Size High | 1.414 | 0.092 | 1.281 |
| | Low | Size Low | -1.321 | -0.106 | -0.868 | | | Size Low | 0.096 | 0.130 | -0.307 |
| v | W-test | | *** | *** | *** | | W-test | | *** | *** | *** |
| *************************************** | II: ala | Size High | 1.089 | 0.027 | 0.729 | | II: ~L | Size High | 0.965 | 0.001 | -0.621 |
| | High | Size Low | 0.005 | 0.085 | -0.356 | | High | Size Low | -0.595 | -0.005 | 0.831 |
| Masculinity | Low | Size High | 0.559 | -0.032 | 0.778 | Investor protection | Low | Size High | 0.906 | 0.011 | -0.533 |
| | LOW | Size Low | -1.342 | -0.068 | -0.905 | protection | Low | Size Low | -0.492 | 0.018 | 0.906 |
| · | W-test | | *** | *** | *** | | W-test | | *** | - | *** |
| | II: ~b | Size High | 0.242 | -0.117 | 0.127 | | A 1 | Size High | -0.547 | -0.184 | 0.084 |
| | High | Size Low | -1.464 | -0.116 | -0.935 | | Anglo-saxon | Size Low | -1.916 | -0.196 | -1.011 |
| Uncertainty | Low | Size High | 1.388 | 0.106 | 1.329 | Legal tradition | Continental | Size High | 1.174 | 0.043 | 0.915 |
| | Low | Size Low | 0.131 | 0.139 | -0.329 | tradition Continenta | Continental | Size Low | -0.125 | 0.102 | -0.475 |
| × | W-test | | *** | *** | *** | | W-test | | *** | * * * | *** |

^{***}pvalue<0.010; **pvalue<0.050; *pvalue<0.100

Table 6. Wald test. Contextual characteristics-activity

| | | | | | | | | | | | Power d | istance | <u> </u> | | | | | | | | | |
|---|-------|-------|--------|--------|--------|--------|--------|-------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|-------|--------|--------|--------|
| | | | | | Hi | gh | | | | | | | | | | | Low | | | | | |
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test |
| Recommendations, principles and reporting frameworks (SP_LTI) | 0.919 | 0.622 | 0.270 | -0.660 | -0.485 | -0.958 | 0.591 | 0.589 | -0.769 | 2.283 | *** | 0.580 | 0.751 | 1.059 | 0.243 | 1.909 | -0.901 | -1.766 | 0.762 | 0.931 | -0.444 | *** |
| Management systems and certification schemes (SP_LTI) | 0.176 | 0.143 | 0.132 | -0.112 | -0.108 | -0.246 | -0.002 | 0.270 | 0.058 | 0.201 | *** | 0.141 | 0.229 | 0.145 | -0.082 | 0.199 | -0.346 | 0.008 | 0.108 | -0.076 | 0.233 | *** |
| Rating indices (SP_OI) | 1.779 | 0.850 | -0.656 | -0.460 | -0.517 | -0.171 | 1.099 | 0.575 | -0.818 | 1.563 | *** | 0.878 | 0.748 | -0.084 | -0.393 | 0.882 | -0.539 | -1.925 | 1.790 | -0.235 | -0.005 | *** |
| | | | | | | | | | | | Individu | ıalism | | | | | | | | | | |
| | | | | | Hi | gh | | | | | | | | | | | Low | | | | | |
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test |
| Recommendations, principles and reporting frameworks (SP_LTI) | 0.408 | 0.258 | -0.095 | -0.866 | -0.164 | -1.312 | -0.318 | 0.301 | 0.132 | 2.031 | *** | 1.709 | 1.084 | 1.344 | 0.463 | 0.462 | -0.157 | -0.934 | 1.005 | -0.970 | 1.971 | *** |
| Management systems and certification schemes (SP_LTI) | 0.149 | 0.126 | 0.085 | -0.156 | -0.103 | -0.313 | -0.009 | 0.270 | 0.058 | 0.237 | *** | 0.210 | 0.225 | 0.211 | 0.053 | 0.178 | -0.149 | 0.019 | 0.205 | -0.009 | 0.181 | *** |
| Rating indices (SP_OI) | 1.887 | 0.718 | -0.938 | -0.614 | -0.412 | -0.486 | 0.653 | 0.098 | 0.190 | 1.202 | *** | 1.126 | 0.904 | 0.148 | 0.105 | 0.409 | 0.332 | -1.784 | 1.633 | -1.703 | 1.541 | *** |
| | | | | | | | | | | | Mascu | linity | | | | | | | | | | |
| | | | | | Hi | gh | | | | | | | | | | | Low | | | | | |
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test |
| Recommendations, principles and reporting frameworks (SP_LTI) | 1.375 | 0.059 | -0.164 | -1.455 | -0.347 | -1.185 | -0.872 | 0.275 | -0.194 | 1.390 | *** | 0.586 | 1.283 | 1.083 | 0.615 | 0.470 | -0.669 | -0.113 | 0.750 | -0.490 | 2.437 | *** |
| Management systems and certification schemes (SP_LTI) | 0.161 | 0.088 | 0.088 | -0.184 | -0.004 | -0.284 | -0.070 | 0.253 | 0.109 | 0.166 | *** | 0.175 | 0.264 | 0.180 | -0.009 | -0.137 | -0.235 | 0.124 | 0.236 | -0.023 | 0.233 | *** |
| Rating indices (SP_OI) | 3.087 | 1.045 | -0.984 | -0.933 | -0.259 | -0.005 | -0.917 | 0.125 | 0.529 | 0.319 | *** | 0.841 | 0.577 | -0.054 | 0.187 | -0.268 | -0.495 | 0.426 | 1.047 | -1.441 | 2.183 | *** |
| | | | | | | | | | | | Uncert | ainty | | | | | | | | | | |
| | | | | | Hi | gh | | | | | | | | | | | Low | | | | | |
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test |
| Recommendations, principles and reporting frameworks (SP_LTI) | 1.284 | 0.882 | 1.154 | 0.494 | 0.038 | -0.455 | -0.664 | 0.695 | -0.483 | 2.221 | *** | 0.309 | 0.285 | -0.462 | -1.983 | -0.091 | -1.443 | -0.489 | 0.490 | -0.206 | 0.799 | *** |
| Management systems and certification schemes (SP_LTI) | 0.222 | 0.214 | 0.234 | 0.044 | 0.073 | -0.138 | 0.010 | 0.218 | 0.060 | 0.243 | *** | 0.103 | 0.106 | -0.002 | -0.313 | -0.110 | -0.385 | -0.006 | 0.279 | -0.024 | 0.000 | *** |
| Rating indices (SP_OI) | 1.970 | 0.487 | 0.053 | 0.050 | 0.320 | 0.383 | -0.956 | 0.991 | -1.091 | 1.696 | *** | 1.170 | 1.405 | -1.283 | -1.123 | -0.534 | -0.841 | 0.285 | 0.454 | -0.031 | -0.189 | *** |

 Table 6. Wald test. Contextual characteristics-activity (cont.)

| | | | | | | | | | | Lon | g-term o | rienta | tion | | | | | | | | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|---------|-------|--------|--------|--------|--------|--------|--------|--------|-------|--------|
| | | | | | Hi | gh | | | | | | | | | | | Low | | | | | |
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test |
| Recommendations, principles and reporting frameworks (SP_LTI) | 0.650 | 0.885 | 1.206 | 0.642 | -0.132 | -0.744 | -0.534 | 0.565 | 0.482 | 2.621 | *** | 0.996 | 0.326 | -0.468 | -2.478 | 0.006 | -1.179 | -0.704 | 0.718 | -1.378 | 1.542 | *** |
| Management systems and certification schemes (SP_LTI) | 0.194 | 0.193 | 0.187 | 0.012 | -0.114 | -0.205 | 0.032 | 0.302 | 0.050 | 0.312 | *** | 0.155 | 0.148 | 0.067 | -0.300 | -0.009 | -0.326 | -0.060 | 0.131 | 0.002 | 0.127 | *** |
| Rating indices (SP_OI) | 1.600 | 0.437 | -0.204 | 0.296 | 0.004 | -0.256 | -0.792 | 1.015 | -0.054 | 0.916 | *** | 1.636 | 1.414 | -0.895 | -1.636 | -0.447 | -0.199 | 0.419 | 0.411 | -1.417 | 1.748 | *** |
| | | | | | | | | | | | Indulg | ence | | | | | | | | | | |
| | | | | | Hi | gh | | | | | | | | | | | Low | | | | | |
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test |
| Recommendations, principles and reporting frameworks (SP_LTI) | 0.018 | 0.209 | -0.110 | -1.847 | 0.211 | -1.732 | -1.139 | 0.678 | -0.166 | 0.301 | *** | 1.402 | 1.332 | 1.253 | 0.564 | -1.704 | 0.095 | 1.067 | 0.573 | -0.557 | 2.601 | *** |
| Management systems and certification schemes (SP_LTI) | 0.147 | 0.136 | 0.035 | -0.252 | -0.049 | -0.362 | -0.058 | 0.213 | -0.025 | 0.093 | *** | 0.185 | 0.232 | 0.267 | 0.018 | -0.068 | -0.128 | 0.186 | 0.263 | 0.072 | 0.245 | *** |
| Rating indices (SP_OI) | 1.214 | 0.853 | -0.869 | -1.179 | -0.320 | -0.963 | -0.909 | 0.804 | -0.234 | -0.115 | *** | 1.884 | 0.750 | -0.026 | 0.190 | 0.105 | 0.750 | 1.073 | 0.789 | -1.069 | 1.938 | *** |
| | | | | | | | | | | In | vestor p | rotecti | on | | | | | | | | | |
| | | | | | Hi | gh | | | | | | | | | | | Low | | | | | |
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test |
| Recommendations, principles and reporting frameworks (SP_LTI) | 1.259 | 1.432 | 0.389 | -0.822 | 0.495 | -0.836 | -1.036 | 1.117 | 0.200 | 2.025 | *** | 0.860 | 0.051 | 0.900 | 0.197 | -0.211 | -0.834 | 0.561 | -0.212 | -1.227 | 2.112 | *** |
| Management systems and certification schemes (SP_LTI) | 0.173 | 0.205 | 0.132 | -0.131 | -0.082 | -0.263 | -0.084 | 0.265 | 0.019 | 0.234 | *** | 0.181 | 0.157 | 0.161 | -0.074 | -0.019 | -0.254 | 0.136 | 0.194 | 0.028 | 0.186 | *** |
| Rating indices (SP_OI) | 1.875 | 1.706 | -0.266 | -0.604 | -0.805 | 0.271 | -1.467 | 0.952 | -0.645 | 0.149 | *** | 1.708 | 0.251 | -0.585 | -0.099 | 0.097 | -0.720 | 1.010 | 0.667 | -0.670 | 2.484 | *** |
| | | | | | | | | | | | Legal tr | adition | ı | | | | | | | | | |
| | | | | | Anglo | -saxon | | | | | | | | | | C | ontine | ntal | | | | |
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | W-test |
| Recommendations, principles and reporting frameworks (SP_LTI) | -0.619 | -0.821 | -1.705 | -2.666 | -0.318 | -1.878 | -0.728 | -0.664 | -1.090 | 0.799 | *** | 1.172 | 0.991 | 1.085 | 0.547 | 0.218 | -0.523 | -0.555 | 0.749 | -0.247 | 2.221 | *** |
| Management systems and certification schemes (SP_LTI) | 0.011 | -0.073 | -0.070 | -0.345 | -0.045 | -0.393 | -0.276 | 0.130 | 0.076 | 0.000 | *** | 0.204 | 0.229 | 0.192 | 0.017 | -0.059 | -0.202 | 0.067 | 0.251 | 0.019 | 0.243 | *** |
| Rating indices (SP_OI) | 2.387 | 1.674 | -1.995 | -1.576 | -0.503 | -0.395 | 1.106 | -3.073 | 0.744 | -0.189 | *** | 1.461 | 0.626 | -0.091 | 0.144 | -0.021 | -0.153 | -0.764 | 1.182 | -0.943 | 1.696 | *** |

Activities: Energy (50), Basic Materials (51), Industrials (52), Consumer Cyclicals (53), Consumer Non-Cyclicals (54), Financials (55), Healthcare (56), Technology (57), Telecommunication Services (58), Utilities (59).

^{***}pvalue<0.010; **pvalue<0.050; *pvalue<0.100

 Table 7. Regression. Interaction SP_OI and SP_LTI

| | | SP | _OI | |
|--|----------------|----------------|----------------|----------------|
| | Rating indices | Rating indices | Rating indices | Rating indices |
| Recommendations, | 0.777*** | | 0.778*** | |
| principles and reporting frameworks (SP LTI) | (0.097) | | (0.138) | |
| Management systems | | 4.080*** | | 4.060*** |
| and certification schemes (SP_LTI) | | (1.298) | | (1.303) |
| Power distance | -0.256*** | -1.933*** | -0.257*** | -1.922** |
| | (0.074) | (0.756) | (0.085) | (0.759) |
| ndividualism | 0.155** | -0.255 | 0.154* | -0.273 |
| | (0.056) | (0.733) | (0.089) | (0.732) |
| Masculinity | 0.142* | 0.377 | 0.139* | 0.365 |
| | (0.071) | (0.773) | (0.088) | (0.776) |
| Incertainty | -0.222*** | -0.659 | -0.223*** | 0.624 |
| | (0.051) | (0.733) | (0.087) | (0.731) |
| Long term | -0.159* | -1.897*** | -0.161* | -1.881*** |
| | (0.087) | (0.722) | (0.089) | (0.727) |
| ndulgence | -0.174*** | -0.628 | -0.176** | -0.600 |
| | (0.047) | (0.733) | (0.088) | (0.732) |
| nvestor protection | -0.124*** | -0.467 | -0.122*** | -0.452 |
| | (0.051) | (0.359) | (0.048) | (0.359) |
| Legal tradition | 0.001*** | 0.000 | 0.001*** | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| | -0.048*** | -0.056*** | 0.577 | -0.642 |
| ntercept | (0.014) | (0.021) | (0.426) | (0.461) |
| Activity | Yes | Yes | No | No |
| Size | No | No | Yes | Yes |
| \mathbb{R}^2 | 0.146 | 0.023 | 0.165 | 0.046 |
| F Test (p-value) | *** | *** | *** | *** |

^{***}pvalue<0.010; **pvalue<0.050; *pvalue<0.100

Annex I. Main variables

| Variable | Indicator | Definition | | | | | | | | | | |
|---|---------------------------------|---|--|--|--|--|--|--|--|--|--|--|
| | Socially responsible principles | Set of investment principles that offer a menu of possible actions for incorporating ESG issues into investment practice | | | | | | | | | | |
| | SIGMA | Guide to support the development of organization principles and to understand what their organization might look like if it were sustainable | | | | | | | | | | |
| D. Let | ISO 26000 | Guidance to all types of organizations, regardless of their size or location, on social responsibility | | | | | | | | | | |
| Recommendation, practices and | OECD | Set of recommendations for multinational enterprises to ensure that these enterprises are in harmony with government policies and contribute to a sustainable development | | | | | | | | | | |
| reporting | UN Global Compact | Commitment to the Ten Principles of the UN Global Compact and to advance the Sustainable Development Goals | | | | | | | | | | |
| frameworks | Global Sullivan Principles | Set of principles to express a commitment towards corporate social responsibility and sustainability in a company | | | | | | | | | | |
| (SP_LTI) | ECCR/ICCR | Principles towards sustainability promoted by the Ecumenical Council for Corporate Responsibility (ECCR) and the Interfaith Council for Corporate Responsibility (ICCR) | | | | | | | | | | |
| | Health and safety | Commitment towards accupational safety and healtd according to ILO-OSH convention (1981) | | | | | | | | | | |
| | Human rights | Set of recommendation about the respect of the human rights of others and the address adverse human rights impacts | | | | | | | | | | |
| Management | EMAS | Eco-Management and Audit Scheme is a management instrument to evaluate, report, and improve environmental performance | | | | | | | | | | |
| systems and | ISO9001 | Certification scheme related to total quality management | | | | | | | | | | |
| certification schemes | ISO 14001 | Certification scheme related to environmental management | | | | | | | | | | |
| (SP_LTI) | GRI standards | to report about economic, environmental and social impacts. This report can be verified. | | | | | | | | | | |
| 200000000000000000000000000000000000000 | Sustainability4ASSETS(E) | Company's impact on natural systems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities | | | | | | | | | | |
| | Sustainability4ASSETS (S) | Company's capacity to generate trust and loyalty with its workforce, costumers and society | | | | | | | | | | |
| Rating indices | Sustainability4ASSETS (G) | Company's systems and processes, which ensure that its board members and executives act in the best interests of its long tem shareholders | | | | | | | | | | |
| (SP_OI) | Bloomberg (E) | Company's environmental performance based on SAM's corporate sustainability asssessment | | | | | | | | | | |
| | Bloomberg (S) | Company's social performance based on SAM's corporate sustainability asssessment | | | | | | | | | | |
| | Bloomberg (G) | Company'sgovernance systems based on SAM's corporate sustainability asssessment | | | | | | | | | | |
| | Power distance | Degree to which the less powerful members of a society accept and expect that power to be distributed unequally | | | | | | | | | | |
| | Individualism | Preference for a loose-knit social framework, in which individuals are expected to take care only of themselves and their immediate families | | | | | | | | | | |
| | Masculinity | Preference in society for achievement, heroism, assertiveness, and material rewards for success | | | | | | | | | | |
| Cultural and legal | Uncertainty Avoidance | Degree to which the members of a society feel uncomfortable with uncertainty and ambiguity | | | | | | | | | | |
| factors | Long-Term Orientation | Links with one's own past while dealing with the challenges of the present and the future | | | | | | | | | | |
| | Indulgence | Stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun | | | | | | | | | | |
| | Legal system | Difference between Anglo-saxon (common law) context and continental (civil law) context | | | | | | | | | | |
| | Investment protection | Level of minority investment protection according to TCData360 (World Bank Group) | | | | | | | | | | |